

chromaquests:

a search into the potential color palettes of clear glass



A transcript of the presentation by **David Schnuckel**

Glass Art Society Annual Conference
Detroit, Michigan

June 8, 2023

This is a full transcript of *Chromaquests*, a highly visual presentation of 153 slides delivered in 45 minutes that was presented as part of the Glass Art Society Conference in Detroit, Michigan on June 8th, 2023.

A handwritten signature in black ink, appearing to read 'd. Schnuckel', with a long horizontal flourish extending to the right.

David Schnuckel

Abstract:

Chromaquests is an abstracted thought turned into an analytical presentation outlining a new hot shop studio interest in identifying the potential color palettes of clear glass. Several color-based cases will be made so by pivoting around my interests in language, writing, stemware, and failure as tools to thinking about the colors of clear glass hidden plain (and not so plain) sight.

So... I'm gonna try something out with you all tonight...you ready?

The allure of color in relation to glass is diverse. It's determined when opaque. It's luscious when transparent. It sears radiant when lit up as neon. It's textural when applied as a powdered granulate. It withholds strong, associative connections; single hues possessing the power to speak to individual viewers in uniquely broad and individual ways.

Color and its relationship to glass is a multi-faceted topic conversationally...from science to race to gender to technique to optics to so much more. In fact, color and its relationship to artistic fields of any kind is a multi-faceted conversation. It's not just a glass thing. But I've seen many cases in glass where the color thing has gone as right as it has wrong. Color can move one's spirit just as easily as it can move one to roll their eyes. Therein lies the dilemma of glass and color: it's loaded.

Easy to be mishandled technically in studio. Easy to be mishandled Creatively in idea development. Easy to be mishandled Visually in our work. Easy to be mishandled Conceptually in our thinking. Sometimes all these things at once. Turns out that the application of color within our making, teaching, and learning with glass introduces an equally diversified palette of predicament as it does allure...

So, that bit there - the one I just did - that's how I opened an article I wrote for the Spring 2018 issue of GASnews. It was an OK article...I was proud of it at the time, but it was an educator's point of view of the virtues and pitfalls of teaching and learning COLOR ...mostly chewing over a way to reconsider studio-based instruction of color and the technicalities of applying it within student work and ideas.

After it published, I realized there was much more - way more - to tackle on the topic of color. But it planted seeds about wanting to think of it more broadly in future teaching. Do check it out online...and hit me up if you can't find [it](#).

Two years later (just before the COVID lockdown) I was able to revisit the glass and color conversation a second time in a seminar that my faculty colleague, Suzanne Peck, and I

delivered to advanced Glass students at RIT in a course we lovingly referred to as TCBBB (Topics in Contemporary Blah Blah Blah) where we were able to plant seeds about:

Color in terms of glass practice.
Color in terms of glass thinking.
Color In terms of glass chemistry.
and
Color In terms of glass culture.

But we were also able to use that semester to also engage color and glass as it related to non-glass topics and talking points. Things like these kinds of things (*text on slide not printed here). 15 weeks of looking at the conceptual and technical cornerstones of our making through the lens of a theme we normally wouldn't think about our work or ideas through.

And a really nice perk to that semester was teaming up with colleagues and experts in the [Munsell Color Science Laboratory](#) who we neighbor on the RIT campus for all kinds of crossover and scientific perspective along the way.

Tonight is an excuse to revisit this consideration of color and glass a third time, with you! A third consideration of color prompted by a very bizarre premise that I consider more of a prototype or a sketch of an idea I'm just beginning to work out in 5 color-based chapters.

So this is where we'll be going tonight: *Chromaquests*...

...a short talk - a purely speculative talk - where the overarching theme of the night is thinking about the colors of clear hidden in plain sight. And doing so by pivoting around my interests in language and writing, glass skills and stemware, chance and failure in a very introductory - very rough draft kind of effort - to search into the potential color palettes of clear glass.

Chapter 1: Color Me Wrong

So, "Chapter 1: Color Me Wrong." This will be a little bit about me to build some context on where we'll be going.

