

# LIVING CRAFT

A PAINTER'S PROCESS

FINAL EDITION

TEXT SELECTIONS

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TAD SPURGEON

z o e t r o p e

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These are given in parts by volume, or in the metric system, by weight or volume, followed by American kitchen measurements in parentheses. Certain formulas are designed for *panels only*. Variables in ingredients and measuring methods make a scale and a technical notebook a good idea. Some formulas use historical ingredients, including solvents, that can be toxic if not used with care. These formulas are marked: ▲

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## To the Intrepid Reader

*Living Craft* is a record of a research project into handmade oil painting materials that began in 2003. It is designed for relatively experienced painters who want to explore the handmade craft. The focus of the book is on *what worked*, but also on making and maintaining *evolving systems* within a personal creative process. *Living Craft* contains a great many options, in a great deal of detail, about what to make, and how to make it.

This book is about creative development with the materials. It references older texts, and the findings of technical art history, but is not about worshipping what was done four and five hundred years ago, or claiming – yet again – that the “lost secrets” have been discovered. On the one hand, the crucial details of the past cannot be known with certainty, and, more importantly, the *living* aspect of the creative process occurs in, and only in, the present moment. As such, the original symbiosis of art and craft is explored within the *contemporary* process.

At this point, consensus Western culture often enthrones novelty and speed for their own sake. This approach is designed to be entertaining, and often is. But, with regard to the basic potential of the creative process as a transpersonal experience, it tends to sacrifice the journey for the destination. The speed of the journey can diminish not only its quality, but the quality of the destinations available to it. If, in reading *Living Craft*, I can prevail on you, intrepid reader, to be patient, and consider the book as the record of a *creative journey*, each step of which is equally important, rather than reading a paragraph here, and a formula there, in search of a speedy destination, this will allow the book to explain itself: to adjust, perhaps even revolutionize, the concept of the painting process you have, almost inevitably, absorbed from your culture and education. This shift will contribute greatly to the simplicity of your future experience with the book, and with making paintings based on its methods and materials.

This is not to imply that you have been misdirected, or sold a bill of goods, by your culture and its definitions of painting, education, or reality. But every period operates within a frame of reference that is inherently difficult to go beyond, simply because the culture exists, and functions, within it. If we go further than technique, and investigate the *foundation* of older painting, we quickly experience an expanded frame of reference about how painting can be defined, and to see why these definitions just might remain both personally and culturally relevant. This is the frame of reference from which this book has been written. So, I encourage you to first explore the methods and materials detailed here on their own terms, then come to your own conclusions about the different experience of the craft they offer, and the different definition of painting they represent. These are based on the dialogue between perennialism and the practical ingenuity of older practice, and, as such, may seem new – even, irony of ironies, shockingly new – as a frame of reference. But in terms of human culture, this approach to life, and the art we make from it, is quite old. It has, both practically and philosophically, stood the test of time.





# Into the Labyrinth

## 1.1 The Frame of Reference

Once upon a time, long ago, and even far away for those of us in the New World, painters had a deep understanding of their materials. This came about through a combination of training and experience, in a world both simpler and more complex than our own. Under these circumstances, the complimentary routines of life and art fused naturally into a living craft. Currently, this understanding is often framed as a myth, yet the work it produced can be seen in museums all over the world. Culturally, its existence is paradoxical: the presence of the past is an inspiration to some, a burden to others. As painters, can we leave pride and prejudice behind, and explore older practice, artistically and technically, as a set of creative tools?

What became lost from the early craft has intrigued and plagued painters for centuries, perhaps even before Reynolds set out late in his career to emulate Rembrandt's broken style with such mixed long-term results. At this point, through a combination of research and technological advances in the analysis of older paintings, we know more than ever before about the ingredients of older technique in terms of pigments and mediums. But how these were modified and assembled, what the working methods of the painter's studio were during the long 15<sup>th</sup> to 17<sup>th</sup> century apogee of the craft, will probably always remain a mystery. Given that secrecy regarding physical means – the art of concealing the art – has always been a basic professional intent, perhaps this is just as it should be.

The craft of painting has changed greatly in the last six hundred years, especially in terms of the vast array of commercial materials, and the vivid colours now readily available. But, while modern life actively encourages us to be consumers, we retain opposable thumbs and the capacity to make things, offering both a different type and quality of experience. As such, there are now two crafts: one based on purchased materials, and one based on personal materials. The purchased craft is a search for what to buy, and from which manufacturer. The handmade

craft develops incrementally, often from humble beginnings. It remains physical, and begins where it always has, in a daily relationship with the materials. Pigments and oil, chalk and glue, grinding, mixing, brushing, scraping: this story is still about learning, and discovering further levels of, a series of deceptively simple procedures. Similarly, this book began with an apparently simple question: What would happen if the craft were explored once again as it had been originally: step by step, by hand? The goal was not the historically accurate reconstruction, but a creative analogy: how to apply the older craft within a contemporary context.

Several related arguments are presented here about oil painting as a personal and vocational practice. They are addressed in relation to the quality of life: the dialogue between process and product, and are illustrated by examples from art history – the paintings – and technical art history – the research.

First, that painting is about life, and that life is the primary teaching tool, both literally and conceptually, which contains, and therefore cannot be defined by, ideas. Painting from life views the mental, emotional, and physical aspects of experience as equals. Second, that a handmade craft has more to offer than a machine-made one, but that, within a given personal style, some aspects of the craft will be more relevant than others. Third, that an experiential or heuristic approach to the materials offers more than an abstract or empirical one. Fourth, that the most functional relationship between art and craft is reciprocal, not hierarchical: they are both sides of the same coin. Fifth, that honoring the original contract of art in service to society has more to offer than ignoring it. This last argument goes back at least as far as Diderot's critical distinction between *le naïf* and *le théâtral*, and, by implication, to Plato's complaint in *The Republic* that painting is merely copying, not a creative art. The philosophical and practical elements of painting are currently presented in separate covers, but this has not always been the case. In this text, practice and motivation are viewed as complementary aspects of a craft whose tenets are not materialist, empirical, nor intellectual, but grounded in the physical and metaphysical interdependence of craftsperson and society.

This book contains seven sections: *concepts, aspects, colour, materials, mediums and varnishes, methods, and systems*. The information base is threefold, or *triadic*: older practice as defined by technical art history, the craft as a creative resource, and the equal validity of both logic and intuition in the painting process. The goal is to offer an alternative to both the encyclopedia of differential description, and the grimoire of equivocal arcana, through a practical, holistic reference that documents one painter's experience in detail. Whether of technique, proportion,

or innovation, the details of daily experience combine to generate a process that is both stable and lively. Modern texts on painting occur in frames of reference that are either scientific or aesthetic. The case is presented here for the dynamic, or symbiotic, interaction between the art and its materials evident in the 15<sup>th</sup>-17<sup>th</sup> century heyday of the craft. Older practice is examined for what it explains about the cultural attitudes that generated it, and what this might offer painters at work today. This approach can be applied to any level of experience, by anyone whose attitude towards painting stresses the quality, rather than the tempo, of the creative process. As a frame of reference, this still provides an opportunity for the life and the work to become one.

### **Concepts**

The concepts are based on concerted observation, which in turn produces enhanced perception, thus linking the work to life in larger terms. Learning to think in colour and form develops the relationship between the visual and verbal realms of the brain. This connects logical and intuitive problem-solving skills and includes more of each over time. The concepts organize the process, aiding intuition through the simple but infinite logic of dialectic analysis. This ancient technique uses the interaction of opposites to create new possibilities, even a new frame of reference, through creative synthesis.

### **Aspects**

The aspects emphasize elements of the process and the greater level of tactile or haptic awareness that is intrinsic to older painting. One expects this depth from the materials, but it begins with the way the process itself is conceived, then organized.

### **Colour**

Organization is also intrinsic to how colour is used in older painting. This section explains how colour is arranged to evoke light and space, and the ways older painting used optical techniques to map colour to form. These methods create more perceptual colour from fewer pigments via a type of simultaneous contrast with the added dimensions of pigment optics and the way positive colour is both integrated with, and differentiated from, negative colour. Taken together, they define a triadic balance between the *vivacity* of local colour, the *unity* of an integrated light-shadow axis, and the *optical depth* of the paint itself.

### **Materials**

The materials are principally traditional, based on the older texts on the one hand, and the findings of technical art history on the other.

Modern materials have been incorporated when they have proven to be stable and non-yellowing.

### Mediums and Varnishes

This section offers choices that developed based on the findings of technical art history, made with both handmade and, in some cases, quality modern materials. The positive and potentially negative aspects of six medium types are covered – *oil, putty, egg, resin, emulsion, and beeswax* – along with various useful combinations.

### Methods

The emphasis of the *methods* is on the 17<sup>th</sup> century, but some concepts or formulas – panels, gypsum gesso, the Strasbourg Method – are earlier. The methods developed by comparing the formulas and instructions in older texts with the findings of modern conservation research. Technical art history has shown that the older texts themselves are most often compilations, the work of scribes, not painters, containing a complex assortment of useful and unlikely information. The dedicated technical publications from London's National Gallery and Tate Gallery proved to be a reliable filter for the older texts. The consistent message of informed simplicity from these findings effectively sliced through the Gordian Knot of the literary trail, establishing the basis of the older system as *simplicity, ingenuity, and expediency*, derived from cumulative experience, and practiced in the service of *longevity*. For the craftsman working in a cultured, but highly competitive context, this approach also functioned both as advertising, and insurance.

