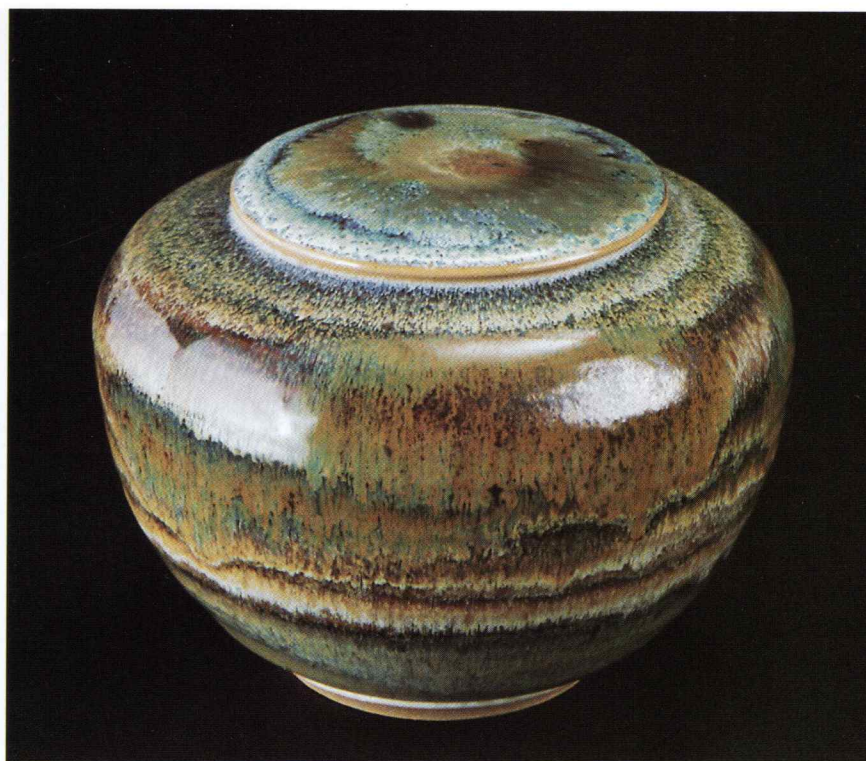


Ceramics

MONTHLY





Lidded jar, 7½ inches in height, coated with a thick layer of White Slip, then a thin layer of Blue Slip and a thin layer of Metallic Rust Slip, followed by a heavy brushstroke of Metallic Rust, by Bob Kavanagh, Hudson Heights, Canada.