I am an artist, writer, and educator at Rochester Institute of Technology based in Rochester, New York. I have been teaching in the Glass program there since 2010. I've earned both my undergrad and graduate degrees in Glass. Although familiar with most glass making processes, the hot shop and blowing glass is my bread and butter. I've had a relationship with glass for a little over 23 years now and my love for words and writing has culminated in a glass practice that thinks about this engagement with material and process as a language system of its own; a "language system of making" I like to say.

Right now I am predominately a stemware maker. Just so everyone knows, I don't typically refer to these things as goblets. I might say the word once or twice by accident, but you'll hear me call them cups a lot tonight. I use the traditions, theories, and histories of this kind of vessel making as the platform to build my artistic career on in an effort to cultivate a practice towards what I've been calling a "pursuit of masterful wrongness." It's a conceptual interest in the impulse to break things down as skillfully and as thoughtfully as I have built them up. My relationship with glass lives at the intersection of finesse and failure to find something meaningful within mishap.

Sometimes that leads the work to look a little something like this;
 sometimes a little something like this;
 other times a little something like this;
 and recently a little something like this.

But my relationship with glass in the studio is overwhelmingly colorless, as you might've just witnessed. "Clear is the color I use most", I like to say jokingly. So let's unpack that clear thing first...

Chapter 2: Color Me Clear

"Chapter 2: Color Me Clear." This is about establishing a conversational base point to unravel tonight. Here's something overheard:

*"If you have no technique, you have no language.
 If you have no language, you cannot speak."*

Those words aren't mine, but I've sure made a meal of them ever since first hearing them back in 2013. This connecting of two seemingly unrelated dots is where my current practice begins. One of thinking about the parallels between the technicalities of glass working and the technicalities of language. A place where the grammar, syntax, and the mechanics of making serve as a linguistical thing of its own.

In fact, language (most people might say) works best when it's CLEAR, straightforward. There are words we use, words with definitions. When placed together in a certain order these words create a sentence, compose a thought. Several sentences can then convey a bigger idea, often lending way to a sense of understanding between folks. This conventional model of how language functions follows a specific formula. There's a sequence, it's like a recipe on a recipe card. And I think making stemware is a process built upon similar rules and objectives. It, too, follows a sequence. Its steps could easily be written on a recipe card. It has a beginning; it has an end. It aims to produce a somewhat expected outcome. Sometimes that outcome comes out as desired. Sometimes not so much.

So that's one side of the language coin: the side of the conventional, the literal...of "clarity." The side that folks might equate with a kind of language *rightness*. But I can't help but think about the other side of that language coin when flipped over upside-down: the side of *wrongness*. And a curiosity I have of said *wrongness* to lend way to all kinds of overlooked possibilities. So a question:

Can language be unclear and still speak?

I equate the experimental, failure-based aspect of my practice that comes next with the notion of Speaking in Tongues; a religious phenomenon where believers make dramatic, strange, fluid verbal sounds. Sometimes paired with wild behavior. It's a language believed to connect religious followers directly to a higher power. Which is actually classified under a specific kind of speaking disorder called glossolalia (a term I've leaned into in a super punny way when titling a super fun workshop I led at Haystack a few years ago called GLASSolalia. **shout out Paul Sacardiz!**)

Anyways, this phenomenon of folks convicted to speak a slurry, unknown language so freely is seen as one part meaningful to them and one part gibberish to us taking it all in as outsiders. And that's the place where the languages of glass *rightness* and *wrongness* as making theories intersect for me.

So what if I also turn this “clear” thing on its head? ...to see it differently? What is the gibberish of clear? How is this colorless thing actually housing overlooked moments of something visually colorful, color-based, and/or color-dependent? ...and how can my goofy relationship with glass wrongness help tease that out?

So let's build on this clear base point in 4 brief ways tonight in the form of 4 project sketches. All hot shop based...and. all reliant on heat in one way or another.

Chapter 3: Color Me Molten

So let's start hot. Rippin' hot. “Chapter 3: Color Me Molten” is a chapter on orange.

