

Rock Garden Design: Stratified or Chaotic?

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It is a singular moment when a hiker emerges from a cool dark forest into a sunlit alpine meadow. Suddenly the landscape expands into a splendid park and elaborate rock garden. The perfect detailing provides inspiration and ideas for the landscape gardener: tumbling streams, reflecting pools, rock terraces, acres of groundcover, and not a weed in sight. The occasional dwarf conifer, streamside shrubs, and borrowed landscape of mountain peaks complete the picture.

Our gardens are a curious blend of artifice and nature. We juxtapose plants from all over the world but instinctively strive for the illusion of a natural landscape. As we move plants, build rock walls and construct paths, each decision we make is fundamentally based on whether it “looks natural.” Striving to reflect nature in garden design is a well-established principle harking back to the Victorian era, when imitation was taken very literally in the creation of rockwork grottoes and miniature alpine landscapes.

Current thinking on rock garden design is that the best way to achieve a natural appearance is to construct the garden to make it look like a rock outcrop with stratified layers. This article challenges this conventional wisdom, comments on the natural habitat of alpine plants, and proposes new terminology for some rock garden design concepts.

The stratified rock design principle has been well established for over a hundred years and



Penstemon ellipticus on a talus slope in the Canadian Rockies

continues to be reinforced particularly in the UK – for example, in *The Rock Garden and Its Plants* (1989) by Graham Stuart Thomas. Rock garden design in North America is more varied, perhaps because of the challenge of obtaining sedimentary rocks in some parts of the continent. In the NARGS book *Rock Garden Design and Construction* (McGary, 2003), chapter author Loren Russell recognizes that it is simply not practical to obtain suitable limestone or sandstone slabs in areas such as the Pacific Northwest. However, creating natural-looking outcrops with stratified rocks is still emphasized in most rock garden design texts, such as *Creating and Planting Alpine Gardens* by Rex Murfitt (2005).

A review of the history of rock garden development provides insight into the preference for sedimentary rock for construction. The origins of the stratified rock design principle date back to the Victorian era, when James Pulham and Sons invented Pulhamite, a synthetic rock formed with cement.

James Pulham created “Picturesque” designs incorporating large-scale landscape features with cliffs of Pulhamite and natural stone. The plants were a secondary consideration, mere decoration.

Nevertheless, Pulham's influence continued into the twentieth century, when Reginald Farrer introduced more emphasis on alpine plants in the rock garden. Farrer loved stratified rocks and was particularly scathing about alternative styles. In *The Rock Garden* (1912) he commented, "Stone in nature is never disconnected; each block is always, as it were, a word in the sentence. A dump of disconnected rocks, with discordant forms and angles, is mere gibberish." Farrer also disparaged any appearance of chaos in the natural environment: "Nature in the mountains is often chaotic, bald, dreary, and hideous in the highest degree" (1925).



**A natural talus rock garden
below Chowder Ridge, Mt.
Baker**

The culmination of the stratified design principle was the book *Natural Rock Gardening* by Captain B. H. B. Symons-Jeune, who, with a name like that, was obviously to be taken seriously. Symons-Jeune (1932) developed what he called the rules of geology to provide a prescription for the construction of a stratified rock garden. These rules of geology are thoroughly discussed and illustrated by Thomas (1989). A stratified rock garden certainly can appear attractive, but does it actually reflect the primary natural habitat of alpine plants, or is it simply a legacy from the Picturesque tradition? Alpine plants in the mountains rarely grow among massive blocks of sedimentary rocks; they are much more common in scree slopes, talus, moraine deposits and shattered rock outcrops. These erosion and deposition features provide a great diversity of plant habitat with a mixture of soil, stones, and rock particles that alpine plants particularly enjoy.

