Lithography Corrections:

Salvaging nuances lost due to carelessness.

Much of the instructor's role in teaching this medium is the establishment of procedures for rescuing the images that students have damaged. Students are obligated to learn the process and to learn from the mistakes of others.

The surface of lithographic limestone is a very forgiving surface when compared to aluminum. It has the advantage of absorbing the grease and gum to a depth roughly equivalent to a playing card. Thus, your image is stored not just in the top molecule of stone, but in the interior. Aluminum, on the other hand, can be chemically erased relatively quickly because the image is only bound to the top layer. The directions below are primarily shorthand for processes that will be explained in class.

Stone lithographic faults to be corrected:

Image blackened due to "dry rolling." **I**
Image blackened due to scum in printing water. **II**
Image filled due to scum with color inks. **III**
Image darkened due to insufficient etch. **IV**
Image lightened due to over etching. **V**
Image lightened due to viscosity rejection. **VI**
Image lightened due to failure of counter-etch. **VII**
Relatively flat tonalities when printed on paper. **VIII**
Relatively harsh contrast when printing on paper. **IX**

I . Dry Rolling:

This is a frequent accident among beginning students. The relatively low humidity of Sacramento promotes this mistake. Given that the room is not air conditioned, it is recommended that students not even attempt to print if it is over ninety degrees.

By simply forgetting to wet the stone, students frequently roll the entire image black. There are very few cases in which this is advantageous...but sometimes it is useful for drawing materials like India ink or shellac which can be made to print, but are not truly lithographic materials.

Correction:
1) Wet the stone.
2) Return to the ink slab and roll until you are assured there is no moisture in the roller itself. If there is moisture, the glass slab will have empty spots which will refuse to take ink...continue to roll or use a hair drier to dry the moisture. Establish an even moisture free layer of ink on the roller.
3) Turn to the stone. Have your partner wet the stone again and "pull" the moisture down to a thin film. Some of the ink may come loose during the sponging.

4) "Snap roll" the stone. Roll quickly with little down force. Ink should prefer sticking to your roller rather than the stone. This snap rolling is exhausting. If you must continue more than once, keep in mind that the roller has absorbed water from the stone and that it may be more efficient to return to the slab while the roller dries, and the printer relaxes (a bit.)
5) The stone may be entirely corrected with the snap roll above, or there may be more work to be done. If the borders are dirty. particularly if the "dirt" is in the form of rolled bits of ink that have been mixed with water (emulsified or become flocculated, that is, "dead") it would be wise to clean the borders with a moist finger or bit of wool felt.

Remember: Ink wants to stick to grease...but it would prefer to stick to grease that is stickier, or stiffer, than itself. The grease in your fingers is stiffer than "dead ink."

II. Scum in the sponging water

Printing ink is not perfectly resistant to mixing with water. Chemicals such as alum and other substances used to modify paper may enter into the chemical printing equation. Some stones are more prone to this than others, and some inks are more prone to this fault.

A useful digression into the nature of inks and varnishes:

Inks are made with varnishes pigments and a few other modifiers such as wax and solvents. The easiest demonstration of the different varnishes is available by simply putting a knife into varnishes at the opposite extremes of the varnishes provided. Those varnishes approaching the higher numbers (8 through 12) are extremely viscous and slow moving. Varnishes such as 0000 (pronounced four ought) are extremely water like. They are "short." Higher numbers attach themselves to a dry knife and pull up in threads that can be stretched to a foot or more in length.

From the discussion above, one can deduce that varnishes of higher number will reduce scum. It is better however, to use an ink which incorporates the varnish in advance.

Remedies to scum in water:

1) Change the water. Check for chemical agents such as alum in the paper. Add a small amount of gum to the water or have a small bowl with a "felting solution" available to clean specific spots.

