

Creating Natural-Looking Waterfalls

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Calming and rejuvenating, there is nothing like the sight and sound of falling water from a mountain stream re-created in our garden. Creating natural-looking waterfalls, however, is surprisingly difficult. Common mistakes in designing waterfalls can be categorized into three types with variations in between: the rock pile; the geyser/volcano; and the staircase. A word of caution, however, before you start critiquing every waterfall you see in people's gardens; not everyone wants a natural-looking waterfall, and some people may have purposely created an unnatural waterfall as art. Others (myself included) are still on their way to creating that perfect water feature in that next, never ending, remodel of their pond.

The rock pile looks like someone just backed the truck up and dumped a load of rocks (Figure 1). The pile is made up of fairly uniform smaller rocks. Even if the rocks are arranged around a watercourse rather than in a pile, the overall look is still unnatural because nature rarely shows such evenness in rocks that make up waterfalls or streams.

The geyser or volcano is a variant of the rock pile that may involve different sizes of rocks but it also has the appearance of a man-made pile of rocks (Figure 2). The name of this type of waterfall describes the sudden and unexplained appearance of water emerging from the top. Except for liquid under hydrothermal pressure (e.g., geysers or volcanos), the

emergence of water or liquid from the very top of a mountain, is a rare occurrence in nature.

The staircase is composed of a series of even shelves or steps that are similar in height and width, although they could also be of progressively narrow width as the steps go upward (Figure 3). Nature is typically not that orderly and thus this type of waterfall although often pleasant appears manmade and more typical of a civic center than the mountains.

Creating a natural-looking waterfall is more than random size and placement of rocks. If this were true, natural-looking waterfalls would be extremely easy—just throw a bunch of rocks together. However, a natural looking waterfall or garden must be carefully contrived to be functional and look natural as well as aesthetic. Not all of nature's waterfalls are beautiful. If you have the opportunity, go hiking in the mountains and observe waterfalls in nature. A natural-looking waterfall should appear to be unlimited in time and space—one is observing the water falling in one point in its timeless history and at one point in its endless journey from the mountains to the ocean. The trick is to build a waterfall that does not limit your visual imagination.

Use large rocks of different sizes to establish the foundation and character of the waterfall. Unless you are building a waterfall for a miniature garden, use the largest rocks you can get into your garden. The flanking stones of an upright waterfall should be particularly massive (Figure 5). Larger rocks in the foreground also give the illusion of greater distance (Figure 4, 5). The spillway stone should also be substantial. Do not take

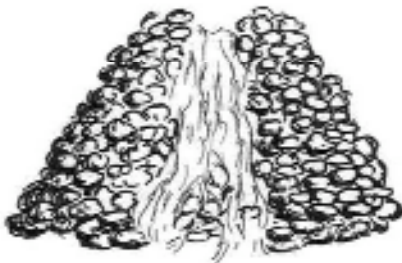


Figure 1 – Rock Pile



Figure 2 – Geyser

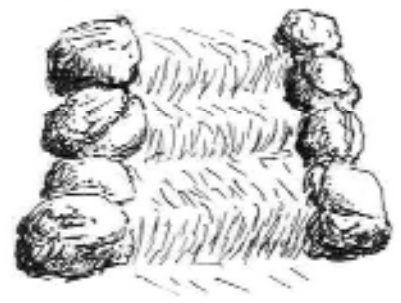


Figure 3 – Staircase

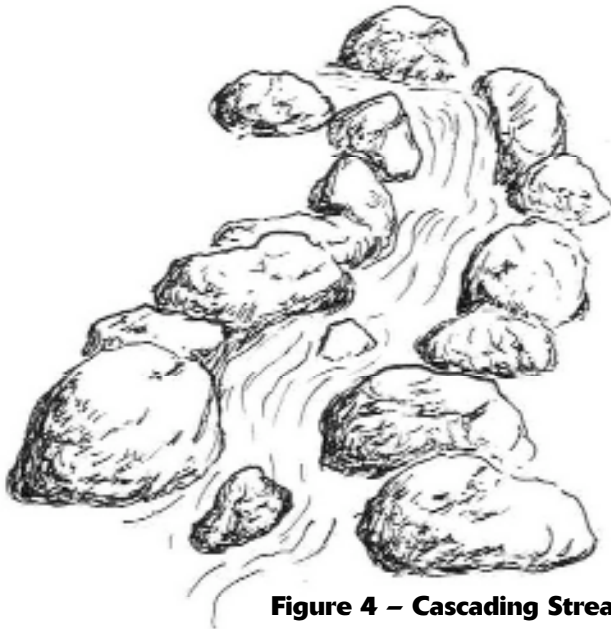


Figure 4 – Cascading Stream



Figure 5 – Mountain Falls

the easy way out and use a thin sheet of stone. Such stones look unnatural because water would quickly (in geologic time) wear them away. Smaller smooth rocks can be used in and around the base of larger rocks and in the streambed where the forces of the water have tumbled them downstream. Even among these smaller rocks, be sure to also include some larger sizes. Although the streambed is obscured by water, waterfalls should also look natural even when the water is not flowing.

The waterfall should convey an illusion that the water comes from somewhere even though you can't see it. Water emerging out of a top of a pile of rocks squashes this illusion. The illusion of mountains or a cascading stream can be created by making water flow out from among stones (Figures 4, 5). Having the water enter the scene at an angle from the viewer is also effective. Trees or shrubs around the rocks can also be effectively used to create a background that allows the imagination to go beyond what can be immediately seen. To help create depth perspective, choose plants for the background with relatively fine foliage and muted colors (to keep your pond clean, also select those that do not constantly drop debris).

If you have multiple falls, vary the height, width, and direction that the individual falls face. Varying the direction of the water flow and placement of rocks also gives the waterfall a sense of mystery so that you have to look at it from several different directions to really see it all. Once you have installed the foundation and waterproof liner for the waterfall, but before cementing in the other stones, adjust stones to “tune” the waterfall to the desired pitch and chorus of different water sounds.

In building a waterfall, engineering, plumbing, and practical considerations beyond the scope of this article require addition attention. For example, you will need to consider the amount of waterflow (i.e., pump size, construction of header pools before the falls) to get the volume of water desired for the falls. A continuous waterproof layer underneath the entire waterfall is essential to prevent leakage. Lastly, the water feature should be easy to maintain and keep clean for the health of your pond and fish. It should not become a big sediment trap that is difficult to clean. You may also want to consider developing a means to drain the water in the waterfall pools when the waterfall is bypassed (e.g., in winter) so that water does not become stagnant.

On second thought, I think I will just take a hike. ❖

