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## Cleaning Gravestones, Monuments & Stone Sculptures

Submitted by Jonathan Appell on Sat, 2010-11-27 17:29



One of the most commonly asked questions is, how do I clean this stone? Although the cleaning of a gravestone may seem quite simple, this is not always the case. Every time a historic stone is cleaned, some of the stones surface is removed in the process. Clean it too often, and all the inscription and details may be washed away!

Before any cleaning may begin, it must be determined what the objective of the proposed cleaning project is. Most people's first desire is to "restore" the stone, or to make it look new again. But, upon further consideration it may not be desirable to have a new looking stone in an old graveyard. It is likely to stand out like a sore thumb!

So what is the driving force behind the desire to clean gravestones?

One reason is to read an otherwise obscured inscription. Another reason may be to bring back the beauty of an otherwise discolored stone or statue. If it looks old, it's your gut feeling it should be cleaned.

Let us now think in terms of what is best, to promote the life span of the gravestone, to help preserve it.

1. **Is the stone cleanable?**

If the stone shows signs of chipping, scaling, flaking or other forms of deterioration, do not clean. You will do more harm than good.

2. Next, determine **what kind of stone is it?**

The type of stone can determine what technique should be used to clean it. Most common gravestones are likely to be sandstone, slate, marble, limestone, or granite.

3. Regardless of what kind of stone you are cleaning, the first rule is **always to be as gentle as possible**. Use the least aggressive approach, to accomplish the cleaning objectives desired; safely without harming the stone. It may not be possible to clean the stone as thoroughly as you had hoped before beginning the project.

Be flexible and relax your preconceived notions regarding what the stone will look like once the cleaning operation has been completed.

4. **Always begin with clean water, a soft scrub brush, and plastic scrapers.**

Completely saturate the stone to be cleaned with water.

A pump sprayer works best for most gravestone cleaning operations. Home centers sell various types with prices starting as low as \$ 10. A sprayer will use much less water than the old bucket and brush method.

Additionally the bucket method always returns the polluted water, still on the brush back into the clean water thus contaminating it.



5. There are many different types of brushes which work well for cleaning cemetery memorials. It is best to **always have a wide range of brushes on hand**, including multiple sizes, with various stiffness, of the bristles. Always begin the cleaning process with the softest brush to see if it will get the job done. Progress to stiffer bristles only if needed. Although mentioned previously, I will repeat, do not use wire or metal brushes of any kind, as they may scratch damage or stain the stone.



**Suggestions regarding brush selection:** Some conservators advise against using natural bristle brushes, as they may leave behind residue which might increase future biological growth. In a purest sense this may be true, and when conserving artifacts in a museum setting, this may be good advice. Gravestones in an outdoor environment do not seem to be effected by this extremely minor, possible residual effect, which natural bristles pose. On the other hand, natural bristle brushes are often softer and more effective for many types of stone

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**Car wash type brushes** work well for the softer end of the spectrum. Do not use old contaminated brushes from previous non gravestone cleaning projects. Typical scrub brushes are more aggressive and vary in size and exact stiffness of the bristles. Grout cleaning brushes are very effective for getting into tight spaces, such as cleaning in and around the inscriptions and carvings.

Always remember to **rinse often** as the cleaning progresses to monitor for flaking or scaling to the stone.

I love to use **plastic scrapers** when ever possible to remove biological activity. Certain types of growth can be removed quickly and effectively with only the use of plastic. They are available from home centers and hardware stores at a very reasonable price.

Buy the package with a few assorted sizes. Not all plastic scrapers are formed from the same quality and hardness of plastic. In many respects the softer the plastic the better.

Instead of damaging the stone, the plastic wears away fairly quickly.

6. **Always scrub in a random orbit motion, to avoid streaking or erosion to the surface of the stone.** Many conservators make an issue to recommend starting the cleaning operation at the bottom of the stone, working towards the top. This serves to avoid staining the stone from runoff as the cleaning advances upward. I have found that with an average sized gravestone or monument, it makes little difference where you start cleaning, provided you clean the entire

side once you begin. But, most importantly be sure to completely rinse off the stone before it dries.