### Systems

The *systems* are either *technical*, based on a specific approach to the materials and methods, or *historical*, based on sets of materials and methods that generated a certain style at a given period.

### Purpose

This book explores the relationship between the creative and the practical aspects of oil painting. Its materials and techniques are not presented as historical reenactments, nor as definitive; it is a record of what worked for one interested party, me, and why. The purpose has been to explore a partnership with the craft in a way that is functional and expedient *now*. This bond occurred naturally during the 15<sup>th</sup>-17<sup>th</sup> century flowering of the craft; there is no reason why it cannot happen again. As such, the reader is gently urged to consider the potential of the materials when addressed on their own terms. Overarching attention to detail is both the literal foundation of the universe, and the

basis of any creative process. Once observed, these details assemble themselves into natural systems whose components and behaviors are logical, yet inconceivable otherwise. Developing a dialogue with the materials incrementally, from the inside out, produces far reaching results for the life, the work, and their unique partnership at the easel.

### 2.3 In Plain Sight

We develop a visual shorthand as we navigate through life, but to paint life we need to look more closely. One would think this would be boring, but an interesting phenomenon occurs: the greater the search, the deeper the perception. At first the mind rebels: “Why are we staring at this apple?” But once the mind relinquishes its condensed version of the visual, this first level is quickly past: “Oh, because actually we know very little about this apple.” Once underway, the process quickly brings further levels to explore. Looking out, or looking in, there is always more to see.

Imagine the simple act of drawing the apple from life with a pencil. At first the outline is drawn lightly, then the process of correction begins. Why? Because it is not quite right. This may be frustrating, but provides an impetus to go further. Bit by bit, the outline gets better; the errors are clues to their solution. Bit by bit, more of the subtleties and intricacies of the form fall into place. It is essentially round, but not like a circle is round; there’s more. But is any place actually flat? No. Are there any concave places? Oh, yes. How can a single contour be so articulate?

This is the beginning of nature’s great lesson. The visual world contains tremendous built-in complexity that we tend to take for granted. In our day to day life, we are in fact often involved in attempts to create an alternate world, instead of exploring the one we just may inhabit for a reason. To the extent that we are willing to slow down, and look more closely, nature reveals more about both its structure and meaning. Nature’s gentle but inherent profundity is not available to someone in a hurry; an apple, in this case, is just an apple, preferred as a snack or not. This attitude may be necessary in daily life, but is it useful for art? The answer depends on how art is defined: as an initial or spontaneous response, or one that is achieved through study over time. Matisse made apples that are flat, Cezanne made them out of planes, Chardin made them dimensional without copying them pixel by pixel, Magritte made them with an eerie perfection that questioned the concept of reality itself. These approaches to the pictorial apple are all different, yet succeed on their own terms as transformations: the

viewer knows that the painted apple is, and isn't, the actual apple; that this paradox is intrinsic to painting.

Reconciliation between the philosophical and the practical point of view may be elusive in larger terms, but it is necessary within the context of style. Each painter approaches this individually, yet the created world is so detailed that to comprehend something as basic as the outline of an apple, it is necessary to pay attention in a different way. The fact that the things we see exist beyond their mundane identity has been a staple of painting since antiquity, possibly originating in the Platonic concept of the visible world as a material projection of the invisible world. Delacroix (10-17-53) refers to depicted forms as a hieroglyphic language, leading the viewer to deeper levels of meaning. Yet, meaning is optional; the painter's intention may not reach the viewer. Painters have complained about this, but it is only fair that the viewer also exercise personal perception. Accepting the validity of all types of seeing – from the casual to the committed – develops an interpretive tension between the surface and what is, or is not, beneath it. Does an image have meaning, a coherent message? Or is it simply a document? We may disagree, even strongly, but over time, this tension serves to refine our process of communication.

When we explore the concept of seeing actively, as a process rather than a given, leads to the paradox of more being created from less. When we put a hold on temporal activity, our consciousness stops ranging around on the surface and begins to settle down. As it settles, it naturally goes deeper. How deep does it go? There are plateaus, but then, as in quantum mechanics, a sudden shift occurs leading somewhere new: the apple of an hour ago is not the apple of the present moment. The observational skills necessary to paint something as deceptively simple as an apple can be a great exercise in developing patience; in both searching, and waiting, for the next level. When is it merely rendition? At what point does it become art? Does this transition occur through more complexity, more simplicity, or the interaction of both?

A fascinating reciprocity comes into play, an awareness of the relativity or unreliability of perception itself. The object changes, but so, necessarily, does the observer. The apple is “merely” an object, but concentrating on it allows it to function as a gateway to further awareness. What appears to be an act of mimesis becomes a process of mutual transformation. The observer moves beyond the confines of imitation or symbology to a place where microcosm and macrocosm interact in the moment. Once this is experienced, a quantum change takes place. Nothing can be perceived as “the same” again, because identity itself

has been shown to exist in flux. As a result of focused attention, of looking deeply instead of broadly, seeing has become evolving.

The less we take the act of seeing for granted, the more we can consider questions that shed light on its inscrutable weave of fact and mystery; the warp and weft of what can and cannot be known. If we conceptualize the apple as an object, it remains one. No matter how well painted, a larger visual narrative is unavailable. If we conceptualize the apple as a vehicle, there is no telling where it can take us. This turns the craft of depiction into the art of transformation, and is the foundation of the creative process in representation. The goal is to determine what wants to happen *now*. This means balancing the known – experience – with the unknown – exploration. The structure of the past is altered by the search for expansion into the future. This is the consistent message of the present moment. The energy of the moment allows the process to grow into its next frame of reference and sense of fruition. The structure experiences not replication, but rebirth. The key is the enthusiasm, the emotional relevance, established by what wants to happen in the moment, allowing the craft to serve the art.

### 3.12 The Structure of Style

A realistic painting presents the viewer with an illusion that can be entered and explored without effort. Within the process of creating this illusion, the tension is between the universal – what we all see – and the personal – the specific way the painter sees. The painter's interpretation can focus on *literal* realism, *psychological* realism, *emotional* realism, or combinations thereof. The type of interpretation is often the result of intuitive or unconscious choices. But the interpretive tensions that make up a style have a structure within the process. Exploring these makes the style more creative or adaptable over time.

#### Composition

Tension is generated by the contrasting roles of line and shape in the pattern of the composition. Early composition tends to stress line, the lines even retain a life of their own after the painting is made. This gives some ground during the 17<sup>th</sup> century to compositions that stress the dynamic interaction of shapes of different values, but is never fully replaced except by Impressionism and Pointillism.

#### Rhythm

Tension concerns the role of an underlying linear pattern in directing the viewer's emotions. Rhythm is often accentuated beyond what is natural to underscore the painter's intent at a subconscious level.

## Value

Tension is about how the value scale is depicted in relation to the way the eye sees. This is inherent because paint cannot emulate the brilliance of light, and must use simultaneous contrast within individual values instead. Value scales are elastic and can be stretched to produce the visual drama of *chiaroscuro*, or compressed for more atmosphere and midtone colour emphasis.

## Space

Tension is created by how space is depicted. The poles are flat, two-dimensional space, making the sense of realism either crude or sophisticated, or space that is rendered with as much dimension as possible, giving great depth to even a room, as is done by Velázquez in *Las Meninas* (1656). But there are other conventions, notably when figures and objects are given depth while the spatial envelope of the painting is not, a feature, for example, of both Giotto and O'Keeffe. Another approach modifies the spatial illusion by holding the eye on the surface via universal detail, a feature of both early Flemish painting and Bonnard.

## Colour

This offers two types of tension: whether local or atmospheric colour is stressed, and whether the colour is diminished or augmented relative to natural colour. Venetian painting tends to stress *augmented local* colour. The outdoor oil sketches of Constable or Valenciennes often feature *diminished atmospheric* colour. When Monet paints fog in London, he is exploring *augmented atmospheric* colour. The unique Dutch *ontbijtje* tradition features *diminished local* colour.

## Paint

Tension here has to do with how much the paint is designed to be noticed. At one pole the presence of the paint is minimized; it exists to convince the viewer of the painting's veracity. At the other pole, the paint is applied in a pattern of relief that emphasizes it as a separate, tangible material in which illusion resides. Many varieties of painterly realism have been engineered between these poles, balancing depth of rendering with the residual physical energy of the paint itself.

## Edges

Are the edges active, with broken colours and brushstrokes, or impalpable boundary zones defining different identities? Edge tension is related to their specificity or implied mobility.

## Content

Finally, tension focuses on the painting's content. This revolves around whether the painting has a tale narrative can be interpreted, or presents a riddle at which we must guess. At one extreme, the painting depicts a story that the contemporary viewer knows well. At the other, the painting alters the visual reality being depicted. *Trompe-l'oeil*, anamorphosis, and surrealism are all forms of altered realism. In between, paintings can be reticent about their meaning, posing riddles or conundrums that invite deeper consideration of what is being depicted: of where the truth is hidden within the illusion.

