

# No Need For Shame: 3 Ways Our Tests Can Make Us Better Painters

## Exploring J. Kenneth Leap's *Silver Stain - An Artist's Guide*

By Williams & Byrne



J. Kenneth Leap's book, *Silver Stain: An Artist's Guide*, is available at [www.blurb.com](http://www.blurb.com)

**Musicians practise**, actors rehearse, and glass painters ... What do we do?

Our designs are really just experiments on paper.

But many of us feel obliged to explain to outsiders that vitreous enamel and silver stain are less predictable, less correctable media than clay or watercolor for instance.

It's almost an apology that we need this crutch (the design), as if we're sorry we can't just paint directly onto glass in the way a skylark sings without reading from a sheet of music.

We don't like to say we test and run experiments, because that's what scientists do.

And scientists collaborate, measure, build prediction-yielding models of our physical world, whereas most of us work alone or in small groups, aren't prized for our numeracy, and don't want what we make to answer to anything beyond itself.

Really, though, this has to change.

Who hasn't restored a broken piece of ancient painted glass and cursed because they failed to factor in the full extent of time to figure out the media and techniques?

Tests and experiments - the architectural stained glass designer-maker actually has a lot in common with the *engineer* - are what we should be glad to say we always do before we start.

How useful then to find a book whose lead characters are tests, center-stage, and proud of it.

Not "useful" in the sense that *Silver Stain - An Artist's Guide* will spare you the need to run your own tests.

I mean useful because, if you read this book, you're sure to learn much more from whatever tests you choose to make. Your observations will be more informed.

You'll also be less prone to shame or shyness about the necessity of testing, more likely to get excited by your discoveries.

Today, enjoying Ken's book for the fifth time, it struck me there is a better outlook than the usual one in which the designer-maker calls himself the hero.

I was also reminded of three ways that tests can make us better painters.

Let's start there, with the three benefits of testing; the better outlook will follow afterwards.



## 1. Testing creates the opportunity to make discoveries

Ken's own tests were conducted using silver stain and water.

He strained this mixture, then applied it with an airbrush to shade the density from dark to light.

The airbrush is consistent in a way your hand-held brush is not. If Ken had applied the stain by hand and brush, we couldn't know the density was properly controlled.

Also, since water evaporates in seconds, a smooth, reliable gradation from dark to light would be nigh impossible to achieve by hand.

So, when next you gaze at ancient stained glass windows, the question in your mind could be: how did ancient painters shade with stain so beautifully by hand?

Which question may then drive you to experiment and make your own discoveries ...

I confess: so disliking water, our first test mixed stain with oil of Tar, even though less empirical painters insisted "Tar's a filthy oil: it just won't work". But it did. It succeeded

beautifully. Problem was, it smelled awful, and it's toxic.

Our second test - in engineering terms: our second iteration - used oil of Lavender. Again, wonderful results, lovely shading, and - an unexpected discovery, it caused less corrosion to our knives and brushes. (Maybe Tar did too: we didn't pause long enough to make that observation.) But Lavender evaporates: it splits with blending, which isn't good.

Third test: we used a thick, less volatile oil as the base (oil of Sandalwood), so evaporation happened slowly. And we used Lavender to thin it on the palette. Again, wonderful results: a gentle and easily achieved gradation from light to dark. But - we use a lot of stain - expensive: could we find a cheaper substitute?

Enter Sandalwood Amyris: not a true Sandalwood at all, therefore cheaper, and it also worked.

These are the kinds of discovery you yourself will make when you take time to explore the side-streets of our craft. (Another example: think what Debora Coombs achieves with glass paint mixed with Propylene Glycol - which also works with stain.)

## 2. Testing gives us a sense of progress

Ken's several weeks of testing gave him many samples he can check against the natural light at any time.

He also wrote this book to document the key results: evidence for himself of how he chose to spend a significant period in his life.

Everywhere, our human lives are enriched by proof of what we've done, how far we've come. Otherwise, we forget too much and lose our bearings.

That's why, around our studio, you'll find hundreds of painted fragments. These constitute a more evocative portfolio than any set of photos.

First, we have our 'pioneers'. The pioneers are small bits of fired glass which run through different permutations of paint, medium and sequences of technique. Their purpose is to help us figure out how we might achieve what we imagine in our head (and what the client sees with false precision when they look at the



Various 'companion pieces'

scale design we've made them). Some pioneers are monuments to failure: "Don't go this way," they remind us. Others indicate a promising path. But, triumph or failure, each pioneer records a break-through, gives us evidence of a discovery we'd otherwise forget.

