

## WILSON HURLEY'S COLOR THEORY AND PRACTICE

BY CALVIN J. GOODMAN

## CURRENT PERCEPTION THEORY A Brief Overview

Human eyes possess two interconnected visual systems. The *cones*, in the central areas of the retina, respond to high levels of illumination and generate a sense of color. The *rods*, in the peripheral areas, work best at lower levels of illumination to give us colorless vision.

Like a television camera, our eyes move constantly over the scene being observed. If we fix our gaze on a scene, sensory adaptation causes the colors we see to lose their brightness. Background colors against which an object is seen and the distance at which we view it help to identify edges and brightness contrasts. Our visual system generates "Mach bands," which increase or decrease the intensity of adjacent objects. Thus, we schematize various impressions to emphasize differences between them.

Talking about color, we speak of *hue*, which varies with wavelength; *brightness*, which varies from light to dark; and *saturation*, which refers to the lack of white or black in a hue of given brightness. When two hues are precisely complementary, their combination produces gray. Our rods contain a photosensitive visual pigment that breaks down chemically when subjected to light waves, leading to impressions of black, white, and intermediate grays. This pigment regenerates continuously, making further vision possible.

Three kinds of cones in the human eye operate in a similar manner. One set is most sensitive to the shorter wavelengths, another set to medium wavelengths, and a third set to longer wavelengths. Our visual system instantaneously integrates these impressions and also compares them to those of the rod system.

In the 1950s Leo Hurvick and Dorothea Jameson first developed what is called the *opponent-process* theory to explain how this integration works. Our cones and rods detect a relative presence or absence of yellow or blue, red or green, plus white or black. If both blue and yellow are equally stimulated, their effects cancel each other and we see only red. If red and green are stimulated equally, we see only yellow. If all four "pure" colors are stimulated equally, our experience is achromatic.

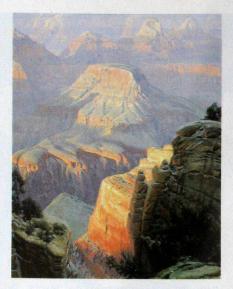
When we "see" orange, our system is integrating red and yellow and suppressing green and blue. Black and white modify the brightness or darkness of our experience. Using this trichromatic opponent-process approach, we can readily explain how the human visual system distinguishes millions of colors using only four kinds of light-sensitive receptors (the rods and cones) with only a few visual pigments.

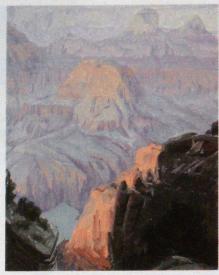
"IF WE WISH to reduce our experiences of nature to two-dimensional surfaces with any fidelity, we first need to know a great deal about how images reach our eyes. We also need to know how our visual system handles the images it receives," says Wilson Hurley, choosing his words as carefully and speaking as deliberately as he chooses subjects and applies paint to canvas. At the same time, there is an unmistakable intensity and an earnest conviction in his voice.

Hurley has been my client for a little over a year now, and I have experienced great satisfaction working with him. Like every major artist with whom I have ever worked, Hurley is driven by a sense of purpose that transcends the issues of commerce with which we all must deal. For him, making art presents a very exciting opportunity. It is his mission to interpret and transmit a significant part of the beauty that he sees in nature.

Hurley has enjoyed wide recognition and great success over the years. Many important museums have exhibited his canvases, which have also found their way into a significant number of public, private, and corporate collections. An important publisher (Greenwich Workshop) publishes and distributes his prints. Whether he is painting the majestic scenery of his beloved West, the futuristic world of aerospace, or nostalgic scenes from the history of flight, Hurley manages to combine a consummately realistic imagery with an emotive impact that is serene, provocative, and virile.