### 4.1 An Unruly Lexicon

Colour as a language is at once articulate and inscrutable. A similar basis on wavelength and tonal relationships makes for interesting comparisons with music, but there are no discrete scales or specific notes in colour that simplify the situation: colour in paint is in a constant state of flux. Limitless possibilities make colour exciting, but not necessarily peaceful. With colour, there can always be more, but, as is the case with words, it is not a matter of knowing them all, but of assembling a natural vocabulary in an inspired sequence.

At this point, tension often exists between colour for its own sake, and colour as an aspect of the painting process. Early in *The Interaction of Color* (1963), Albers states that paint is too complex a tool for the study of colour. Conceptual colour and its physical vehicle can certainly be dealt with as different things, but, for painters, they act as one in paint. Wehlte suggests that the study of colour, like that of drawing, occur separately, and prior to work with paint. This would allow the inevitable fascination with colour as a *Ding an sich* to develop on its own terms. After a period of experimental freedom, working with a basic selection of traditional pigments is more likely to provide a sense of direction, rather than limitation.

We are typically educated with an emphasis on the efficiency of linear thought, and this is mirrored in the flat color of much 20<sup>th</sup> century painting: this is as linear as colour gets. But, conceptually and in nature, colour is multi-dimensional. Planar colour can certainly be artistic, but does not exist in nature. Which makes the planar approach complex: on the one hand, a search for the abstract basis of colour as a universal language, on the other, a rejection of the way colour occurs within the universe of our common experience.

Because colour is so related to feeling, it is most often used intuitively: painters develop a personal method of altering or condensing colour, a chromatic shorthand. In realism this works up to

a point, which is defined by both the period and the imperatives of the style. Convincing natural colour involves fine tuning value and temperature within the light-shadow axis when mapping colour to form. More realistic rendering is typically paired with more realistic colour, but neither of these may be necessary: a great deal of art has been made with strong shapes and simple colour. To use colour intuitively and creatively, it must first be harnessed to, or filtered through, the system established by the logic of light. Colour can be creative within this logic, but is unreliable, or, at best, difficult to develop further as an aspect of style, without it.

We can turn to the scientific study of colour for guidance, but this is not based on the physical behavior of pigments. Modern colour models are three-dimensional solids that take value and chroma into account, but do not address the degree of transparency, the chromatic complexity introduced by layering, or the all-important way colours – especially colours of different types, or contrasting temperatures – *interact*. Any model is also relatively abstract compared to the living quality of colour embodied as paint. Colour knowledge can be helpful, but pigment awareness leads to colour instinct – an aesthetic feeling for colour in paint – which is more useful in practice.

In realistic painting, colour is used to create a consistent illusion of three-dimensions on a flat surface. This means arranging colours to appear to be in different planes – to advance or recede – through *mapping colour to form by type*. Colour has a structure whose study makes it easier to comprehend. A given colour has:

- A *value* from light to dark
- A *temperature* from warm to cool
- A *chroma* from dull to vivid
- A degree of *transparence, translucence, or opacity*
- A *level* in the order of the paint layers
- A specific type:
  - *Hues* are made from colours alone
  - *Tints* contain white
  - *Shades* contain black
  - *Tones* contain gray

The endless potential of colour can be likened to the immense number of words in a dictionary. Realism needs an arrangement of colour that is literally or figuratively accurate, and this is like choosing certain words to tell a specific story in the way that feels best. This means exploring colour within the light and shadow axis, as well as the

air quality, of a specific place and time. The goal is to integrate chromatic variety with value, temperature, atmospheric recession, and midtone vivacity, so the painting reads as a unified whole.

Given the primal appeal of colour, the variety of pigments available now is a mixed blessing. Even as late as the 19<sup>th</sup> century, the permanent pigments beyond the earth colours numbered less than two dozen. At this point, manufacturers gleefully put out a redundant exorbitancy of colours; information about which to choose for the palette is contradictory. Paint nomenclature remains a disorganized *mélange* of actual, historical, and alluring names for which there are loose traditions but no rules. Under these circumstances, our harried painter is apt to substitute a variety of scintillating pigments for the art of colour mixing. This can easily lead to paintings with *Chromatic Anxiety Disorder*: too many pigments without enough relationship between them. When this occurs, we are not using, but being used by, colour. Relentless vivacity is wearying to the eye, just as relentless *fortissimo* is wearying to the ear. In nature, vivacity is selective, balanced by the neutrality of reflections and the unity provided by the atmospheric envelope. Similarly, finely tuned colour dynamics can be an important aspect of the painting as a work of art.

To create harmony, or the sense of a specific place and time, a limited palette is an asset. This sets up a natural emphasis on colour mixing technique, and the balanced colour relationships found in nature. Well-known colours can be seen as *boring*, but prosaic colour on the palette does not mean prosaic colour on the painting itself, because *the perception of any colour is always determined by its context*. We think of cadmium red light as a certain colour, but when it is surrounded by blue, orange, white, or gray, it appears different in each case. This introduces an important paradox. On the one hand, cadmium red light *does exist* as a specific bright red-orange hue, but on the other hand, *no colour is absolute*, either in a painting, or in life. The actual chroma of a colour may be less, or more, than its perceived chroma, according to the colours it is reacting with. And colours are constantly reacting with one another, this is what they do. As such, colours are tuned to create more or less perceived chroma, to advance or recede to a given degree. Creating a convincing illusion of light and space is a matter of mixing colour within the key of a given light-shadow axis. Because colour is so sensitive to context, mixing technique is the most effective tool for creating unique colour, allowing the development of a unique set of contexts or relationships. Without using contrasting temperatures to establish the colour in context, a tendency to substitute chroma and energy for accuracy occurs. This approach typically involves great

sincerity and heroic gnashing of teeth, but is not consistent, nor replicable, because it ignores the logic of light as the immutable foundation of colour relationships. Lively execution is often desirable, getting in touch with one's creative subconscious is great, but, admirable as these approaches are, they have yet to succeed in altering the physics of the planet. Alla prima techniques featuring spontaneous or reactive mixing emphasize a strictly limited palette for precisely this reason. Mixing colour has many levels; a limited palette facilitates finding evolved ones because these exist *within* the sphere defined by the axes of red, yellow, and blue. To make convincing colour, it is important to both *see* it, and *envision* it. A method of sequencing the transition from the colour we *observe*, to the colour we *mix*, provides the *organization* that enables *inspiration* to be transcribed with clarity. Without this animating tension, we are either copying, or guessing.

The one hundred and forty-seven tubes on display at the store give the impression that all this choice is crucial. But this is not true. We only need to be concerned conceptually with the primaries: red, yellow, and blue. Each primary comes in two types: warm and cool. In the daylight palette, in addition to white and possibly black, there are six basic positions to consider: warm and cool versions of each primary. These positions don't all have to be filled: a painting can be made with a triad of three primaries and white. Many older paintings were made with a limited palette to concentrate on the advanced depiction of value and temperature that establishes a given visual-emotional mood. As such, when constructing a light oriented palette, it is important to first chose what is necessary, not what feels new or provocative. Observing the progress of successful colourists such as Bonnard or Matisse, we see that more adventurous colour comes after learning to depict light and form. Painting light convincingly is not enhanced by colour variety, nor by colour identity, but by the accuracy and harmony of the colour relationships within the value structure. These must be finely tuned to feel natural and are far easier to access with fewer colours and mixing based on value and temperature – the logic of light – than with more colours and mixing based on guesswork. As with any practice, guesswork develops over time, but guesswork is unnecessary, and tends to bind colour to a reliable but repetitive formula. Colour mixing is often subjected to rules, such as “never mix more than three colours together.” This particular guideline is functional up to a point, but it is more accurate to say that mixing more than three colours together can achieve great subtlety, but the value and temperature shifts of the colour key in question need to be well tuned in order to keep the adjacent colours in the same key. Like training

wheels on a bicycle, guidelines can be helpful for learning, but eventually restrict the potential of the vehicle. The precision of realistic colour is such that a system for organizing value and temperature shifts is necessary. Painters have worked this way for centuries, and there are specific patterns, and accepted conventions, from which to learn the art of dimensional mapping. In Western art history, the coordination of value and temperature to create the illusion of space is at first relatively formulaic, but becomes more subtle and creative, over time. The varieties of 20<sup>th</sup> century colourist realism all use different iterations of this principle. The eye accepts tremendous license from colour as long as the basic logic of the light-shadow axis is consistent, as it is in nature.

Colours clearly have meaning, but these are hard to pin down. Is that an angry, or a joyous red? A sad or hopeful blue? A cringing or affirmative yellow? Colours have a specific symbology in a given culture, but these are inconsistent. How is meaning changed by shape or context, when many colours are arranged together? The power of colour is its existence as a language, but in a realm beyond words: it simply *acts* on consciousness. And, though we are unified in our response to colour, these responses are necessarily diverse.

The complex relationship between colour, feeling, and meaning makes colour selection largely intuitive. This evolves over time; a certain colour may feel predictable, then feel crucial, or vice-versa. Shifts here are often unconscious. Is the palette too bright or dull? Discovering the current “right” colour or colour combination is a relief: work can proceed in the appropriate emotional key once again.

