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Wet Cleaning Museum Textiles

The basic principle behind wet cleaning is that water penetrates the fibers causing them to swell and release soils. This action combined with surfactants (soaps/detergents) and other laundry additives pulls the soil molecules away from the fibers preventing them from re-depositing.

The simple act of water swelling the fibers is very stressful on historic textiles. Fibers become weak when wet and any manipulation can cause a tear or rip. Consequently, the textile must be supported at all times. An inexpensive, readily available support fabric is fiberglass window screening that you can buy at the hardware store. Use the screening as a sling to support and handle the object while it is being cleaned so that you do not risk tearing the weakened, wet fabric. Better yet, use PVC pipe from the hardware store to create a frame over which you can sew the screening for a ridged support that will fit inside your wash tank.

Before You Wash:

- Thoroughly vacuum the textile; dust and dirt particles turn to sludge in a bath!
- Check for color fastness. Moisten a Q-Tip or cotton swab with plain water, dab each differently colored area in an unobtrusive spot; examine the surface of the swab for evidence of color transfer. Repeat using a solution made with the cleaning agents. Be careful not to mistake grime for color.
- *Watch the wet spot as it dries, as some dyes wick into the surrounding fibers as they dry.* This caution is especially true for any red in fabrics dating from the 1890's to WWI. There was a very popular synthetic red dye that does not bleed in the water—instead it wicks out into the surrounding fabrics as it dries.

Supplies:

- **Container:** The container does not need to be deep but should be big enough to hold the object flat and in one layer (i.e. not folded back on itself), if possible. Examples of potential containers include: plastic photo developing trays, under the bed storage containers, Pyrex baking dishes, bottom of a bathtub, etc.
- **Place:** Wet cleaning is best done at counter height, near water and a drain. You can make a sturdy work table from an old door on sawhorses or two ironing boards placed next to each other. Put the surface next to the water source and fill with about 4" of lukewarm water. You can use a short length of garden hose attached to a faucet or a showerhead on a flexible hose to get the water into the container.
- **Surfactant (soap/detergent):** **"Orvus WP Paste"** made by Proctor and Gamble. It is available from farm supply stores (it was originally developed to bathe horses, which have notoriously delicate skin.) as well as through the conservation supply houses. It is an anionic surfactant and has no harmful additives. **"ALL: Free and Clear"** available in grocery stores has both anionic and ionic surfactants, no optical Brighteners, and rinses out very well.
- **Glass container, measuring spoons, and whisk:** To use to mix the surfactant before adding to the bath.
- **Water:** Ideally, you should use de-ionized water, distilled water, or filtered drinking water. Failing that, you can use tap water provided it does not come from a well that might contain metals or other naturally occurring chemicals. If the water is "hard", add a commercial water softener such as Calgon. A final rinse with distilled water is recommended.
- **Fiberglass screening:** Use as a "sling" to support the textile.
- **Drying Surface:** A large enough area to lay the garment or textile out flat, away from regular foot traffic & with good air circulation.

- **Towels and a clean sheet or mattress pad:** On the drying surface, place a mattress pad and cover it with clean bath towels—you will need lots of towels—5 or 6 per garment. .
- **Electric Fan:** Fans are really useful to speed drying time.

Wet Cleaning Technique:

- Fill the container with warm water (must be comfortable on your inner wrist) do not add soap yet.
- Using the screen, lay the textile in the bath, pressing down gently to submerge.
- Allow the textile to sit in the water while the fibers absorb the moisture. Agitate the water around the textile to allow the water to move through the weave structure. Water is the best cleaning agent for water soluble grime. You will be amazed at how much soil is removed just with a water bath. Leave for at least 30 minutes, many impurities will release with just water alone.
- Drain off the dirty water – repeat until water runs clear.
- **Note:** If the container is too heavy to lift for emptying, make sure it is placed higher than the drain. Then use a short piece of plastic tubing as a siphon: simply insert one end in the bath, suck on the other end and allow the water to drain out.
- Mix a 1% solution of the *Orvus*. (This is the equivalent to one tablespoon to two gallons water). Dissolve Orvus in a separate container before adding and add the solution to the washing container. If using *ALL* follow directions on the jug.
- Allow the textile to soak for a few minutes and then agitate the water around the piece by slapping the surface of the water gently or rocking the container from side to side. The idea is to agitate the bath water **not the textile** so that the soils bond with the surfactants and do not redeposit on the textile. If the object is quite grubby, you may need to mix up a second bath in order to effectively remove all the soils that are released. You can safely leave a textile in the bath for up to 30 minutes, more than that is unnecessary.
- Siphon off the bath water and rinse at least *five* times. Great harm can come to the artifact if any residual cleaning agent is left behind in the fibers. One low-tech way to check the rinse water is to taste it. Your taste buds will let you know if there is any surfactant left in the water!
- If possible, use distilled or de-ionized water for the final rinse.
- **Note:** Textiles look darker when wet and most whites will also appear somewhat “yellow” When dry, they will be much lighter in color.
- Drain out the water and gently blot the textile **in place** with soft towels. Do not wring or twist the artifact. Using the screen as a support, transfer the textile to the drying surface lined with towels.
- **CAREFULLY** spread the garment out, but do not pull at any fibers. Once the fibers have dried a bit, you can eliminate most wrinkles by smoothing out the body of the textile and releasing any bunching in the trim.
- Cover with a clean cotton sheet while drying. Smooth the sheet over the whole piece while it is still wet. You can expedite the drying process by running fans to encourage air circulation.
- Avoid ironing if possible. But if needed, use a press cloth and set your iron on a cooler temperature setting.

A Word about Wet Cleaning Quilts: *If you feel like cleaning a quilt, lie down until the feeling passes!*

By definition, patchwork quilts are a mulligan stew of fabrics and dyes. Each and every color and print in a quilt top need to be tested for color fastness. Be especially careful of the red fabrics used in quilts of the 1890 – 1920 periods. There was a very popular synthetic red dye that sought to emulate “Turkey Red”. However, it does not bleed when the textile gets wet, but rather wicks out into the surrounding fabrics as it dries. A thorough vacuuming is absolutely necessary before wet cleaning a quilt, as there are so many layers in which loose fibers, and dust can lurk. **Note:** Of special concern when wet-cleaning quilts is how heavy they get when wet. Not only can the weight of a wet quilt cause serious damage to one’s back, handling the textile while it is wet can cause the fabrics to split.

How to Wash a Quilt: Home Made Method

Container: I do not recommend using a bathtub for washing a quilt because it will be too small to hold the entire quilt flat. For very large textiles, like quilts, I make a frame out of pieces of 2” by 4” wooden posts that have been notched like ‘Lincoln Logs’ and assemble it outside on my driveway—I check the weather report! Then I drape a piece of heavy gauge painters’ plastic over this frame to create the tub, using clamps to hold the plastic in place.

Washing: I use the garden hose to fill the wash tank and add hot water either from a hose attached to the laundry sink or carried in pails. I proceed exactly as for a smaller piece, but when it is time to release the water, I remove one of the clamps and let the water run out into the garden. Any extra water can be encouraged out by sliding a heavy cardboard tube (like those used to hold a bolt of fabric) underneath the plastic tarp from end to end.

Drying: Leave the piece in place on the plastic and blot very gently with towels—this takes LOTS of towels. Cover the quilt with a clean cotton sheet, smoothing the sheet over the whole piece while it is still wet. Any soils left in the fibers will wick to the top layer (the sheet) rather than dry in the textile. Leave it outside—preferably in the shade and let it air dry. Once it is damp, carefully turn it over and expose the back of the quilt the air, covering with another sheet. On a bright, dry day, the quilt should dry in about 8 hours.