Calvin J. Goodman lives in West Los Angeles where he advises artists and art dealers regarding their careers. He is also the author of the Art Marketing Handbook, recently issued in its fifth edition (Gee Tee Bee Publishing, 11901 Sunset Blvd., Suite 102, Los Angeles, CA 90049. \$39.95). The painting reproduced on the cover of this issue is shown again on the right (Cheops, 1985, oil, 40 x 32; collection Mr. and Mrs. Nelson Severinghaus), along with an intermediate study on the far right (1985, oil, 183/4 x 15; collection the artist) and a field color study below (1985, oil, 12 x 8; collection the artist). The field color study was painted on location at the head of the Bright Angel Trail of the Grand Canyon, looking north towards Cheops. This study and some pencil sketches were used as reference material when the artist painted the intermediate study back in his Albuquerque studio. The finished painting illustrates how Hurley uses his color theory to develop a sense of grandeur, detailing, and depth of view appropriate to the scene.

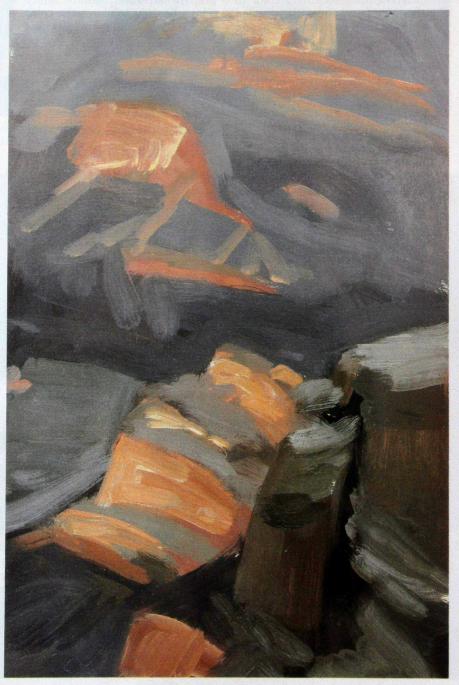




He has read everything he can find on the question of color and color perception and has applied his knowledge to his work in a most significant way. Although the earlier scientists-Newton, Faraday, and Maxwell-discovered a great deal about the nature of color, the more recent research of Thomas Edison, Max Planck, Ernst Mach, George Wald, Leo Hurvick, Dorothea Jameson, and their colleagues have exponentially advanced the world's understanding of this field. From the modern physicists, Hurley has learned that every object that is subjected to illumination reacts in its own way, absorbing certain levels of energy and emitting bundles of electromagnetic material called photons once a critical energy level has been reached. Each illuminated surface releases its photons with a characteristic wavelength.

Certain parts of these emissions are dissipated or absorbed as the light waves travel through the atmosphere, but surviving portions reach our eyes. Once the streams of photons enter the eyes, they strike an array of receptors on the retina or rear wall of the eve: the rods and cones. The rods are sensitive to a narrow band of light wavelengths. The cones are of three varieties, each sensitive to one of three overlapping bands of wavelengths. Thus, the photons traveling through the atmosphere make four different impressions on the retina. These impressions are converted into electrochemical effects, which are processed by the human visual system.

Experiments have demonstrated that this process starts at the retina and proceeds by steps to the visual cortex of the brain. A large part of the human nervous system is needed because the tasks to be performed are daunting. Among other jobs, the visual system compares the hues and the



relative intensity of the received impressions. Human perceptions of color are, in good part, the result of this comparison. It is this unique analytic and integrative capability that accounts for the notably superior color perceptions of the human visual system compared with records made by relatively passive man-made cameras. In short, the colors that we "see" are really mentally constructed composites of the wavelengths transmitted to and analyzed in the cortex on the basis of the input of four varieties of receptors. Each set of receptors has its own band of light sensitivities and is connected to the visual cortex through a remarkable system of photosensitive pigments, fibers, and neural pathways. It is this system that creates a vivid complementary color in the shadow of any object illuminated by a strong colored source of light and a weak overhead white light such as during a sunset. A camera does not create this complement, nor does a painting with merely red highlights. This effect must be therefore intentionally painted in.