Many famous alpine plant sites are not even located in sedimentary rock areas. The ridge of the Bindelweg in the Dolomites is an igneous intrusion, and the only stratified rock in sight is across the valley on the Sella Group. The Olympic Mountains in Washington state are volcanic and support a diverse and unique flora. Even where the underlying rock is limestone, as on Chowder Ridge of Mount Baker, Washington state, the extensive erosion of the ridge has obliterated any appearance of stratification. Carboniferous limestone, the classic sedimentary rock for alpinists, depends on erosion of the limestone that creates niches for the plants. However, the most abundant plants in sedimentary rock areas grow on the lower talus slopes or other recent depositional features.

Although the jumble of rocks of all sizes in talus slopes and moraine deposits appears chaotic close up, at a larger scale there is considerable beauty of form. The photograph to the left was taken on the Eiffel Lake Trail in the Canadian Rockies and shows the broad linear sweep of a talus slope covered in *Penstemon ellipticus*, leading the eye up into a blue haze at the base of the cliffs. Stand back from a glacial moraine and you can see the elegant shape of the landform deposited in graceful curves down the valley. Even an eroded rock outcrop has an overall shape that can be appreciated.

Given that alpine plants are most abundant in erosion and deposition landforms, a natural rock garden should resemble talus slopes and moraine deposits rather than rock cliffs. The fact that these landforms in the mountains appear chaotic at a small scale and have shape at a larger scale provides ideas on how to design for chaos.

A **talus garden** is suggested as an appropriate term for a rock garden formed with randomly placed rocks on a slope. Talus in the mountains is the accumulation of rock debris at the base of a cliff or steep mountain slope and includes a variety of rock sizes, from large boulders to small stones and gravelly soil. A scree slope is talus that is primarily small, loose stones.

A **moraine garden** would have a similar range of rock sizes to a talus garden and would be a raised bed with the overall form of a glacial moraine. The name “moraine garden” has been used to mean a specialized rock garden feature with a subsurface water supply (McGary, 2003). Nevertheless I think the term “moraine garden” would be more appropriate for a raised bed in the shape of a glacial moraine than the commonly used term “berm.” A berm is an artificial structure to block a view or retain water, whereas a moraine is a geological landform common in the mountains.

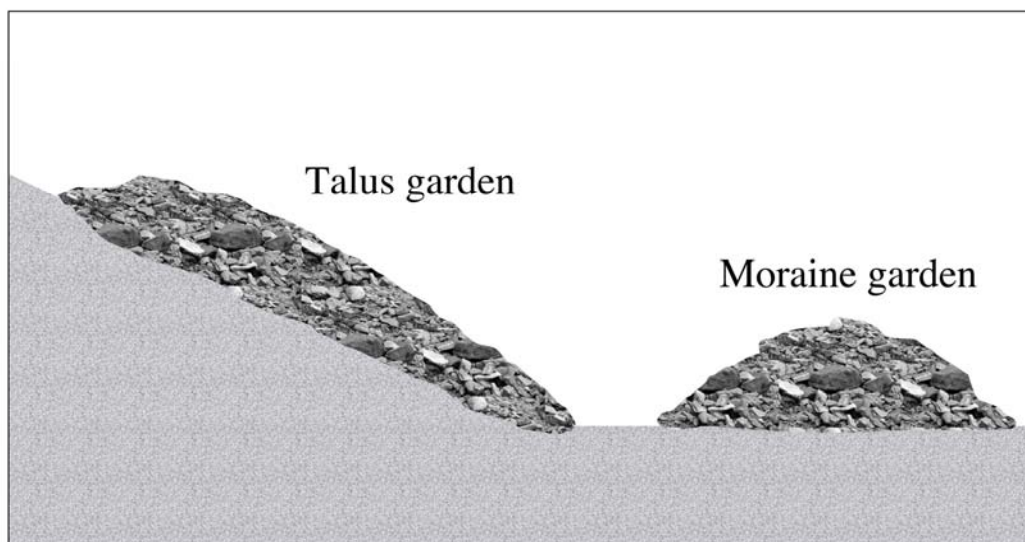


Figure 1: Cross-Section of a Talus Garden and Moraine Garden

Because erosion and deposition processes follow the laws of physics, the rules of geology can also be applied to a talus or moraine garden. In building a lateral moraine, the crest of the moraine should be rounded and the crest axis should be sloped to reflect the appearance of natural moraines. The moraine edge should be curved because glaciers rarely follow straight lines. A talus garden should have the larger rocks at the foot of the slope, which is convenient because it is easier to build this way.