Conversely, certain colours may feel intrinsically wrong. In her diaries, Virginia Woolf recounts Roger Fry’s sudden pronouncement one day while painting in southern France that yellow-green is not an artistic colour, and the ensuing arch debate with her sister, the painter Vanessa Bell. Because all colours are, in the largest sense, created equal, exploring areas of colour which have been unconsciously edited out, or actively dismissed, can be intriguing. Are our inclinations highly refined, or prejudices in disguise? A given colour may not be seen, but this doesn’t mean it isn’t there: the chromatic frame of reference of a time and place can be difficult to see when existing within it.

The intensity of our reaction to colour is modeled on the evolved way colour occurs in nature. Analogously, older paintings often exhibit great finesse in the way colour dynamics direct the eye. The power of colour is always exercised within the logic of light. Examining colour through the system of nature allows value and temperature relationships to be tuned with natural creativity. Yet, just as painting is more than drawing, it is – *gasp!* – more than colour.

### 5.3 A Craft of One's Own

Current approaches to the materials fall into three main categories: empirical, alchemical, and boutique. Each of these defines itself as *better than* within a specific frame of reference. This contributes significantly to the emotional, if not necessarily to the actual, power of the argument. And there is usually an argument.

#### The Empirical Craft

The empirical approach to the materials proves its superiority through analysis and the statements of incontrovertible – if not quite divine, since that is outside the frame of reference – truth from the laboratory or the database. Its attitude towards the past is *we know more than they did*. The gross imprecision of older materials has been replaced by the perfection of current technology. Modern oil is cleaner, modern pigments are more permanent and ground finer, the paint is deliciously buttery, commercial materials absolve the painter from all the troublesome guesswork and lurking technical disasters of the past. Whether or not these developments are helpful to the process of making art, or to the art itself, is beside the point, the facts are obvious, the case is closed. And it is true that the more practical forms of empiricism, such as conservation science or technical art history, have offered painters an opportunity to stop doing things technically that are truly idiotic. But these disciplines are quite aware of the complexity of the interactions, both physical and chemical, that take place in the paint film. This approach is rejected by the typical empiricist as needlessly nuanced, materials and methods are either *good* or *evil*. But because this approach begins and ends abstractly, it offers little depth in practice. Viewing knowledge as an end, rather than a means, enthrones the ivory tower of theory over the trenches of practice. Elevating ideas over experience creates a relatively unstable position within *any* context.

#### The Alchemical Craft

The alchemist is aware of this, and sets off in the opposite direction. The attitude towards the past is According to this approach, the painting of the past was evolved in ways empiricism is too insensitive to comprehend: *they knew more than we do*. This situation revolves around any number of older secrets of the craft, depending on which enchanted threshold of literary detective work one proceeds across. The secret is always centered on a medium, typically a mastic gel or amber varnish, but at this point virtually the entire larder of materials from the literature related to older painting practice comes into play in one scenario or another, including some implied lost mediums which are

probably modern in origin. To its credit, the alchemical approach is willing to dig into the materials more thoroughly. But it has a tendency to become focused on technical achievement for its own sake, instead of viewing it as one part of a larger creative process. What purports to be wizardry may also turn out, over time, to be prestidigitation.

### The Boutique Craft

The boutique approach is often taken by smaller manufacturers of materials, and is based on the dedication of a smaller enterprise being better. This could be more true if painters were more enlightened about what constitutes quality paint or oil, but the small manufacturer is also the prisoner of the marketplace, and of the painter's often self-defeating search for economy. Beyond this the boutique approach becomes more varied. Sometimes it leans towards empiricism, but with more of an emphasis on purchasing raw materials. One can then isolate the verdigris, protect the azurite with an egg protein wash, levigate the *sinopia*, gaze on one's jar of ground lapis lazuli with fond satisfaction. Whether or not this approach is helpful to making art is beside the point, it is the older way, and therefore the better way. In other incarnations the boutique approach becomes contrarian, dismissive of both empiricism and alchemy for having overlooked so much of what is obviously the better way. In this case one purchases the carefully hoarded materials that are intrinsic to the superior system developed by the brilliant, endearingly erratic iconoclast: *I know more than anyone!* Whether or not this system is in fact superior is impossible to say, because hard information about the materials themselves is impossible to come by. The boutique approach does offer more in the way of quality and variety than the average run of commercial materials, but it tends to become focused on the colorman's knowledge, can make a fetish of specific materials, and is adroit at emptying the painter's wallet.

### The Organic Craft

These different approaches to the craft coexist about as cheerfully as walled medieval city-states. But they are unified by their common focus on the concept of a specific type or quality of knowledge – *theirs* – offering the ultimate solution. Examined philosophically, these are all *gnostic* approaches, providing definitive answers to the question, “How to paint?” within specific types of knowledge. But they define the basis of the knowledge – or the words to the magic spell – differently. For their adherents, they provide a convenient way to be right, and, often, a correspondingly convenient way for anyone who disagrees to be wrong. This type of solution is always appealing because

being right means one no longer has to engage in the perennial ordeal at the core of human development: further consideration.

But, from the perspective of older painting, none of these approaches addresses the concept of the craft as a functional organism within the painter's world. While they all have a specific positive element, all of them also, in different ways, diminish the painter's freedom of creative choice within the craft by making *a priori* decisions about what can and cannot happen based on a static frame of reference. The common goal, in fact, is to *prevent* the painter from knowing about the type of technical awareness and independence the immersive craft provides. The modern approaches all consider the talisman of a prepackaged solution crucial. But conceptually, the older craft is located on a different planet.

To work within the craft, we cannot afford the inflexibility of theory, or dependence on knowledge whose origin is not in our own studio. The craft is not a set of formal beliefs, but an experiential system that operates by constantly accruing more refined information. The frame of reference is practical, and necessarily without rigid boundaries. Here, answers simply lead to further questions, as the day-to-day working relationship with the materials evolves. Because the craft focuses on the results of immersive involvement, its world is beyond the duality of yes or no, right or wrong. The craft weighs choices without judgment, because the solution to any problem is always redefined as the process develops. As is the case with life itself, what might work best depends on what *has* come before, and what *will* come after. The key to working successfully within the craft is to accept that it operates through the principle of creative uncertainty. It is about a way to learn more, rather than a way to attain correctness, or possession of the moral high ground. When the idea of knowledge as the key to a specific better way ends, work with the actual craft then has an opportunity to begin.

While art history demonstrates the technical and artistic potential of the craft, and technical art history provides broad outlines of what was done, in practice it may take trial and error, and evolution in proportional thought, to get a personal system underway. In this situation, not only is there is no substitute for experience, there is no substitute for *cumulative* experience. Each experience leads to a reassessment, sometimes small, sometimes large. These can take time to understand fully, but then lead to the next version of the system. When a painting is constructed with harmonious proportions – a process with both inner and outer dimensions – the result has both beauty and strength. Proportional harmony is involved in three major areas: the colour, the composition, and the materials themselves. The first two

areas are always focal, but the last area has remained relatively obscure, even mysterious, in print or the classroom.

The key to creativity in the physical structure of the work is to develop a synergistic partnership with the materials. It is important not to rush to produce quality in quantity: haste can force the process into repetition and is also at the core of many historic technical issues. Quality occurs efficiently once the materials are understood, but this approach contains dimensions that have been edited out of not only the modern craft, but out of modern life as well.

### Issues of Nomenclature

What's in a name? With regard to contemporary materials, a rose may not be a rose. There are several ways that a material's identity can be obscured by its name. At its most extreme, the wrong name is *sharp practice*, as in the 19<sup>th</sup> century classic of vermilion cut with red lead. In contemporary mediums, a material called copal medium exists with no copal resin in it, a material called sun oil may be burnt plate oil. There are no rules. The wrong name can also be a matter of *commercial convenience*, as in a tube of paint called Naples Yellow when it contains no lead antimonate. The assumption is that of course no one makes *real* Naples Yellow anymore. But then someone does, and labels this paint Genuine Naples Yellow. Another example of this is naming any ground calcium carbonate chalk. Some historical names have changed meaning several times. Venice turpentine originally came from Venice, meaning it was probably what we now call Strasbourg turpentine or *Olio d' Abezzo*. By the 19<sup>th</sup> century, Venice Turpentine meant larch balsam. Now, Venice Turpentine means a combination of larch turpentine and colophony, which is the residue left over from turpentine extraction and yellows badly. It is also important to realize that a name might remain the same general thing, but be different by century because of the way material was processed. Lead white and linseed oil are examples of materials whose names have remained the same, but whose make-up and behavior has changed significantly in the last five centuries.

### Purchasing Materials

Growing awareness of the craft has made raw materials more readily available. When purchasing, it is best to temper enthusiasm with consideration. Outside the confines of commercial products, new possibilities can lead to new formulas being generated without an organized or systematic method. This may not lead to disaster, but it can lead to serial conundrums about what happened, and why. The

absence of a system makes these difficult to unravel or interpret, potentially inhibiting progress. Ironically, an overactive search for answers can in fact interfere with finding them. Proceeding methodically solves this problem, with the bonus of encouraging experience with known materials to become deeper. Once it becomes clear that a formula doesn't necessarily need new ingredients, but always has more to offer by *adjusting its proportions*, breadth is naturally subordinated to depth.