The human eye evolved in such a way that it is capable of handling a significant diversity of transmitted visual signals. Hurvick reports in his work Color Visions (Sinauer Associates, 1981) that our eyes can distinguish millions of different hues. On the other hand, the eyes and the visual systems of other creatures are not so richly varied in their capabilities. So, too, color photographic films have many limitations that the human visual sys-

tem can surmount. For example, our eyes can adapt to brightness and darkness just as the human sense of smell can adjust to very strong or weak odors, enhancing or suppressing signals that are too weak or too strong for the system. The eve can make a dark edge seem lighter and a light edge seem darker. In this way, the visual system creates its own contrasts for the viewer, accentuating relationships to make them clearer.

This particular effect is automatically imposed on certain received impressions by the human color perception system and should be treated cautiously by artists. If one fixates on objects and their settings too intently, the border contrasts in one's work can be overstated. When this happens, the painting may look artificial and contrived. However, when border contrasts are appropriately represented by an artist, they impose themselves as an aura that adds a certain magic to the scene being viewed.

"So, too," Hurley notes, "if artists study scenes over too long a period or too intently, they will 'see' certain negative color effects that may introduce unnatural qualities in their paintings. These effects result from the natural functioning of the human visual system. Fresh visual impressions are always superior for the purposes of naturalistic artists.'

Hurley stops for a moment in his discourse. He worries that he may be going too fast and confusing his listeners with more technical information than can be handled comfortably in a brief conversation and he shifts his subject to more familiar ground.

"Let's talk about how I treat shadows," he says. "When I approach a landscape subject, I often begin with a small field color study. This study is made on the site and usually takes me no more than two hours. Later, I may prepare an intermediate study in which I carefully match the colors of the field study and more fully develop

Lurleyhas developed a palette of colors which will not deteriorate or fade appreciably and are not chemically incompatible when they are combined.

the imagery. Shadows that are adjacent to colored objects often seem to contain the color complements of those objects. One must stick to the neutral color of the field study and let the viewer's visual system add the complement. I usually make the values of my shadows about half as dark as they would appear in a color slide. When we view a shadow in nature, the pupils of our eyes expand to accommodate for the lack of light. The camera cannot do this, so a slide will often suppress detail and texture in the shadows. This will seem unrealistic and foreboding.

"What the eyes see when a person looks at shadows in nature is a complex series of emissions, modified by comparison to the visual context in which the shadows occur," Hurley continues. "In a sunset, when the sun is orange or red, if there is another source of ambient white light, which there usually is from the sky above, the adjacent shadows will contain a blue or green cast. While this effect is part of our internal system of color

vision, it should be painted because if we leave that shadow gray in our painting, the viewer of the canvas has no similar system working to produce the vivid complementary color. We should also avoid making such shadows too dark, as we will tend to do if we follow the distorted evidence of a color photograph or slide.

"Further, while a red light coming from a sunrise or sunset may generate a shadow that has a turquoise cast, regardless of the color of the object, the shadow of a red barn in broad daylight does not produce the same effect. Wavelengths of the red reflected light are, by their nature, less saturated with color and of lower energy. They therefore cast lights into the shadow, which seems to contain a more purple or lavender light."

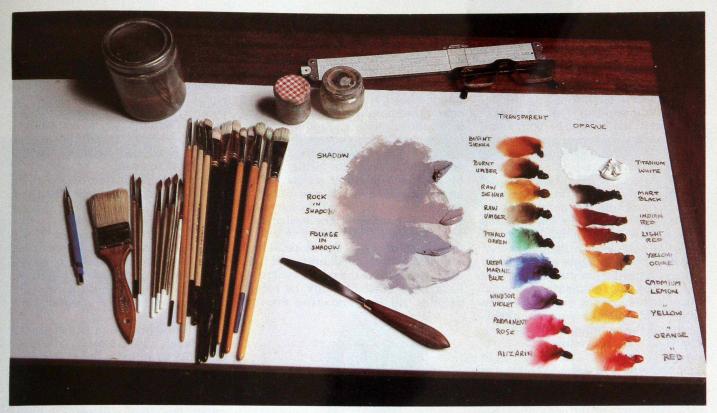
Hurley utilizes one of the fundamental color precepts of painters of earlier eras. In beginning a landscape painting, he first carefully identifies the appropriate light and dark relationships within the work. Only then does he proceed to employ color. The Masters of the Middle Ages and the Renaissance understood this principle and they avoided the blunder of treating color groupings with little concern for the relative intensity of the colors

within the group.