Second, we have our 'companion pieces'. Step-by-step, they go in front of us as we paint our glass for real. For instance, first an undercoat on the companion piece. If we succeed, we apply a wash across the remainder of the glass. Next, whether it's time to trace or flood or highlight or whatever, it's always the companion piece which goes in front. Its whole purpose is to give us confidence we've chosen the right brush, mixed the right consistency of paint, remembered the right pace and applied the correct pressure etc.

Ken still keeps his several hundred samples. We always keep our pioneers and companion pieces. The reason? Everyone gets too few days on earth to allow a single one to pass without the absolute conviction we've learned something new. But the problem is, we are forgetful: today sweeps yesterday aside.

So aren't we glass painters fortunate our informative and often lovely tests *can't* be erased by pressing back-space or delete?

### 3. Testing strengthens the imagination

Ken's base-line test was huge. 18 different stains. 10 different makes of clear glass. Each sample fired face-up: two hours to reach 1100 Fahrenheit, then held there for 5 minutes. The result: amber, yellow, lemon - and all the shades between.

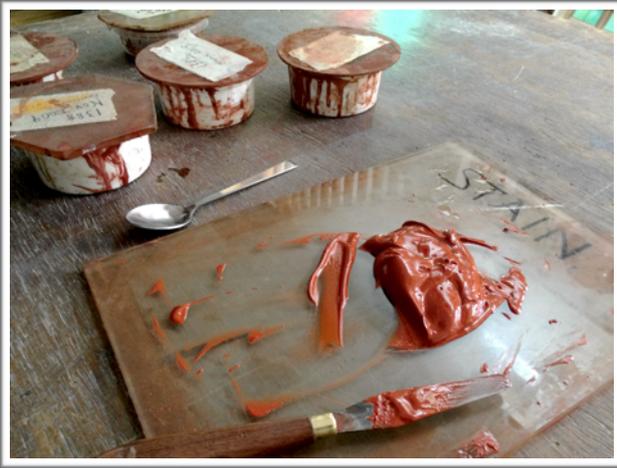
Looking at these tests - any tests - we must deploy two skills.

We must register what's there (amber, yellow, lemon etc.).

And we must imagine the actual use we have in mind.

In Ken's case this was the class he planned to teach, and the book he wished to write.

When working on an architectural project, the actual use is everything about the window and its site: color, neighbouring glass, techniques, design, quantity and quality of passing light, thickness of leads, elevation and so on.



Silver stain mixed with Sandalwood Amyris and thinned with Lavender

The novice will tend to be too literal. A pale lemon might disappoint them.

The experienced designer-maker on the other hand will see pale lemon and imagine promise. That is, how this faintest blush of yellow is just what's needed to soften an otherwise abrupt transition from etched gold-pink to a neighbouring piece of etched flashed-red.

Unfortunately, there is no recipe for developing the imagination. I must just fail repeatedly and learn from my mistakes i.e. my tests.

In this context, I want to give some balance to the thought that stain is unpredictable in a way that vitreous enamel isn't. Imagination requires strengthening for both.

True, stain is easy to mix and apply, but difficult to predict how it will fire.

Vitreous enamel on the other hand is difficult to mix and apply, easy to predict how it will fire.

But this distinction is misleading. It focuses on what we see when we open the kiln. Which judgment, you may surmise, will err for being literal.

To see this, let's imagine a novice who is about to fit their first window - the first one they've designed and made.

Let's ask this novice to describe their greatest fear.

My bet is they'll say one of two things. Either "I'm worried I've got the sizes wrong" or "I'm terrified I'll break a piece of glass".

Then ask someone who has designed and made 10 or 100 windows what their greatest fear is.

Certainly they're anxious it should fit. Definitely they don't want breakages. But prompt them for their greatest fear, and they will say: "Will it succeed as I imagined it?"

Now it once happened we made a pair of facing windows: one looked north, the other south.

On both of them, amidst a wealth of other detail, dictated by the client's brief, a painted clock-face. Thus two in all. Their diameter: six inches.

The technique for both of them: a wash, trace lines, a second wash and blend to turn the trace lines into shadows, highlights, then trace lines done in Propylene Glycol.

In the studio, both clocks looked fine - mounted on an easel with all the other painted glass around, and observed from 20 feet.

Installed, however - and whether it was Byrne or Williams is beside the point - you had to squint to tell what time the north clock told.

Yes, the north clock, where we least expected this result.

So I definitely concede that stain's a nuisance to predict how it will fire.