A Coat of Many Colors

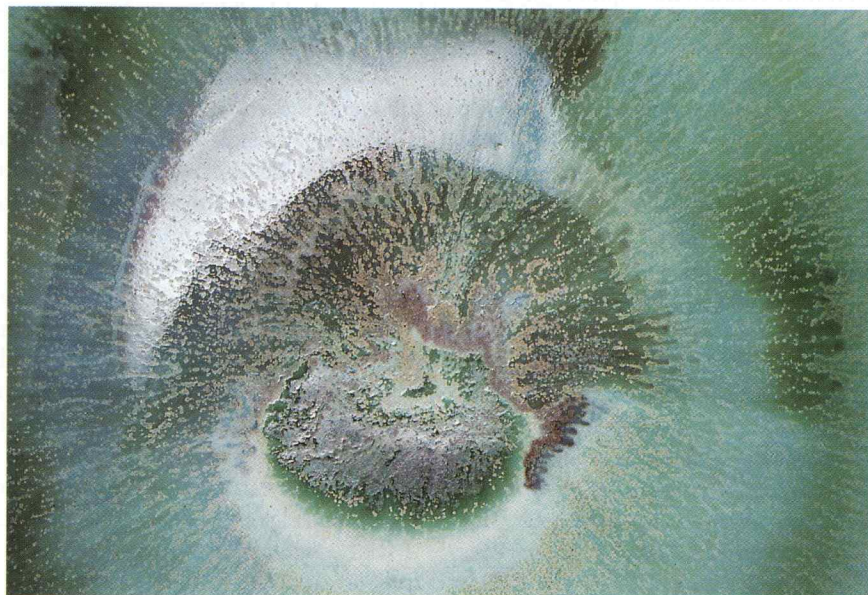
by Bob Kavanagh

Contrary to common belief, it is possible for the potter working in oxidation to develop a wonderful array of colors, as well as some textural diversity, using only one glaze. The technique is very simple and its variety depends on the potter's inclination to vary three types of brushstrokes at will and whim, and to overlap six or seven slips in as many ways as imaginable.

The glaze described here (romantically called "S-2") is matt and dull at Cone 6½ to 7, smooth satin from 7 to 7¾, gloss from 7¾ to 8 and high gloss when applied thinly with Cone 8 over. I fire to Cone 7½—by which I mean that Cone 7 is down and the upper tip of Cone 8 is at 3 o'clock—in an electric kiln on approximately the following schedule: to 212°F at 100°F/hour; maintain 15 minutes at 212°F; 212°F–1060°F at 300°F/hour; maintain 15 minutes at 1060°F; 400°F/hour to 2200°F; 150°F/hour to 2230°F; by eye until reaching Cone 7½ (2240°F–2250°F on this schedule). With new kiln elements, the 400°F rise is sometimes too severe for the glaze to give smooth and satiny results. In that case, I slow the firing to about 300°F/hour until 2150°F, then at 150°F/hour until Cone 7½.

The diversity of color comes primarily from the use of slips. Generally speaking, the most exciting results are achieved by a thick application of slip and a moderately thick application of glaze. Some of the most striking effects come from slightly increased temperature, such that one or two of the slips with more active fluxes in them melt

Bowl (close-up below), 10 inches in diameter, wheel-thrown stoneware with White and Green Slip layers, brushstrokes of Green and Blue Slip, and S-2 Glaze, fired to Cone 7½.



more than the others and create dramatic flow patterns as well as changes in surface and color.

The slips are applied to the wet surface of the freshly thrown pot, before I pass my cutoff wire under it or remove it from the wheel head; this application is to the inner surfaces and the upper part of the outer surfaces. (Caution: on large bowls and plates, or with soft clay, the slips may be applied so thickly that they may cause distortion, and occasionally, albeit rarely, slumping due to water absorption by the already moist clay; obviously, it helps to throw "dry.")

After trimming the foot (as soon as possible after throwing), I moisten the outer surface of the pot, rib it smooth, then immediately apply slip to this trimmed moist surface before removing the pot from the wheel for drying.

The physical bond that forms when slips are applied to a wet body helps on two fronts: First, because the overlapping slips may be over $\frac{1}{16}$ th of an inch thick, they are subject to high stress in the drying and this wet application reduces the tension between the body and the slip; second, due to the highly refractory or powdery character of the material in a couple of the slips (e.g., 65% Barnard in one, or 33% ash and 33% titania in another), there may be occasional problems with peeling or flaking if the slips are applied to dry or bisqued surfaces.

Each of the slips has a slightly different viscosity because the ingredients are different, but I work with them mixed to the consistency of fatty cream. Because they are frequently applied on top of one another, the delicacy of their hues changes with time. This becomes clear only with practice.

The glaze and slip recipes are as follows:

S-2 Glaze

(Cone 7-8)

Dolomite	11.5 %
Gerstley Borate	24.0
Talc	11.5
Nepheline Syenite	11.5
Edgar Plastic Kaolin	11.5
Flint (400 mesh)	30.0
	100.0 %

White Slip

(Cone 7-8)

S-2 Glaze (wet)	33.34 %
Local Unwashed Hardwood Ash (50 mesh)	33.33
Titania	33.33
	100.00 %

Blue Slip

(Cone 7-8)

Albany (Alberta) Slip	15 %
Barnard Slip	65
Cobalt Carbonate	20
	100 %

Green Slip

(Cone 7-8)

Bell's Dark Ball Clay	33.33 %
Copper Carbonate	33.34
Rutile	33.33
	100.00 %

Metallic Rust Slip

(Cone 7-8)

Local Unwashed Hardwood Ash (50 mesh)	33.34 %
Red Iron Oxide	33.33
Rutile	33.33
	100.00 %

Add a touch of ball clay.