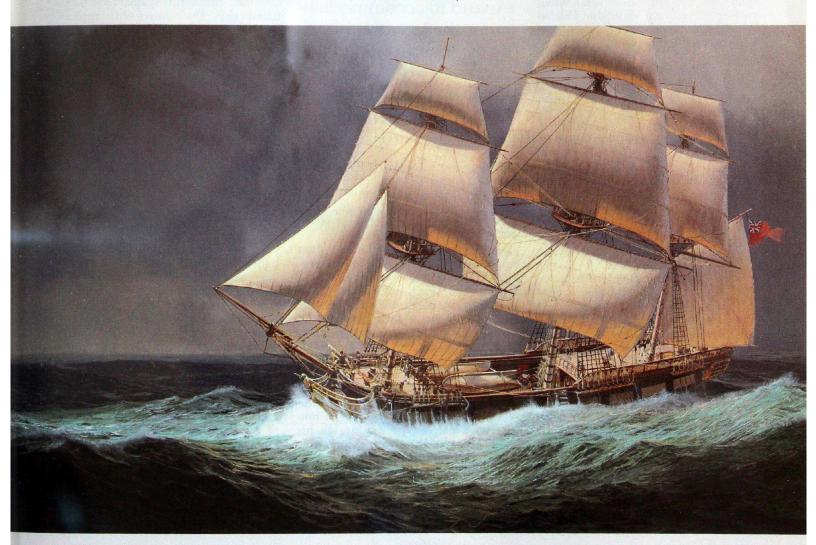
"As the sun sinks below the horizon," Hurley notes, "it might illuminate the bottoms of some clouds, coloring them red or orange. However, if I paint the clouds blue-gray or light purple with a relatively light value, and then paint their bottoms red or orange, the accent colors will be darker than the clouds, although they should be relatively more brilliant. Such an error will make the sky not only ugly but impossible, and the colors will not give light. To avoid this trap, Turner often painted bright red clouds against a white or light blue sky. The whole cloud formation is red. Frederick Church did the same sort of thing. Turner also could make a bright spot in a high key sky by generating powerful border contrasts that seem very realistic to the viewer."

Hurley describes in detail how he makes his field color studies in the open air. He sets up his easel so that he is facing the sun and his canvas is in shadow. He wears a broadbrimmed hat and puts his palette in the shade of his canvas, turning frequently from the shadowed palette to the canvas. He does not paint under an umbrella or a shaded overhang since this would cause filtered or col-

ored light to hit the canvas. In his studio, the windows are high on the walls to minimize the distortion caused by reflected light from the



Above: Wilson Hurley's palette and brushes. Below:  $Man\ O'\ War$ , 1985, oil, 48 x 76. Collection the artist. Here, the artist uses border contrasts to define atmosphere, motion, and depth of field.



ground outside. His studio walls are not painted white but rather a light gray made of white, black, and light red. He finds this a natural background in which to work.

In the studio, Hurley paints only in natural north light, avoiding the so-called "full spectrum" or "daylight" fluorescent lights that, he points out, contain argon gas to produce a spike of orange-red light, sodium gas to produce two wave bands of yellow, and mercury vapor to produce a blue and lavender wave band. This is hardly a broad or continuous panorama of light wave frequencies of the kind emitted by the sun, although it does generate a distorted sort of white light.