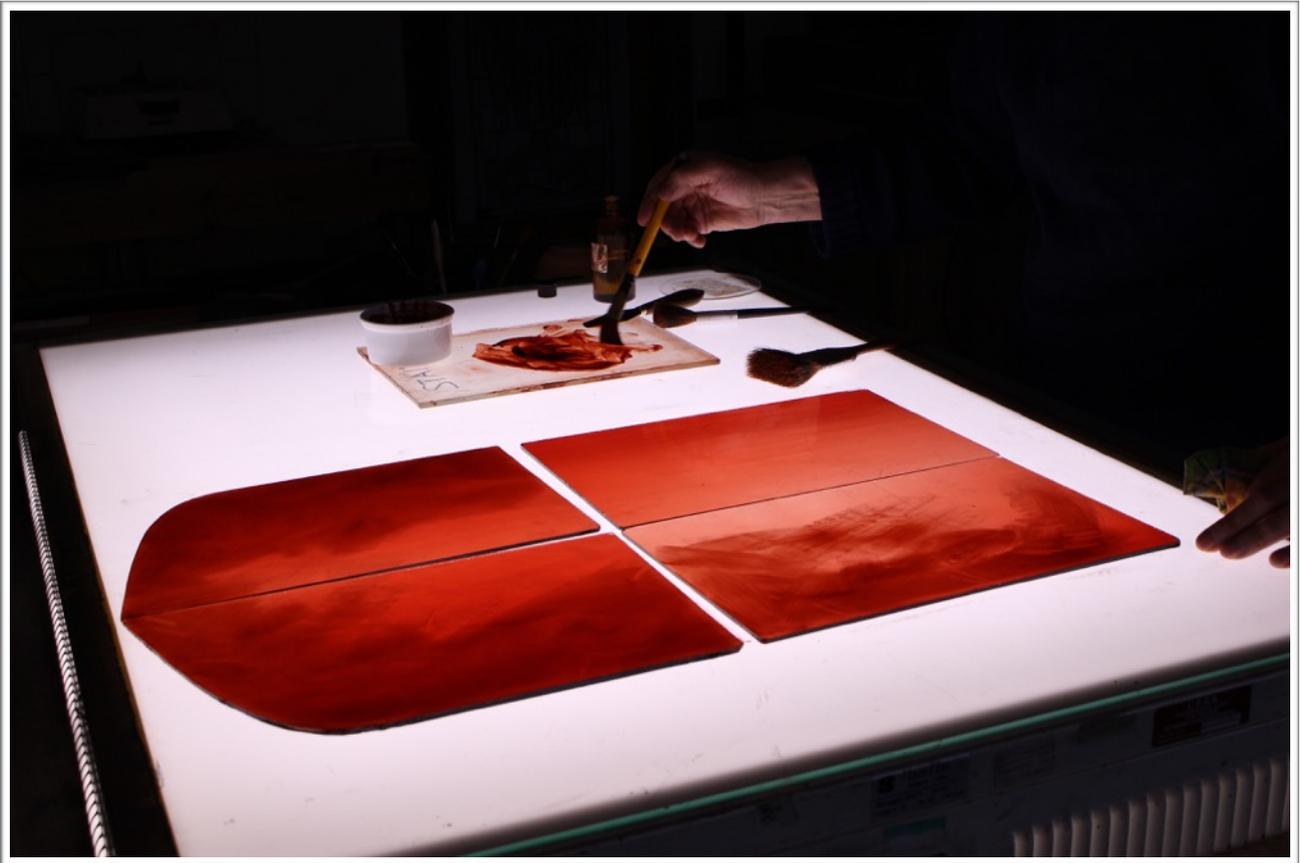
Really though both stain and paint are just as complicated to know how they will look once fitted.

Moral: don't get unduly worried by the complexity of how stain works. What matters is the finished, fitted window. Vitreous enamel is every bit as hard to call as stain. This has nothing to do with chemistry. Careful testing will strengthen your imagination so you can see beyond the literal.

### **But how do I decide I've done enough?**

I hope you now feel differently about tests and testing.

I could say more - for example, that tests develop our character (e.g. patience, resilience, tenacity and focus), and that tests (e.g. Ken's book) contribute to the sum of human knowledge - but I hope I've said enough to convince you that being experimental means more than passing off an unmade bed as art.



You might indeed be wondering, “When should I stop testing and just get on with it?”

There is no litmus test to indicate you've done enough.

But one suggestion I give our students is, “Act like Hephaestus (not like Heracles)”.

I'll explain this briefly now and will say more in our podcast, which launches in the Fall (see [williamsandbyrne.co.uk/podcast](http://williamsandbyrne.co.uk/podcast)).

So most of us have heard of the Greek hero Heracles (or his Roman counterpart Hercules).