### **The Perils of Fiendish Cunning**

Attention to the process reveals further levels or dimensions. These appear because the craft occurs in a matrix of axes where decisions constantly evolve in relation to one another. The fact that craftsmanship can appear natural, yet verge on the miraculous, is a cornerstone of older technique. *What* a given older painter used receives a great deal of attention, but *how* the materials were processed, combined, and implemented is equally, if not more, important. A given decision is also a function of how it is implemented. It is easy to conclude the materials need to change, when the issue may be with the proportions, or the method. A given system contains many variables, aspects of it can be overlooked or discounted at first, then emerge later as having more to offer. This is often a matter of first thinking the answer has been found, then realizing it is only *part* of the answer.

Each department of the craft is a world. Wehlte begins by discussing the relationship between three elements: the ground, the pigment, and the medium. Painters gravitate towards the medium, but a more logical area to explore first is the support and ground. Further work then builds on a firmer and more personal foundation. If the oil is investigated, along with its potential in handmade paint, the medium may become less crucial. Painting from the ground up tends to be simple technically because personality is built into the work at the root.

Try to be patient with learning to think in the materials. Any system has its own internal logic based on the interactions between the ground, paint, medium, and brushes, but this is a matrix with four dimensions, and therefore many variables. If an approach becomes involved, look for ways to simplify it. Much time can be saved by avoiding stratagems of fiendish cunning and simply observing the practice well. Change is inevitable, and need not be actively pursued. A considered approach leads to development at a reliable pace. Leonardo had one of the most resourceful minds in all human history, yet his concerted attempts to reinvent the exacting craft of fresco were not successful, ultimately resulting in self-imposed exile from Florence.

## Why the Wall Moves

Issues with the cavalier and mad scientist approaches to technique are well known, but enthroning caution also has drawbacks. To be alive, the craft needs to develop. Change proceeds from a balance of known and unknown, certainty and doubt. What works best is always evolving as questions generate solutions, which in turn generate new questions. As painters, we may be interested in a technical goal or finish line, but the craft is not. As a given system reaches completion it tends to morph into something new. The original concept moves halfway towards the wall incrementally for a time, but then the wall itself moves, because the approach has accrued enough information to suggest the logic of a quantum change. Allowing the process to take the lead may not be convenient at a given place and time, but this is where the energy of its momentum can always be found.

## The Three Basic Painting System Options

There are three basic sets of options for designing a painting system:

- Setting up the initial composition around *lines or shapes*
- Working *alla prima or in layers*
- Painting in a *smooth or broken* style

These choices are personal, and typically only emerge clearly over time. Experience then suggests ways to balance each choice somewhat with its opposite, providing the potential for further, even constant, incremental development.

The act of painting constitutes an endless fusion between organization and intuition. Paradoxically, this means that if we *measure carefully*, it is then possible to *paint freely*. Away from the easel, it is helpful to think in the technique, to ask what happened in order to refine what comes next. The process also suggests further avenues of enquiry. This may be as simple as “cleaner temperature shifts,” or “less chalk, denser oil,” but can also be about changes in the palette, the ground, or alterations in concept to be built into the drawing or underpainting. The process can be repeated to refine it, in flux to redesign it, or anywhere in between.

# Mediums and Varnishes

## 6.1 Proportion and Evolution

Commercial paint is convenient, but also features the uniformity of a product, making the transformational potential of the medium of perennial interest. Dalí relates the poignant quest for the perfect medium, and gives a lively illustration of possible ingredients, but no actual formulas. The 15<sup>th</sup>-17<sup>th</sup> century craft contains variations, but these proved stable because the craft was handmade from the root of the process. Beginning in the 18<sup>th</sup> century with Watteau, perhaps the first well-known painter who did not care about the craft [9.2.15], painters occasionally concentrated on short term results using complex materials. This means the medium is an area where a great deal has gone wrong: one of Turner's paintings famously cracked within a week of leaving the studio [9.1.29]. Once the paint was made commercially, the medium followed. The 19<sup>th</sup> century contained many proprietary formulas such as Roberson's Medium, books of formulas even contained tantalizing blanks that could only be filled by sending the author further payment [9.1.24].

In the 19<sup>th</sup> and 20<sup>th</sup> century texts a separate and variable medium component is given, but the concept does not exist in De Mayerne. In entry 195, containing one of several palette illustrations, De Mayerne indicates a large blank space where the colours are mixed with *the oil*: the simplest system possible. In a letter written early in the 19<sup>th</sup> century, Constable warns against period "nostrums" in favor of linseed oil alone [9.4.8]. Still, it is important to note that, later in his career, Constable used poppy oil, and the sequestering triad of egg, resin, and wax [9.7.18]. Thus, even for a painter aware of the value of simplicity, technique evolved due to the complex nature of the medium itself.

Literary detective work is often used to establish the pedigree of a material. The detective work may be sincere and painstaking, but the territory itself is quicksand. The amount of information actually written by working painters is small, and has been gone over assiduously. Scholarship has identified the occasional "impossible" recipe but, given that *eye of newt* was a medicinal code for mustard seed, and *salt of Saturn*

an alchemical code for lead acetate, this type of recipe may have had a code whose key has been lost. There are also numerous improbable recipes, especially for varnish, clearly not sourced from practice. This occurred because books made up of various craft secrets were a growth industry for centuries, often attracting “authors” who were simply collators and copyists. This can make the identification of specific materials obscure, and details of procedure non-existent. The secrecy of guilds and working painters means that the evidence presented in these cases is at most equivocal. Even with a reliable source such as De Mayerne, a question exists about how much the mettlesome – and perhaps meddlesome – doctor was actually told. Within the craft, half the story is as effective as none, and far more polite. Rubens, for example, does not mention egg white to De Mayerne, a material increasingly thought to be part of his technique [9.1.21].

The consistent conservatism of older practice established by the NGTB research is logical for the artisan with a reputation to establish and protect. The degree of accomplishment in this work, and its hallowing over time, make it easy to forget that painting was most often a means to economic security in an aristocratic milieu with exacting expectations about the objects that represented it.

Ingredient	Formula 1	1:2 in Paint	1:3 in Paint
Wax %	15	5	3.5
Resin %	10	3.3	2.5
Chalk %	30	10	7.5
Oil Mix %	45	15	11.5

Ingredient	Formula 2	1:3 in Paint	1:4 in Paint
Wax %	20	5	4
Resin %	15	3.25	3
Chalk %	25	8	5
Oil Mix %	40	10	8

Table 2: Medium to Paint Proportions

Proportions offer important guidelines. Ingredient amounts are prone to expansion in the studio, but this is not a situation in which the strongest sword is forged with the greatest heat. Accurate measurement and consistent medium-to-paint proportions help the process be reliable and replicable. By excluding or minimizing solvent,

denser and richer mediums can be used in minute amounts. Say we want five percent wax and 3 percent resin in the paint film. Note how, in Table 2, the proportion of medium to paint for Formula One is 1:2, while for Formula Two it is 1:3.

### 6.1.1 Medium Types

There are six basic medium types, which can also be mixed to produce more balanced or finely tuned behaviors. Which medium type works best depends on how the style uses colour, whether the system is *alla prima* or indirect, and whether the surface smooth or broken. In larger terms, the medium that works best is the one that is invisible while working, allowing the most natural expression of the physical energy of the hands.

#### Oil Mediums

The primary instance of the medium is the oil in the paint. Paint was originally handmade with oil that was cold-pressed, and hand-refined. The oil was also probably *aged*, *preheated* or *thickened* slightly in many cases. A technical article often reports the medium as “oil.” But the resourcefulness of older painters means that this can in fact be *many* different things, the majority of which are not in the 20<sup>th</sup> century texts.

For use in a separate medium, oil can be thickened three ways. The behaviors of these are compared in *Oil Mediums*, section 6.2. *Autoxidized* oils are thickened by exposure to air. They are the most adhesive or resinous group, especially made with one of the water-refined linseed oils, section 5.12. *Heat polymerized* oils thicken in response to high heat. They flow and level for smooth surface styles, and make long, sinuous lines with soft brushes. Oils can also be thickened in the presence of air and a metallic salt, usually lead, a process called *oxidation-saponification*. These oils have a gelatinous quality that lends itself to elegantly condensed form, although there are many ways to make gelatinous mediums without lead.

*Note:* Combining heat polymerization and oxidation-saponification in the same procedure to increase drying speed easily becomes gaming with fortune and is not necessary, see *Leaded Oils*, section 6.2.5.

*Substrate:* Panels or stretched canvas.

#### Putty Mediums

Another approach involves altering the paint’s behavior using the putty medium derived from research into the methods of Rembrandt and Velázquez. These painters sometimes modified the paint with ground chalk or calcite, respectively; ground silica is also recorded as used in Venetian painting. Putty mediums can be made with a variety of

ingredients, aid stability, and create textures from broken to smooth. They work well with lower chroma palettes and *chiaroscuro*, as they were originally used, but may benefit from sequestering ingredients to maintain the full brilliance of modern colour. See section 6.4.

*Substrate:* Panels or stretched canvas.