2) Change the ink. The stiffest printing ink is Senefelder's Crayon Black #1803 from Graphic Chemical. This can be used straight from the can, but may pull weaker tones out of the stone. If the image is very light to begin with, there may be a better compromise ink formulation. The list below ranks standard inks in order from stiff to soft:
a) Senefelder's Crayon Black #1803
b) Other brand's Crayon Black

c) Rollup Black #1796
d) Shop mix or Velvet Black
e) Classic Black
f) Noir a Monter by Charbonnel

3) Re-etch the stone. If the stone has only had one coat of gum on it, it may not be stable. Acidified gum can be applied with a sponge and buffed down to a helpful layer. Frankly, most stones become more stable with use. It is a useful practice to stop printing with the stone fully inked... buff the image with gum on a sponge and allow the stone to rest a few minutes. This rest allows "adsorbtion" to occur.

III. Scum due to color inks

Certain pigments are prone to scum or "bloom" more than others. The discussion of varnishes earlier should provide some clues to solving this problem. Pigments are irregular particles that must be encased in oil or varnish to avoid mixing with water. If the colorant in the ink is actually a dye mixed with an inert substance the problem can be even greater.

1) It is essential that color inks be mixed with a suitable quantity of varnish to resist scumming. At the same time, the ink must be able to stick to the tiniest drawing elements and to spread evenly in sheets over solids. An approximate balance can be found through the following steps:

a) Mix the desired color from inks and adjust its transparency through use of transparent base, laketine, magnesia white, or other products intended for this purpose.

b) Work the materials into the ink with a knife and pull the putty knife toward you so that the ink is about the thickness of a common yardstick. Without pausing in the stroke, pull the knife straight up while keeping it parallel to the table. The bead or thread of ink will break at some point as you pull the knife upward.

c) Magnesium carbonate is an inert substance that is used to modify inks. Incorporate this into the ink until it breaks at between half an inch and two inches.

d) This ink has now been shortened. It will need a bit of length to print well so add a small amount of #8 varnish.

e) The ink may be printable as modified above. It may however, tend to form an orange peel like surface on large flat areas. If so continue to modify the ink by softening it.

Materials used for softening ink:

0000 Varnish
00 Varnish

Flash Oil
Miracle Gel Reducer
Vaseline

IV. Image Darkened due to insufficient etch

Many early texts on lithography include stories about printers who prefer to under or over etch their imagery. Bolton Brown concludes that he would prefer "to get it right the first time." There are however, enough variables to consider that a lithographer may have to retrieve an image simply because the weather has changed. All of the discussions above can be incorporated into corrections. These images that most frequently benefit from the treatment below have lost all character in their darks. Tiny flecks of white that distinguish black from near black have been filled in with ink.

The stone may already have been proofed, but repeated application of pressure will simply exacerbate the problem. It is time to stop and evaluate options.

The wet washout process:

What follows is an alternative means of developing an image known as a wet-wash. It has nuances beyond the simple binary nature of a normal dray wash out. One can continue to wet wash until the image is weakened or one can make a brief foray into the wet wash out only to return to inking after semi clearing the image. There are risks in both strategies.

Steps in a wet wash out:

1) This process can be used at almost any time the image is stable or semi-stable. It should not be done during a counter-etch unless the desired is a truly changed (bleached or stained) image.

2) The stone is flooded with water.

3) Several balls of paper towels should be set aside on the press bed before beginning. For a moderate size stone seven or eight towels are recommended.

4) Into the water covering the stone a small quantity of lithotine (mineral spirits) is introduced. A ball of towels is wet and used to push this solvent around the stone.

5) The resulting mess should be moved around the stone until all areas are free floating. No part of the surface is allowed to dry.

6) Alternating wet towels and solvent laden towels are used to remove ink and residue.

7) Throwing the towels away as they become soiled, the printer will see that the image is becoming transparent. The grease deposits in the some will

continue to repel water (for a while) and the printer must determine a point at which it is appropriate to return to printing.

8) Once the desired weakening of the image has occurred the stone should be moistened again with a sponge, and rolled up. If the image was grossly darkened before the wet wash out... the stiffest ink will be appropriate. If the image was irregularly taking ink...a softer ink from an extremely thin slab may be appropriate.
If some areas were entirely un-inked while others were filled in, the printer may resort to a "rub-up."(see below)

Re-etching an under etched stone:

The printer must evaluate the condition of the stone. If it entirely under-etched than a general etch may be appropriate. This is seldom the case.

I recommend a simple test that requires money...a ten dollar bill and a nickel.