Brown Burgundy Slip

(Cone 7-8)

Bell's Dark Ball Clay	25 %
Edgar Plastic Kaolin	25
Manganese Dioxide	25
Red Iron Oxide	25
	100 %

Gray Slip

(Cone 7-8)

Spodumene	28.95 %
Potash Feldspar	28.95
Bell's Dark Ball Clay	28.95
Chrome Oxide	4.39
Rutile	4.38
Tin Oxide	4.38
	100.00 %

Yellow Mustard Slip

(Cone 7-8)

Potash Feldspar	17 %
Bell's Dark Ball Clay	33
Rutile	33
Tin Oxide	17
	100 %

In general, White Slip is applied to all surfaces to serve as the unifying undercoat for all the other slips. The titania and ash create a microcrystalline background into which other colors mingle and melt. The appropriate thickness for the bottoms of bowls comes with practice; watch for too much crystal development in a pool at the bottom. The colors are rich, but the surface may be too rough for pleasant daily use.

On some clays, in particular on porcelain, one might occasionally dispense with the white base. This results in the other colors gaining clarity, which comes from the lack of crystals as well as from the pristine white background, but the overall impression changes because of the lack of texture. One should remember that the titania and the ash create an almost hidden appearance of pale ivory or the white of a full moon underneath all the other applications. This subtle accent enhances the richness of blues, aquas, greens, pinks, lavenders, burgundy browns and yellows.

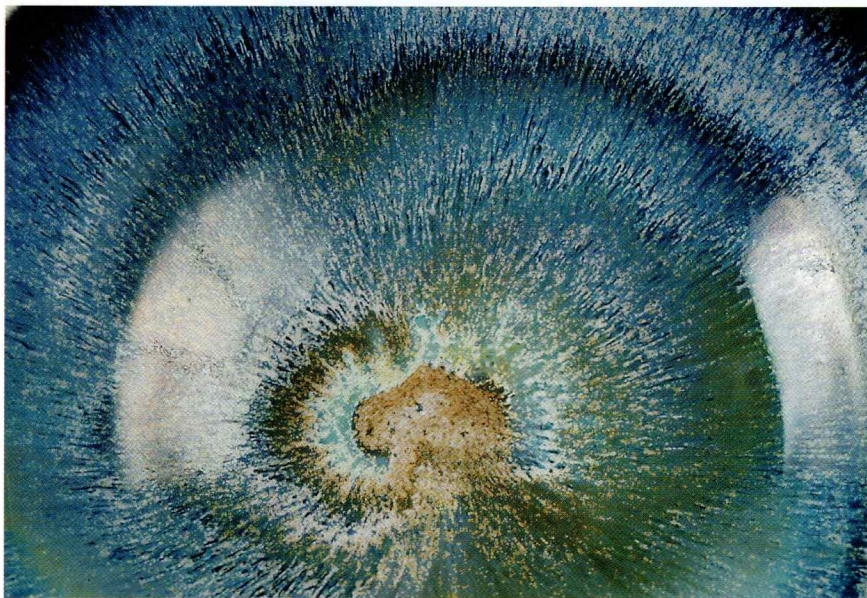
The slips are applied, using three simple brush techniques. For the first application, I cover the whole pot by holding the brush against the surface of the pot and moving it slowly up or down; for the second, I hold the brush against the surface and move it relatively quickly up or down, creating only a spiral line; for the third, I touch the spinning pot a few times with spaces in between, thereby leaving noncontinuous traces of slip on the surface.