### Egg Emulsion Mediums

A third type of medium derives from the interaction of oil paint with the older egg tempera medium, incorporating a small quantity of egg – either whole, the white, or the yolk – into the paint. Beaten egg white transformed into glair was used as a medium in medieval illuminated manuscripts. Small amounts incorporated into the medium give a thixotropic paint with a certain resistance to blending and charismatic handling. The yolk is subtle compared to the white, giving a matte look, finer discretion and handling, but is also an arresting agent, and keeps the colour brighter over time. While egg yolk ages inflexibly, and is safest on panels, the amount needed to make a difference is quite small, between two and three percent by volume. This group also includes the family of egg emulsion mediums. These mediums tend to lower surface gloss and brighten chroma. They feature the permanent, quick setting and drying, character of egg yolk, and produce semi-blendable paint in a wide range of behaviors. See section 6.9.1.

*Substrate:* Panels only.

### Other Emulsion Mediums

A fourth medium type is an emulsion made using a thickener such as starch, methyl cellulose, or hide glue as the aqueous element. These additions can be used in greater amounts to make water phase tempera on panels, or, with less water and in smaller amounts, as an oil phase emulsion to modify oil paint. Oil phase emulsions have density with pressure sensitivity and add an element of *smush* – the mashed potato effect – to the paint's rheology. See section 6.9.

*Substrate:* Panels, stretched canvas in moderation.

### Resin Mediums

A fifth type of medium makes use of resins from trees. There are many types of resin with different optical and working characteristics. Resins can be dissolved in oil via *heat*, or dissolved in *solvent*, making two basic groups. Hard resins such as amber must be dissolved by heat, making oil varnishes. Soft resins such as damar or the balsams can be dissolved with solvent to make spirit varnishes, but can also be heated into the oil without solvent. There are also resins, such as sandarac or Manila copal, that are typically dissolved with heat, but can also be dissolved in

a strong solvent such as spike lavender. These materials offer damar varnish alternatives, see section 6.7.2. The NGTB research has shown that “small amounts” of resin, predominantly softer “pine resins,” were used consistently for certain colours, but *not globally*, i.e. in a medium used for the entire painting, in pre-19<sup>th</sup> century painting practice. Resins add luminosity, and help protect against drying down or sinking-in: the technical basis of their recurrence as “the lost secret,” see section 6.1.6, below. The reliable way to incorporate resin is in a “small amount” to add brightness and alter paint handling, *not* as a global solution for increased saturation or bravura handling. In larger amounts, brittleness and darkening may not occur quickly, but do occur. Small additions of beeswax may mitigate this by protecting the paint film further from humidity and oxidation. See sections 6.6-8.

*Substrate:* Panels or stretched canvas.

### **Beeswax Mediums**

A sixth medium type uses beeswax in the paint. Wax is sequestering and the only permanently flexible material in painting, but beyond very small amounts, is not used alone because this makes a softer paint film, especially at higher temperatures. It is, however, highly useful with other medium ingredients, as, for example, in the various sequestering mediums based on pre-polymerized oil, soft resin, and beeswax. See *Beeswax*, section 6.10, and its formulas.

*Substrate:* Panels or stretched canvas.

### **Mixed Medium Types**

The behavior of a mixed medium is often complex in terms of its working characteristics. Balancing the behavior of disparate ingredients allows these mediums to do unlikely things, and this process can be deceptive. If, for example, a medium is made from three ingredients – oil, chalk, and egg white – it appears that there are three axes of behavior to consider. But the character of the oil provides an important fourth axis. Refining procedure, age, and type of polymerization are all factors. Adding a little highly autoxidized hand-refined linseed oil, for example, tends to make the paint tighter, while heat-polymerized oils such as stand oil or burnt plate oil, make it looser.

#### **6.1.2 Medium Characteristics**

The medium’s job is to enable natural painting in the chosen style. The basic issue is how to balance the paint’s movement with how much it stays put. Is loose paint better, with plenty of *glide*, or should it have more hold, or *grab*? Grab can be increased until the paint no longer moves freely, and the technique becomes broken. Increased grab also

introduces more potential for texture. Is this interesting, or frustrating? Should layering be possible wet-in-wet, a working balance of grab and glide? Or is the seamless, even elegant blending of a single layer more important? Can grab and glide be engineered for both possibilities in one system?

At first, answers to these questions are not made, but just happen. Over time, a pattern develops. At one extreme the paint is facile, mobile, and ever-blendable in one layer. This is a natural function of commercial paint, or a medium of thin oil on a non-absorbent ground. At the other extreme, the paint sets firmly in discrete pieces, the technique is incremental, the surface is broken. This is a function of paint handmade with aged oil, or a medium with thicker hand-refined oil, an arresting agent, an absorbent ground, or combinations thereof. Between these poles *many* possibilities exist. Any medium has a *zone of functional viscosity*, which varies, slightly to greatly, with the ground and the brushes. This is also a function of temperature: colder temperatures typically make mediums denser. Formulating a medium is about adjusting its physical characteristics. These include the proportion of grab and glide the medium gives the paint, and the influence of the physical depth – *thickness* or *thinness* – of the paint.

Pressure and timing can also come into play. When working wet-in-wet, pressure tends to decrease as the depth of paint increases, a case where firm pressure with a clean brush can result in blending, ploughing, or removal. With some medium types, the brushstrokes remain *discrete* if placed, but can be *blended*, allowing a möbius of wet-in-wet options. Open time is extended with materials that dry slowly. Using solvent or materials that set, open time becomes another form of pressure. Finally, the medium can enhance or diminish saturation. Options are best explored by adjusting the system incrementally, and writing changes down for future reference.

### **Thick and Thin**

Paint can be thickened or thinned by the medium. Thin paint is more literal, often perceived as less charismatic, but is also less likely to darken on drying. It is necessary for underpainting in an indirect method, and traditional academic technique always keeps the paint on the thin side. This is typically done with *a small amount* of solvent, thin oil, a mixture of solvent and oil, or a medium that combines a soft or hard resin varnish, a thicker oil, and solvent. Solvent adds more mobility or glide until the solvent evaporates. Thin oil typically adds glide for a full working day unless the work is on an absorbent ground. Mediums using soft resin varnish introduce an element of drag or grab as the

solvent in the varnish evaporates, mediums using hard resin varnish introduce thixotropy. If, as is the case with paint made with aged hand-refined linseed oil, the paint is already thixotropic, a very small amount of hard resin varnish is enough.

Paint can be thickened with many different types of medium. Thick paint is more visually charismatic than thin paint, capable of an enormous variety of behaviors, and is often used for expressive *alla prima* work, or for the final layer of an indirect painting. But, especially in a system based on linseed oil, care needs to be taken to avoid thick paint drying down in both value and brilliance in the first few weeks of the painting's life. This is not necessarily disastrous, but can, with care, be avoided. See sections 5.11.2.1-3.

### **Grab**

There are three types of grab: one related to stickiness, one to thixotropy, and one to physical density. Resins increase grab; soft resin spirit varnishes in a sticky way, hard resin oil varnishes in a thixotropic way. Autoxidized oils such as sun oil and studio oil increase grab with moderate stickiness. Of the commercial thicker oils, only triple boiled oil increases grab. Chalk, calcite or marble dust, and fine silica (quartz, flint, cristobalite) increase grab through increased density. Wax increases grab in a cooler studio. Small additions of egg increase grab, although not as much as hard resin varnish. Small amounts of water-based additions – starch gel, hide glue, methyl cellulose – add a gentle grab. Grab contributes to the ability of the brushstroke to remain specific, and hold a firm edge. Enough grab makes layering and broken surfaces possible. Enhancing the grab of the medium can become focal in smaller scale work, where flowing paint may be detrimental to a stylistically appropriate level of detail. Grab can be increased globally by using an absorbent ground. Yet too much grab can mean difficulty in blending, or even in application.

### **Glide**

Thin or heat-bodied oils increase glide, as does solvent until it evaporates. A fumed silica gel increases the glide of thicker paint. Bone ash makes a medium more slippery or mobile. Of the thicker oils, small additions of unsun oil, stand oil or burnt plate oil increase glide. These oils are leveling, to the point of possibly melting in larger amounts. Glide with thinner studio or sun oil is sticky; aged oil has more glide regardless of density. Glide tends to be more focal in larger scale work, increasing the overall sense of organic movement and finesse. Glide is influenced by many physical factors: a putty made with calcite has more glide than a putty made with chalk unless the oil involved is preheated

or aged. Wax increases glide in a warmer studio. Soft brushes require more glide than firmer ones. Glide can be enhanced globally by a minimally absorbent ground. Glide enhances blending and facility, but too much glide can lead to lack of cohesion.

### Rheology

The rheology of the paint is the sum of its physical working characteristics, how it flows from the brush. Paint can be thick or thin, mobile or adhesive, long (elastic) or short (buttery!), leveling and blendable, or quick setting and tending towards impasto. These qualities typically moderate one another when ingredients are combined, and unusually balanced combinations are possible. The rheology of handmade paint is far more sensitive to traditional modifiers than that of commercial paint.

### Thixotropy

A paint is called thixotropic if it is gelatinous but mobile, and sets again after being moved. Scientifically, the fluid exhibits increased viscosity at rest, but decreased viscosity under shear stress. Thixotropic paint is gently adhesive, with elasticity in motion, and forms low relief. This condition requires a specific combination of grab, glide, and viscosity, and is typically achieved by a physical, rather than chemical, reaction between the materials involved. Paint handmade with hand-refined linseed oil is inherently somewhat thixotropic, more so with aged oil. A small addition of hard resin varnish, elastic oil, traditional burnt plate oil, thicker hand-refined studio or sun oil, or ecks makes even commercial paint thixotropic, as does the silica gel, the use of a chalk putty medium, a small addition of egg yolk, or many emulsion mediums. The oils and varnishes are more elastic, the emulsion approach tend to be shorter and tighter. These characteristics can be balanced many ways by the proportions in a given formula.