All fluorescent lights emit a heavy ultraviolet radiation component that ionizes the color elements, emphasizing and accentuating the lavenders in iron-based pigments and adding chartreuse to the cadmium-selenium pigments. Thus, ionization adds chartreuse to orange. Ultraviolet light tends generally to degrade colors. On the other hand, if one's paint is mixed in yellowish incandescent light, the reds, oranges, and browns often become harsh. Blues and grays mixed in such light will later seem weak when viewed in natural daylight. Hurley avoids painting in either incandescent or ultraviolet light.

## **HURLEY'S PALETTE**

Although many artists have offered Hurley their own rules for color mixing and for developing a palette, he has found the data and the guidance of the late Ralph Mayer most reliable. Using Mayer's book The Artist's Handbook of Materials and Techniques (The Viking Press) for information regarding the composition and permanence of various pigments, he has developed a palette of colors that will not deteriorate or fade appreciably and are not chemically incompatible when they are combined.

Hurley has concluded that it is unwise to mix cadmium-based colors with lead carbonates, not only because lead is toxic, but also because these different metallic salts can react. Therefore, he avoids Naples yellow and other lead-based compounds. Instead, he uses paints containing titanium, which blends readily with the cadmium and selenium compounds.

Hurley's basic palette begins with titanium white and Mars black. This black is an iron oxide and yields a stronger, faster-drying paint than carbon black does when it is mixed with linseed oil. The Indian red that Hurley uses is a bluish iron oxide, while the light red is an orange iron oxide. Yellow ochre is another iron oxide-based

ingredient on Hurley's palette.

For warm colors, Hurley employs Winsor & Newton's permanent rose, an organic, transparent quinacridone. This is particularly useful for his distant hues. Cadmium orange and cadmium scarlet are added to colors for nearer distances. Thalo cyanide green is combined with cadmium yellow, cadmium yellow-pale, and lemon yellow to form the basis of three different greens, which may be further varied by mixing with burnt sienna, burnt umber, raw sienna, and raw umber to make many different foreground greens. A number of these pigments were used by truly primitive artists thousands of years ago to paint the cave wall murals at Altamira and Lascaux. Others, like the permanent rose, have been available only in recent decades. All are permanent, even in

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pale tints, and chemically compatible with each other as well.

A well-known artist once warned Hurley against mixing more than two colors plus white to achieve a given effect since this might produce "mud." Nevertheless, Hurley often combines many color elements to produce his own grays and other muted hues. He adjusts these blends to suit his particular needs within a painting and seldom finds them muddy. Of course he graduates elements of a painting from cool to warm gray, adding accents of color whenever they are needed.

Since his colors intermix chemically with safety, he can work wet-intowet and alla prima. Even with a tenfoot wide canvas, he can design his color schemes in advance, matching large batches of paint to the elements of his field color study. Working quickly, with premixed, tinted grays on a well-prepared surface, he will cover as large an area as possible in a short time. In a period of a few days,

he can lay down the main elements of a very large work, establishing appropriate gradients and relationships. In this way, the paint on the canvas is homogeneous in oil content and the elements of the paint film will dry simultaneously. For this reason, his painting is unlikely to crack or peel at some time in the future, as it would if these elements were laid down separately over a longer time period so that they dried unevenly.

Hurley is fascinated by the mutations that colors undergo when they pass through the atmosphere in a real landscape. He points out that artists learn in their art school color theory courses that cool colors (blues, lavenders, and greens) seem to recede, while warm colors (oranges, yellows, and reds) advance. But the reverse is true of white in a natural atmo-

sphere.

While a white cloud will appear silvery when it is up close, it will generally shift to amber when it is seen on the horizon. Further, if one compares a nearby white cloud in the daylight atmosphere with a piece of white paper, the cloud will seem to have a yellow cast. When one paints a snowcovered mountain against a cloudfilled sky, the snow will appear brighter than the clouds. As the mountain peaks recede 20 or more miles into the atmosphere, the snow's color shifts from white toward amber. This is the case because, as white light travels through the air, in accordance with Kirchoff's Law, its blue wavelengths are intercepted and absorbed. Only the remainder of the spectrum reaches our eyes.