Heracles who killed the Nemean Lion, Heracles who cleaned the Augean Stables, Heracles who stole the Apples of the Hesperides. Heracles, whose 12 Labours still enthrall us.

For Heracles, what matters is his bravery, his strength, his accomplishment, and, above all else, the true tales of his valour that will survive his death.

Now, if this is the kind of artist-maker you wish to be (the artist-as-hero), the combinatorial minutiae of rigorous experimentation will certainly be a burden to you. You'll rush through tests or miss a vital step:

Why must I tire myself with these small details when all I long for is battle and adventure and the opportunity to do deeds which others will remember me by? It is the unfolding of my own creative destiny which counts: my own life-story. There are monuments I must leave behind me when I die: I need my clients' money to fund these brave, adventurous quests."

And this is fine: each to their own. It does not fall to any of us to judge another person's sense of their own calling.

All I am asking is that you pause one moment to consider who it was that fashioned Heracles' breastplate which protected him in battle.

Or who it was that made Achilles' armour.

Or Diomedes' shield.

Or Agamemnon's sceptre: Eros' bow and arrows: Zeus' throne and thunderbolts: Helios the sun-god's chariot: Hermes' winged helmet and sandals: yes, even the marvellous, golden palaces of all the ancient gods.

In Greek mythology, who made all this?

The answer is - Hephaestus: Lord Hephaestus, the god of fire, made all these objects, and many more.

Time and again it is Hephaestus' craftsmanship which allows man, hero and god to act according to their great destiny.

Now, when you, the artist-maker, act like Hephaestus (not like Heracles), it's true your own life will incidentally change by making things.

But the real measure is: how your creations alter other peoples' lives.

And what I wish to point out to you is that there are very different outlooks here: the artist-as-hero (Heracles) and the artist-as-master-craftsman (Hephaestus).

For sure, destiny is key to both. But to Heracles, it's his own; to Hephaestus, what matters is the destiny of those his objects serve.

Whereas Heracles asserts "I am interesting: admire my great deeds!", Hephaestus asks a question: "How can I best enrich your life?"

In our early days as artist-makers - our childhood so to speak - it is natural that Heracles grabs our attention.

Fresh from art school or a circumscribed apprenticeship, we are impatient of delay and restless for heroic action which will draw attention to ourselves and to our hard-won skills. We must be singular and stand out.

As we mature, though, we are granted sight of a very different possibility. (You may judge from this I am quite old.)

And my point is: see yourself as Hephaestus' servant and you will naturally do everything in your power to ensure that what you make is good enough for those whom you intend it for: it's our clients' lives which matter most, their splendid, tragic, funny, magnificent lives, aided and abetted by those objects which we make for them.

Serve Hephaestus, and you'll gladly grapple with any experiment which helps ensure your client's glory.

But you'll also feel it in your bones when methodical research shape-shifts into procrastination: I promise you, you'll know when you're fit to make a real sword or breastplate.

## Silver Stain - An Artist's Guide: last thoughts

Its five wonderful, meticulous experiments aside, what I value about *Silver Stain - An Artist's Guide* is most of all its spirit.

Yes, this book investigates the four key variables:

- The chemistry of the stain
- The chemistry of the glass
- The density of application, and
- Your firing schedule (particularly the top temperature, how long you hold it for, and whether the glass has previously been fired).

Yes, you'll see with your own eyes which brands of stain work consistently across the widest range of glass.

You'll also learn about the process, which Ken expresses beautifully:

Silver ions have the same molecular weight as sodium ions. When applied to the bare surface of a piece of glass, they can be coaxed to exchange places by the addition of heat. The silver ions permeate into the body of the glass and react with iron, antimony or arsenic present in the formula of the glass to become silver atoms. As the reaction proceeds the silver atoms clump together to form crystals within the glass. The resulting crystals transmit yellow light which is the hallmark of this technique."

And you'll discover many interesting facts such as the role played by the clay or ochre binder which gives to stain its familiar earthy shade.

But what I value most is: this book itself is an offering to Hephaestus - Ken treats you and me as heroes. Suitably prepared by reading it, it's what *we* now go on and do with stain which counts.

*Williams & Byrne* are designers and glass painters. Their website is [williamsandbyrne.co.uk](http://williamsandbyrne.co.uk). Their podcast, "Tales from the Hephaestus Club" starts this year: sign up [here](#) and you'll be first to hear the pilot episode.

This article © Williams & Byrne was first printed in the Spring 2016 edition of [THE QUARTERLY MAGAZINE OF THE STAINED GLASS ASSOCIATION OF AMERICA](#).