### Depth

The behavior of the system changes relative to the amount of paint that has been put on wet-in-wet. Once the ground has been covered, more or less movement may become progressively possible with the same paint depending on how much the paint beneath it has set. Does paint go *into* paint, *over* paint, or can it do both depending on the amount of pressure and the brushes in use? Experience with a specific system allows finely tuned layering situations as the painting progresses based on how pressure is used relative to depth. A useful paint viscosity for *alla prima* or completion is one that is layerable with soft brushes, but can also be moved or ploughed with bristle brushes. This develops

confident handling as colour and form can be adjusted by both adding or subtracting paint.

### **Timing and Set**

Mediums can be formulated to rely on timing for various painterly effects. Operations proceed according to a schedule as the medium sets progressively. Timing becomes focal when using a quick-setting soft resin varnish as a medium or couch, or when involved in an extended alla prima system where the painting is finished in stages over several days. Timing is also related to depth: how much paint is put on, and how fast. The same system can produce different results when executed at different *speeds*. If working from loose to tight with a medium that becomes sticky, it is possible for the paint to set, or become tight, too quickly. Increasing the application speed results in a looser feeling again. Conversely, if slower application works better, the medium can be adjusted to increase its open time. Alla prima work is more likely to use timing than work in layers, although the final layer in an indirect painting often benefits from a medium which forces the issue somewhat, enhancing the ultimate sense of liveliness. Incremental adjustments to ingredient proportions over time can create procedures with a surprising synergy of opposite qualities.

### **Pressure**

With certain mediums, the relative pressure of the brush becomes an important factor in the look of the painting. Pressure can be used at different intensities to *apply* more paint, *blend* existing paint, or *plough* into previous paint. Pressure is an aspect of any additive system, but becomes focal with more thixotropic materials. Pressure is also related to brush type: softer brushes have more range of pressure than firmer ones. A soft brush ploughs smoothly, a bristle brush ploughs bluntly, with more potential for removal, or for flipping obscured colour back onto the surface. Eastlake notes this method of weaving layers of paint together inscrutably in relation to Rembrandt's later technique.

### **Brushes and Scale**

The medium needs to be formulated for the brushes. A viscous medium may quickly destroy fine brushes. Conversely, it is difficult to apply a thin, flowing medium with coarse brushes. Yet, there are also times when a slight mismatch between paint and brushes can produce interesting results. The viscosity of the paint can be adjusted to be mobile with bristle brushes, but tight or layering with softer brushes, allowing elements of both types of handling in one layer. By enabling a variety of manipulations, this offers flexibility with one palette of

paint. The scale of the work is also a factor. A dense medium may feel lugubrious on a small painting, but unify a large one. A quick setting medium may make appropriate detail on a small painting, but create a sense of fussiness or constraint on a large one.

### Saturation

Medium ingredients either enhance or diminish saturation. Matte or unsaturated paint has a higher value structure, more reflective brilliance, and more emphasis on the pigment as in fresco, or tempera. Glossy or saturated paint has a deeper value structure and the potential for optical depth: the original appeal of oil as a medium. In general, paintings made with opaque paint look better with low saturation, allowing the viewer to look *at* them. Conversely, paintings made with transparent pigments and *optical colour separation* (section 7.15) look better with high saturation, encouraging the viewer to look *into* them.

Pre-polymerized oil, resin varnish, and egg white all enhance saturation. Any form of stone dust, or an addition of egg yolk, starch gel, or beeswax, reduce saturation, needing an addition of thick oil to dry with a gloss. A *conditioning medium* (section 6.3) sets up the working behavior and the surface quality desired globally, before the work begins. This can be as simple as mixing a small amount of pre-polymerized oil into the paint for more density, movement, and saturation. An alla prima medium can be quite saturating, but it is also possible for a medium containing thicker oil to be *over-saturating*, this is especially the case with the commercial heat-polymerized oils: stand oil, burnt plate oil (BPO) and triple boiled oil (TBO). For indirect painting, it is important to observe the *fat over lean principle* (section 7.2), and this can mean increasing saturation *incrementally* as the layers proceed. Relying on increased resin to make fine saturated layers is not recommended as these layers are prone to both long-term darkening and delamination. A traditional glossy surface is most reliably made by a saturated final layer. There is then no potential that varnish may alter the value scale, and the varnish will be *on*, not *in*, the paint. 2

### 6.1.3 Construction and Exploration

Technical art history shows us that, after an early period with more *tempera grassa* work, materials such as resin, stone dust, and egg were used occasionally in older painting. While, especially on panels, percentages of stone dust and egg can be larger, resin is best kept minimal: less than ten percent of the medium volume for soft resin varnish or a balsam, less than five percent for hard resins.

It is helpful to make up small amounts of a new medium, using measuring spoons and small containers such as spare jar lids, recording the formula for future reference. This allows adjustments to a formula to be made incrementally. If the first formula is made in a larger amount, serial adjustments can make the results difficult to replicate.

Underpaintings are always made lean and matte to enhance the adhesion of future layers. If used at all, the medium is leaner in the middle layers. The medium can be used more, or enriched, in the final layers, or in an *alla prima* painting, completed in a single layer. For indirect work in layers, it is important to develop a system and stick to it: the medium cannot become richer *ad infinitum*. Using quality oil, a rich medium may remain technically sound, but can cause distracting, “encased” saturation and beading in subsequent layers unless the surface is ground back: not hard on panels but arduous on stretched canvas. Thicker and richer layers of paint are also always more subject to subtle long term darkening. Maintain paint film consistency from layer to layer by using *the same medium type* throughout the painting in oil. Research has shown that the spot use of different additions or underlayer treatments has often caused difficulties with paint film integrity over time. The consequences of searching for Old Master type techniques with materials that ultimately frustrate the original aim are detailed variously in PRPT, and in conservation discussions of Turner or late Reynolds paintings [9.1.29 & 9.7.5], illustrating that the craft is most stable when applied at the root of the process, rather than woven into the branches.

In developing the medium, experience has shown that complexity can be tempting for painters of a curious or experimental temperament. Yet there is no Alchemists Anonymous to turn to for support, so activities of the inner alembic may need to be reined in periodically. Can the same effect can be achieved by a simpler approach featuring more finely tuned proportions? In most cases, yes.

#### 6.1.4 Implementing the Medium

Mediums have been introduced to the paint in three different ways. While dipping from a palette cup is often considered standard, this method needs to be used with awareness of its potential issues.

##### Dipping

When dipping from a palette cup, the medium is blended with the paint on the palette as the paint is mixed. A standard method uses a double palette cup, one for solvent, one for the medium. This could also hold thin oil and thicker oil, oil and a liquid putty, oil and chalk, and so on.

Dipping began when paint was handmade and dense, and the medium was typically high quality oil alone. It is a convenient method for an arm-held palette, but, with certain mediums, notably the 20<sup>th</sup> century workhorse of turpentine, stand oil, and damar varnish, can result in a layer that dries with an uneven gloss. This means the internal tension of the paint layer is also uneven, which, in extreme cases, on stretched canvas, can cause cracking. The dipping method also makes it easy to use too much medium, especially for painters with prior watercolour experience. Dipping is a given component in modern practice, but is a method to either avoid, or use with awareness of its issues. The more stable the oil or medium is, the less likely these are to occur. A small amount of slightly pre-polymerized oil added via dipping, perhaps the original method, does not cause problems.

### **Conditioning**

Egg, emulsion, resin, or rich alla prima mediums are best implemented by conditioning. In this approach, the same amount of medium is premixed with each colour on the palette before painting, for example, 1 part medium to 3, 4, or 5 parts paint. This is typically done with a thicker medium but can also be done using small jar or bottle caps attached to the palette to hold a thin paint-medium mixture. Conditioning offers less procedure, and assures that the paint is all modified to the same degree, therefore drying with an even film tension and the same overall level of gloss. This also generates consistent saturation for an alla prima or final layer. Premixing is the method of the *Conditioning Mediums*, (section 6.3).

### **Couching**

In the couching method a very thin layer of medium is applied evenly to the painting before beginning. This can create either more facile or more articulated paint, depending on whether the couch has more grab or glide, on the one hand, and on its degree of set on the other. Couching can be done over a drawing or underpainting for alla prima work, or used as a finishing technique. The repeated use of a couch is not recommended unless it is thin and stable, really only practical on panels with an aged, hand-refined oil. The generous “oiling out” procedure sometimes encountered is not recommended on stretched canvas, this is best done as thinly as possible even using quality oil. Solvent can be helpful in this case although the amount of surface area involved makes significant ventilation imperative.