While the base coat of White Slip is still wet, others are applied over it (this is the way the slips taint one another over time). There are many options available at this time. For example, if one applies Blue Slip uniformly over the White, there is an overall impression of soft feathered blue; whereas, if one applies it thickly with a fast upward or downward movement of the brush, the effect is that of ridges of color. At Cone 7-7½, the ridges tend to be dense and thereby darker blue; they give hints of lavender with some pink. The areas between the ridges are paler.

This effect of mixing and blending is true of all slip combinations; for ex-



Stoneware bowl (close-up below), 10 inches in diameter, with a layer of Blue Slip, a Green Slip spiral and a light Metallic Rust Slip brushstroke.



ample, White then Green, or White then Brown Burgundy. All of the slips give rise to a similar diversity, depending on how thickly one applies them—Brown Burgundy goes from pale tan through honey amber to burnt brown metal. As a rough guide, I'll describe a few of the other possible color combinations, which often vary only because of the way the slip is applied:

A coat of White Slip under a uniform coat of Green provides a range from pale marine green (with the occasional hint of celadon) to metallic copper green black.

White Slip under a thin uniform coat of Metallic Rust furnishes a hint of amber floating on a white liquid; but if Metallic Rust is applied thickly, it gives a textured rust brown with metallic crystals in it.

White Slip under Brown Burgundy creates a hare's fur effect of pale tan to rich manganese brown. This combination may also give rise to tea dust on flat surfaces.

A coat of White Slip under Yellow Mustard leaves a hint of sandy pink with traces of strong yellow, depending on thickness. If Yellow Mustard is applied as an overglaze, it produces a clear, refractory pale mustard yellow.

One of my recent favorites is a thick base of White Slip covered by a thin layer of Metallic Rust, then heavy trace lines of Metallic Rust and Green, and finally trace lines of Blue directly into the trace lines of Green.

Another is a heavy White Slip coat, followed by a variegated Green coat, then a trace line of Blue into the thickest of the Green, and a trace line of Brown Burgundy into the Blue.

A long-standing favorite is thick White Slip covered by a uniformly thick coat of Blue covered by a moderately thick coat of Metallic Rust.

Each of the slips has a slightly different melting point and produces unique features, depending on use. Assume a given cone, say 7½; at this temperature, Blue Slip will be more refractory than

the others (except the yellow) due to its high Barnard slip component. The Barnard thereby promotes a more matt finish in the glaze even though the glaze itself tends to be moving toward satin gloss, and this matt finish helps produce a slight hint of pink floating on the surface of rich matt blue.

If one strokes a brush full of Green Slip over a layer of Blue Slip, the Green tends to render a higher gloss due to the fluxing properties of the rutile/copper components. As a result, there will be not only vivid color contrast, but also differences in surface texture from satin to matt.

A similar phenomenon takes place if one adds Brown Burgundy to Blue because of the high iron/manganese content, but obviously the color contrast will be different. In this case, the Blue takes on a midnight blue/black hue.

In addition, if one were to use Gray Slip as the base instead of White, the overall effect is slightly stiffer because it is more refractory. The use of Gray underneath also mutes the other colors.

Obviously, this decorating technique is suitable for use with other sets of slips and glaze at higher or lower temperatures. I have used it for some of my work with earthenware, as well as with Cone 10 reduction-fired stoneware. With adjustments to allow for fluxing needs at either low or high temperature, a wide variety of color and texture may readily be developed for other temperature ranges and clay types than the examples I have given.

One interesting way to bring home the effect of the glaze on the slips is to decorate eight pieces in pairs (four pairs of almost identically decorated pots). Glaze one piece of each of the pairs but do not glaze the other, then fire them together. These will serve as visual reminders that while the diversity and overlapping of the slips is a necessary condition for the technique, it is not sufficient to bring about the effects desired. The actual glaze used to cover the pot is a highly influential factor, and the overall range of effects may be changed in an important way simply by altering the glaze alone. ▲