However, at the same time, the sky not only absorbs but also reflects these and other blue wavelengths. The horizon generally appears gray, since the blue and amber emissions are combined visually and the larger particles in the atmosphere reflect the light with lower wavelengths. Therefore, as certain brightly colored objects move away from us, they become attenuated and lose their hue. Yellow is a good example. Ochre and orange turn pink, while red turns purple when viewed from a distance. Green does not turn blue but becomes gray as it recedes.

Because of these considerations, Hurley reserves his yellows, oranges, and burnt umbers for the foreground of his paintings. So, too, raw umber and raw sienna—even burnt sienna—make good foreground color elements but do not work too effectively on distant objects. Although he does not use cadmium orange alone for tinting distant clouds, it can be muted with light

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blue. With forefront clouds, Hurley may use a raw gray bottomed with warm pink reflecting up from the soil below. As the clouds move further back, their shadowed parts take on more of the color of the sky. They may turn to a lighter blue. This bluish cast is amplified by reflections from the intervening air.

trees, and a perspective of clouds overhead. The green pines may be ber, cadmium yellow, and a touch of mixture of titanium white and Mars be black, but as they move back into the painting, they will turn to a purplish blue. At a distance of several painted with mixtures of burnt um-Thalo green. In the middle distance, these same hues will have turned almost to a gray. At a further distance, they are a definite gray. At this point, he may even represent them with a black. The foreground shadows may miles, the shadows will be a blue-When Hurley paints a mountain scene, it will often contain three elements: ochre-colored rocks, green

The rocks in the foreground are painted with titanium white as well as

ochre. As the rocks recede, Hurley adds a touch of cadmium red, making the halftones roseate. The bluish red mutes the yellow in the ochre. For the far distance, he mixes white with cadmium scarlet and a touch of permanent rose. The rocks are still warm, but the yellow has gone. As for the clouds, their shadows often start with flat gray and move towards blue as they recede into the distance. Their whites recede toward amber and the gray of the horizon.

Hurley points out that the world during the day is seen under two different systems of illumination. There is the primary lighting furnished directly by the sun that throws shadows and produces images; but there is also the reflected light that has been absorbed into the atmosphere and emanates from the sky in every direction. This omnidirectional light is about ten percent of the natural illumination the eyes receive in daylight. The shadows cast by the sun are therefore illuminated by the cold blue reflected light of the atmosphere.

The atmosphere consists of a mixture of gaseous and particulate matter: dust and pollutants, as well as nitrogen, oxygen, and moisture. The cleanest air reflects the highest wavelengths back to the earth at the blue

end of the spectrum. When more varied and larger particles of dust, ash, smoke, or other pollution are present in the atmosphere, the blues turn toward green and gray. On a dusty day, the sky becomes tawny or white, as the large particles in the air absorb bands of energy.

through which sunlight passes. This is tudes. When the sunlight passes through clear air, the clouds are white and the sky is blue. When the sky is sunrise, only the longer wavelengths can penetrate the atmosphere. This In effect, the air acts as a huge prism particularly noticeable at higher altiparticle-laden, especially at sunset or generates red and orange sun, clouds, and sky. It also changes the color of other objects seen in these conditions, as well as their shadows. Reflected light is cooler in color than the colored objects themselves, because bounced light has a lower energy level than a ange objects reflect pink while red directly illuminated object. Thus, orobjects reflect lavender.