Different types and viscosities of medium result in a variety of effects when used as couches. A couch with more grab means an additive or broken surface, while a couch with more glide means a

mobile or facile look. There are many paintings in the 17<sup>th</sup> century that may have begun or been finished with a thin but gelatinous oil layer to create an overall sense of unity, perhaps the seminal example being Rembrandt's *Portrait of Jan Six* (1654). In such cases, the paint exhibits a similar, dense but flowing viscosity, with characteristic tightening and increase in detail in focal areas such as the sitter's face or hands. However, this effect can also be achieved by using a more flowing paint or oil to begin, then using chalk to tighten the layer wet-in-wet.

As a technique, the couch *depends* on high quality oil. The technique is often deprecated in 20<sup>th</sup> century texts: a couch made with the typical lower quality linseed oil of the period would invite certain darkening and possibly wrinkling and cracking. On stretched canvas the couch must be thin and can be applied with a rag, on panels thicker oils can be applied thinly with fingertips. It is far easier to put thin and even couch layers on a panel. For layered work, employ the couch later in the progress of the painting, keep it as thin as possible, and use the most non-yellowing ingredients possible. Richer and more expressive couches can be effective over a quick sketch for studies or alla prima work, see *Couch Methods*, (section 7.14).

# Methods

## 7.1 Animation and Organization

Beyond professional portraiture and urban murals, relatively few paintings are any longer commissioned, or requested: most work is made because the painter wants or needs to make it. Given this relatively primal impetus – the physical generation of a personal myth – it is helpful if creative questions are balanced by a logical method. This is similar to packing carefully before venturing into the wilderness. The creative unknown presents sufficient challenges; further gambling regarding preparedness is unnecessary. The intuitive aspect of painting functions in the present moment, often altering the best-laid plans. Barring a pixel by pixel approach, little danger exists of the process becoming too organized. A consistent method encourages the process to evolve within it. When the process has certainty, more can be ventured with confidence, paving the way for an execution that is both intuitive and creative.

Variations in method are endless, but are derived from two basic approaches, direct and indirect. The direct or *alla prima* approach typically places *animation* first, adding just enough organization to balance it again. The *indirect* or layered approach places *organization* first, adding meaning and intuition as the painting progresses. Both have been used to produce great painting, but both are more functional when their potential limitations are recognized, and factored into the system. The typical drawback of the direct approach is that the painting may not achieve enough functional balance in the time frame allotted. Usually this is about organization being submerged by the energy of the approach: the painting is charismatic, but unresolved; sound and fury have triumphed over significance. Conversely, the detachment of the indirect approach may simply exclude liveliness, period. In this case, organization overwhelms vivacity. Great prowess may be demonstrated, but the viewer is being lectured, rather than engaged.

The earliest systems were indirect, and this approach has two basic approaches. The *precise method* used panoptical detail throughout the picture plane, resulting in a tension between deep space and the way

the democratic detail tends to flatten spatial depth, as well as a tension between the stillness of the figures and the relative busyness of the composition. The later *essential method* began in the 17<sup>th</sup> century and featured less formality, more selectivity, atmospheric emphasis, and the introduction of various types of psychological mood.

Following the procedure of *egg tempera*, the first method used a series of exacting operations designed to produce a formally perfect object. All compositional elements were established first through a detailed drawing, followed by a complete, often full-value monochrome underpainting, followed by thin, discrete paint layers that conform to the pattern of the drawing. This is the method of most oil painting of the 15<sup>th</sup> and 16<sup>th</sup> century. Later, executed in different pigments, and often more broadly, it is also the approach of the various European Academies, of Ingres, Leighton, Alma-Tadema, and of much recent neo-academic realism.

The essential method may have evolved because the precise method was so time consuming, perhaps also because it tended to produce images that, though polished and well-rendered, were relatively static. The alternate appearance of the “snapshot” approach seen in so much 17<sup>th</sup> century painting was seemingly casual, but highly engineered, based on both visual logic and working efficiency. Painting evolved out of a timeless or frozen perfection, into a livelier version of finished that emphasized the present moment: both within the painting, and for the viewer. Painters realized that it was only necessary to make the detail once – at the end – and developed a method of working from larger compositional shapes to smaller ones. Sometimes this was done in increments, at other times as much as possible was accomplished in one sitting before beginning again. This led to a procedure so condensed that complex work, or sections of complex work, could be completed in a single sitting: the direct, or *alla prima* style. This type of painting embraces experience, assurance, and physical engagement to create art, rather than a methodical campaign organized in stages.

Both the *alla prima* and indirect methods involve personal adjustments to the paint, and how it is applied. In this situation, daily involvement with materials informs and enriches the work. Planning and theory have a place, but execution must be natural. The system creates itself intuitively via experience, but what this means often evolves, or even changes considerably, over time.

## Appendix IV – Core Technique Reference

**Substrate:** Panels are more reliable over time than stretched canvas if the process can be adapted to their limitations. With stretched canvas, use heavy weight fabric and protect the back from moisture if possible.

**Ground:** The ground provides the best balance of brilliance and adhesion if it is white, slightly toothy and absorbent. More absorbent grounds, or grounds with more texture, can be used for painterly techniques on panels.

**Solvent:** Solvent is not necessary to make an oil painting. Brushes can be kept in, and cleaned in, oil. Solvent is useful in certain techniques but must be used with ventilation. Protect solvent from oxygen and light: the residue of oxidized solvent, – historically, usually turpentine – can create significant darkening.

**Driers:** It is safest to avoid concentrated modern driers. Small amounts of mild traditional driers such as bone ash, or calcium carbonate, are safe. Traditional pigments tend to dry faster than modern pigments.

**Commercial Oil:** When cold-pressed, and refined, it will typically dry without noticeable yellowing, but almost all commercial oils take a long time to dry because of the way they have been processed. The *notable* exception is triple boiled oil.

**Hand Refined Oil:** Beginning with cold-pressed unrefined oil, then refining it by a traditional technique, allows a more adhesive or elastic rheology naturally in the oil. The oil which responds the most *by far* to this approach is linseed oil.

**Aged Oil for Handmade Paint:** When oil is aged in glass in the light, it accepts far more pigment in making paint, and makes a far more elastic paint, and far more stable paint, than oil which is new.

**Preheated Oil for Handmade Paint:** Oil that is preheated for one hour at 150°C makes paint that is both short and dense compared to raw oil.

**Heat-Polymerized Oil:** This process makes the oil less yellowing, more saturating, quicker drying, and leveling in a variety of degrees. This type of oil aids in blending, cohesion, and drawing long flowing lines in the paint.

**Autoxidized Oil:** This process thickens the oil through exposure to oxygen, and often light, as in sun oil. Commercial oils are always somewhat slack or leveling, though less than a heat polymerized oil. Hand-refined S&S linseed oil becomes quite tight and resinous as it thickens, and dries very quickly. This type of oil tends towards a more discrete or broken surface, with the potential for various types of overall impasto. The byproducts of oxidation and polymerization can make this oil prone to yellowing the thicker it becomes, but specific processing and handling methods avoid this, see *Minimizing Yellowing in Autoxidized Oil*, section 6.2.1.1.

**Leaded Oil:** While not necessary, lead salts provide a variety of gelatinous and syrupy densities to the oil and were intrinsic to certain older techniques. The least toxic approach uses a tray made from lead itself.

**Conditioning:** Mixing a specific proportion of medium with each colour before beginning creates a surface with even film tension and saturation.

**Chalk, Calcite, and Marble Dust:** Stable general purpose tighteners of the paint in small amounts.

**Putty Mediums:** Stable and adaptable medium for lively or broken surfaces based on oil and stone dust. Fine for lower chroma chiaroscuro in layers, benefits from sequestering for brighter colour schemes.

**Fused Damar, Beeswax, and Oil Mediums:** Reliable, sequestering and solvent-free medium approach for either smooth or broken surfaces.

**Silica Gel:** A reliable gel medium approach in terms of long-term stability, can be made with *fused damar*. Amounts must be monitored, or used in conjunction with chalk, to avoid yellowing.

**Emulsions:** Small amounts of ingredients such as *egg white*, *starch*, or *methyl cellulose*, can be used in a medium on canvas or panel to tighten the paint. Larger amounts, including *egg yolk*, can be used on panels for *tempera grassa*. An expressive, solvent-free, stable, and adaptable medium approach.

**Sequestering Agents:** These ingredients help a layer of oil paint to dry “up,” and remain bright over time. *Egg yolk* is highly reliable, but must be used on panels. *All resins* are sequestering, but darken over time and need to be used in small amounts, avoiding or minimizing solvent. *Beeswax* is also sequestering, and can be used at up to 5% of the paint film generally. *Starch* and *methyl cellulose* are moderately sequestering.

**Thixotropic Seizure:** Hard resin varnish and mastic gels are associated with thixotropy historically, but this is also generated by highly autoxidized leaded oil (ecks), highly autoxidized S&S linseed oil, and minute amounts of concentrated spirit copal or sandarac added to any thicker oil.

**Couches:** A very thin layer of oil or medium can be applied to a panel to modify the behavior of the paint to come. Typically used to increase movement and expressiveness, couches can also make a broken surface. Couches formulas must be related to the medium used in the paint itself.

**Removal-Grinding Back:** Indirect work often benefits from removing paint to keep early layers thin and more graphic. Removal in *alla prima* work can add spontaneity. On panels, paint can be ground back after it has dried, but this should not be relied on too heavily, it is simpler to underpaint thin and lean as long as necessary