Streaking and staining, may result if the dirty water is allowed to evaporate before being rinsed from the stone.

Fred Oakley, one of the founding members of AGS, and their preservation specialist, asked me if I knew why the back of a gravestone should always be cleaned first.

He followed up with, if you don't clean it first, you may not clean it at all, once you have read the inscription on the front, many people don't want to spend the time required to finish the job. Funny, but probably true some of the time.



### Biological Stone Cleaning Solutions

Over the past decade or so there have been a number of newer products developed which will effectively remove all biological activity from stone and masonry without any risk of harming the stone itself. These type of cleaning products are known as biological cleaners. The first material created in this capacity is called D2 Biological Cleaning Solution. It has been well tested and researched by groups such as the NCPPT, National Center for Preservation Technology & Training, with very positive results. It is currently being applied to the Washington Monument in this year of 2013.

One major issue with most cleaning products is that they will only clean what's on the surface of the stone. Just like any tooth which has roots way beneath the surface, so does most biological growth. However, A biological cleaning solution like D2 will penetrate way under the stone outer surface to reach deeply into the root structure, and kill off the growth. The stone will then become cleaner by itself over the next days, weeks and months, even without the need for hand scrubbing which can contribute to erosion on very soft and crumbly stone. Additionally biological solutions are the only products which will also prevent and inhibit future growth for at least a year, and in many situations many years.

Another major difference regarding the application of D2 with nearly all other stone cleaners, is it may be sprayed onto a dry stone surface. Within a few minutes it will go to work eating away at the biological activity.

**A non ionic detergent is safe to use on nearly all types of stones encountered in Cemeteries and graveyards.** It has a neutral PH which will not effect or harm historic stones. It is sold as a photography product and distributed by Kodak. It comes in a small plastic bottle, but you do not need to use much at one time. Just a once in a gallon or two of water to make a cleaning solution. A product called Vulpex also will provide similar results. A word to the wise, don't expect miracles to occur while cleaning with a non ionic detergent, you have to be patient as results are often less then spectacular.

**Another highly effective cleaning method is to poultice the stone.** This employs the concept a capillary action to wick away staining safely. A poultice is simply a clay type substance which is placed on a pre moistened stone. The stone is then covered to avoid evaporation. Once the stone is uncovered, it is rinsed clean of the poultice and hopefully the staining attempting to be removed.

1. This is a very safe technique when properly employed, and may be performed on very delicate surfaces. It is often used in museum environments.

Entire books have been published on cleaning stone and masonry. Historic Scotland has published individual books for each major kind of stone encountered.

Many web sites have good information on gravestone cleaning, some of which are included in our Related Products & Resources Directory.

### A short list of cleaning techniques based on stone type

Listed in order from the safest, or least aggressive, to the most aggressive:

**Slate:** Clean water, non-ionic detergent, biocide solution

**Sandstone:** Clean water, non-ionic detergent, biocide solution

**Marble/ Limestone:** Clean water, non-ionic detergent, biocide solution, ammonia and water solution, Calcium hypo-chloride solution

**Granite:** Clean water, non-ionic detergent, biocide solution.

**Modern Polished Granite:** Clean water, non-ionic solution, biocide solution, Acid based granite cleaning solution, include with links. It is most common in a dry crystal form and is mixed with water to form a solution. Its strength may be varied based on the amount of crystals added. Please be very careful, as eye protection and rubber gloves should be worn. Also it may kill grass or plantings in the area around the stone being cleaned.

**Unpolished Modern Granite:** The same as polished. Additionally plain old fashioned cleanser may be doing the best job of all. Comet or common dry cleanser without the extra cleaning crystals works wonders when cleaning unpolished modern granite monuments. Do not use cleanser on polished granite as it may scratch the finished surface of the stone.

Francis Tash, one of the most experienced monument installers in America, who performs installation for Rock of Ages recommended cleanser for use on unpolished granites to me many years ago.

A poultice may be used safely on nearly any stone surface, so I have omitted it from the index above.

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