When artists do a field study, they should first look carefully at the gray in the horizon. If they are at the seashore and the sea is dark, the horizon will often appear to them as a very dark gray color. In such cases, the breaking waves and foam will be bril-

liant and white. Color studies made at sea level will show a horizon gray that is considerably darker than that found at an altitude of five thousand feet or more. Therefore, in a painting set near his home in Albuquerque, Hurley's contrasts of white objects against the horizon are not as great as they would appear if the work were located at sea level. At higher levels, clouds are also likely to be more visible than they are at sea level where the air is less transparent.

more detail in the rear of a realistic Artists are often tempted to put even formless. Hurley holds that a which is seen and not what is several of the European artists who stood this principle very well. Thus artists of his era, used color variations andscape than they actually see. Such overemphasis on detail may andscape painter should paint that "known" to be there. He notes that followed the Impressionists underthe Jewish-Russian artist Isaak Levito characterize distance and was a master of suggesting detail without make artworks exhausting, boring, tan, who had great influence on many actually painting it.

In painting the gravel road in his poignant canvas Vladimirka, Levitan rendered the foreground in a pointil-

list manner, using dots of white, black, gray, and red to create both a representation of gravel and a ground color that reads as the visual average of these points of color. As the road receded, the artist kept its value and the hue constant, but he changed the texture to an amalgam of rough paint. Even further back, the color of the road has been muted toward a purplegray as it interacts with the intervening atmosphere. By the time the road has traversed several hills along the plains of Russia, at a distance of about four miles, Levitan's road consisted of a single gray line. Not surprisingly, chromatic brush stroke, gives us the ist who masters transitions of this sense of a genuine visual experience. Of course, as Hurley remarks, one can create similar illusions with trees, rocks, vegetation, even clouds. An artthis representation, moving from a detailed foreground to a single, monkind will give the viewer great pleasure.

Hurley's eyes glowed as he warmed to his next subject. "Occasionally," he says, "an artist will be fortunate enough to hit upon an artistic statement that transmits a passion far beyond the technical issues of design and color. Such statements are generally involuntary and truly subliminal.

They may be religious in their nature, regional or patriotic in their direction, or even very personal; but they are surely expressions of deep emotional involvement."

knowledge and no real feeling for the ists who try to follow fads or fashions However, an artist who is competent but not really very involved in the subject at hand, who has limited material of the artwork, can fail readiionable the effort may be. In fact, artin which they are not personally "must be deeply felt and passionately stated if it is to succeed. This, of volvement with his subject and his ly, no matter how well done or fashinvolved may even destroy their own "An artwork," Hurley continues, course, is the essence of Turner's most remarkable work. He uses color and form to express his emotions in a candid way. His great mastery of color is quite overshadowed by his deep increative opportunities in the process. expression of his feelings for that subject."

Hurley returns to the issue of "border contrast," a subject that is much in his mind. "Under the influence of some very dramatic photographers and their photo magazines," he says, "artists sometimes make mistakes Continued on page 96

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such as painting brilliant golden or yellow aspens against an equally brilliant blue sky. This asks more of the viewer than is fair." Hurley suggests that the eyes can easily be swamped by pyrotechnics of this kind. He advises setting brilliant yellow aspens against a gray sky where they will be supported rather than overwhelmed.

To be sure, the viewer's visual equipment can adjust to scenes in which many major elements are equally brilliant, but such experiences are jarring and seem unreal. Overstated coloristic displays leave little room for the viewer to focus and offer too little contrast to be satisfying. So, too, Hurley will often show a sharp edge on one side of an object and a soft edge on the other. Whether this technique is employed with rocks, foliage, or clouds, it also helps the viewer to reinforce the realistic experience.

Hurley has little patience with art students who ask him for "color recipes." In agreement with the great Bauhaus color theorist Johannes Itten, he holds that specialized color formulations are, and should be, highly subjective. They may suit the needs and

interests of a particular artist at a particular time, but they will fail to serve the purposes of another artist in a different situation. Yet there are a few generalized color combinations that work well for him.

its tinting power is so great. He sighs red, and yellow ochre. To these he that it must be used cautiously, since as he notes that this is an expensive As suggested earlier, Hurley's basic opaque palette contains titanium white, Mars black, Indian red, light ground, he uses the earth colors: the umbers and the siennas, both raw and prefers Thalo green, despite the fact palette, but adds: "There is no other will add, in varying amounts, cadmium yellows and oranges, and ultramarine and cobalt blue. In the foreburnt. He no longer uses viridian but way that satisfies."