A scree slope can also be incorporated as part of the talus garden. However, the surfaces of talus and moraine deposits are varied with dips, hollows, pools, and small cliffs, leaving plenty of

latitude for creativity. Talus deposits resulting from rock avalanches are often very hummocky. Figure 1 is a sketch of a talus garden on a slope adjacent to a moraine garden, with a path in between.

A good example of a moraine garden is illustrated in the photo on page 72 of *Rock Garden Design and Construction*. This garden was constructed by Gwen Kelaidis, who calls it a “berm garden” in the chapter she contributed to *Rock Garden Design and Construction*.

The two raised beds look like lateral moraines curving in tandem with the glacier retreating in the center leaving a grassy meadow. Gwen Kelaidis clearly understood the need to create a chaotic look, for she writes, “Nature can be quite careless piling rocks helter-skelter,” and she emphasizes that rocks should not be spaced evenly.

A talus garden built on a slope with hummocks and paths is illustrated below. Talus material tends to be more blocky than moraine rocks, which are often rounded because there has been more erosive action before their deposition. If you have boulders that are too rounded to appear natural in a talus slope, you can split them as described in my earlier article (Sellars, 2005). Crevices for planting with deep root runs can be created between the flat surfaces of adjacent rocks.



Talus and moraine gardens can be built with rocks of almost any shape, size and origin. Using local rocks for garden construction can be very satisfying and aesthetically pleasing as it is in keeping with the geology of the area in which you live.

It may be surprising, but the hardest part of building a talus or moraine garden is making the rocks look chaotic. Thomas reproduces illustrations of rock gardens that were scorned by Farrer, who gave them such labels as the Plum-bun System and the

Almond-pudding System. The reason these berms look unsightly is that they are not truly chaotic. The rocks are of uniform size and are distributed evenly over the berm. A real moraine has rocks of different sizes, which can range from huge boulders to scree-size stones, and their distribution is random. Sometimes a large rock or outcrop creates a cliff feature within the talus or moraine slope. Pools lined with boulders may occur in depressions in the moraine. Creating a rock garden that looks chaotic is actually quite difficult, because gardeners tend to be orderly and instinctively space rocks evenly or construct retaining walls in parallel lines. When gardening on a slope, it may be necessary to construct terraces to retain the soil, but the terraces should be discontinuous. During construction of a talus or moraine garden, you have to stay very focused to achieve a chaotic appearance.

Steps and paths in a talus or moraine garden are an important design consideration. The steps provide access for planting and maintenance and can enhance the overall appearance of the garden by drawing the eye along an interesting feature. They also allow the rock garden to be appreciated from different viewpoints. Paths constructed along and over a moraine using flat rocks, so they appear like a mountain trail, can look just as natural as paths in a stratified rock garden.

The principle of the natural look and following the rules of geology is well established in rock garden design and is likely to continue to be the guiding principle for the foreseeable future. The use of sedimentary rocks to resemble a rock outcrop is the standard method of rock garden construction, but I have tried to show that a natural rock garden can also resemble a talus slope or moraine, which are the primary natural habitats of alpine plants. The rules of geology should still be followed, because geological processes created the chaos of talus and moraine and these landforms have shape at a larger scale.

Some will think that I am making a virtue of necessity because, in our own garden, we are blessed with naturally occurring glacial boulders. I accept the charge, but necessity can sometimes lead to a path that provides a different viewpoint on rock garden design. It is time to get out from under the shadow of Reginald Farrer and lose our fears of creating what his followers called a “dogs’ graveyard.” The chaotic aspect of nature still has elegance of form; you just have to stand back and look for it.

References

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