As indicated above, Hurley begins his field sketch by mixing the color of the horizon. He then examines the elements within his view to determine their relationship to this starting point. He selects and mixes colors and intensities accordingly, imposing no fixed palette on the subject matter. From painting to painting, the color and intensity of flesh, water, trees, sky, rocks, and brush may vary widely. They never come from fixed

recipes that lead to "standardized" colors. In fact, as Hurley notes, the colors of reality are always changing, depending upon time of day, season, illumination, proximity to other colors, and many other factors.

A few mixtures seem to recur. Hurley's grays are often based in cobalt or ultramarine blue. Working in Wyoming or Montana, where the sky is rather cold and toward the cerulean end of the spectrum, he uses cobalt blue and light red. In New Mexico, Arizona, Utah, and Colorado, the sky is almost always a warmer blue-gray and the shadows are sometimes close to purple. When he wants an even more purple cast, he starts with ultramarine blue and Indian red. In either case, he adds titanium white to get a lavender or a warm gray.

Hurley can easily manipulate these grays to make them warmer or cooler by adding differing amounts of blue or red. If he were to use a combination of Thalo green and alizarin crimson to make gray, the balance would be harder to achieve and to maintain. Such grays shift to purple or blue readily and are hard to control.

When the sky under examination is very overcast or the weather is snowy, Hurley uses white and Mars black to

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in a painting of two huge concrete abutments for a bridge—the Bloomfield Bridge, which was never built. Rising like outsized prehistoric menhirs set in the lush foliage of a landscape, they are another commentary on the futility of grandiose schemes. He says the abstract texture of the landscape was influenced by the work of a painting companion with whom he works on location and by Delacroix's color.

In recent mixed-media experiments, Qualters has cut shapes from Fome-Cor board and glued them to paintings with polymer gel medium. The painting is then done in acrylic. The painted edges of the Fome-Cor are a striking and original part of the design. In most of his work, he starts with a detailed drawing on canvas followed by thin washes of acrylic and an overpainting in oil. As mentioned before, he sometimes develops the drawing in a black-and-white grisaille underpainting before applying the color washes.

Qualters's work on paper encompasses many materials in a variety of combinations—ink, pencil, watercolor, Prismacolor crayons, Crayola crayons for wax resist, pastel, and acrylic. He also does etchings, screen prints, and lithographs, which he hand colors with acrylic. He says that acrylic is more permanent and combines better with the printing inks than watercolor. Actual printing is done by Tom Black, a printer in College Point, New York.

Qualters has held a number of teaching posts over the past 25 years, including three years in the 1960s at the State University of New York in Oswego, where he met his wife, Joanne, who is now the registrar at Carlow College, and seven years (1968-75) at the University of Pittsburgh. For the past ten years he has concentrated on his painting, with occasional residences and visiting professorships. He has a studio beside his home in the Squirrel Hill section of Pittsburgh.

He began his training in art at the Carnegie Institute in Pittsburgh, left for two years in the United States Army (he was stationed in England), returned to Carnegie, then went to the California College of Arts and Crafts where he earned a BFA in 1959. He stayed on the West Coast for three years. Then in 1964-65 he worked on an MFA at Syracuse University in New York.

Qualters's varied experience with periodic stays in places other than Pittsburgh has given him a perspective to balance his deep-seated sense of place and a philosophical depth

that is reflected in painting that is technically and thematically rich. His work is especially important at a time when representational painting is again in favor, but often for the wrong reasons. So much contemporary realism is simply a technically skillful rendering of appearances, a rehash of the same tired cliché images without any real meaning or purpose. Qualters uses experimental devices to enhance specific representational ideas that have a depth of meaning on several levels-symbolic, literary, and historical. The result is an original and powerful style with the potential for many years of work and a sure place in the mainstream of American painting. •