To my non-glass folks, the one thing I haven't mentioned is that most hot glass workers like me have a unique relationship with heat. And because of that, orange is a chromatic phenomenon of hot shop studio culture that we encounter in a lot of ways. And even though I'm a guy who's working primarily in clear, the furnace that houses our glass has one of the most unique instances of orange.

It melts glass at around 2100F which is what radiates this constant glow. And it actually looks a lot brighter, more vibrant than this in real life. To get glass out of that furnace is a matter of gathering. And as an introductory theory to gathering I've often talked with beginning students about the furnace as a honey pot and the glass as gooey and viscous as honey is. Different than honey, however, in that it's hot, liquid, and molten. So color lives in clear form in this roundabout way of molten orange. But not forever.

This molten orange changes immediately after glass is gathered up and taken out of the furnace. As time passes, temperature drops. And as the temperature drops, the color shifts. If one were to let that gather run its course (without re-heating it), the heat loss indicates a spectrum of its own from bright, white-hot orange and then dulling itself down to a cold-ish, yellow-ish clear.

When I teach, I often tell young glass blowers to learn how to read the heat as they work. There are two ways: one is by how much the glass is moving around or not. But the other is by color: how orange is it or not...and where. Those indications of movement and color are usually interconnected, but the color of heat is a really useful, immediate

indication of where your piece is hot and where it's not as you work it. And this thinking about molten glass having its own chromatic scales when being worked outside the furnace led me to think about diversifying the color scales inside the furnace. Which brought me to remembering stories of goblet lore by some of the cup makers I've been a student to (or a fanboy of)...

Typically at the end of a cup session, when finished, we tap our cup off and have our assistant place it safely within the annealer for us to inspect the next day after it comes out. But there are stories by some of the cup-making greats who, in their training, instead of keeping the object when done, would tap their finished cup back into the molten bed of the furnace where it would melt and become liquid material again.

I get the poetics of it: a value in accumulating experience as opposed to accumulating objects. A gesture more about making progress as opposed to being about making things. But it was through these stories of tapping cups off into the tank where ideas about exploring the palette of orange by way of this goblet folklore began to emerge.

I had the privilege of working with a student recently named [Ethan Townsend](#) and we both shared an interest in using hot shop-based process as a method to document heat-based visual phenomena. So we set out to figure out a way to dip into this cup folklore of tapping finished cups into the tank as an ephemeral image making process. I was curious if I could explore a monochromatic method of chance-based image making into the surface of the molten glass with freshly made glass objects. Is it possible to see what spectrum of oranges the thin and thick parts of the cup would leave as it melted?

To begin I designed a simple top, stem, and foot scenario of a cup to repeat in 5 different surface patterns just to see if and how these variations of surface embellishment diversify the thick to thin spots in the cup structure and, in turn, diversify the palette of oranges left in the image made into the surface of the molten glass as they melt.

The most obvious place to start was clear (n this case, meaning no surface patterning) with interest in a twisty-ribbed version by way of optic mold. It's sibling, a straight-ribbed version. A mezza stampo with threads. And a pineapple molded version.

So here's what I call a dress rehearsal of the exploration with the clear cup design as our test subject to figure out things like lighting, camera placement, systems, and sequences of how and where to tap the cup off. We made about 6 or 7 attempts just with this clear cup design to get just this one video. It was trickier to choreograph than I thought it would be.

However, I see this as a prototype to a project still undeveloped and somewhat unknown. But a major observation is that a view from above the pot would perhaps be much more informative than the view from the furnace doorway, which is not really a thing in my world...not yet, at least. So figuring out some grant writing to fund specialized equipment building and thermal resistant camera technology to allow this exploration to further develop is needed.

But in the meantime, this foray into molten and orange is one about chromaticity: the quality of the color orange inside the tank in that moment when hot, hot-ish, not-as-hot, and everything in between live simultaneously - but briefly - as the glass object goes through its transformation.

Chapter 4: Color Me Burnt

"Chapter 4: Color Me Burnt" is a chapter of clear exploring the languages of time and temperature through the color of brown.

If the last section was about surrender by way of overwhelming a cup with heat, this is one about surrender by way of significantly losing heat...and combustion. I'll explain...

Typically, one of the most important aspects of glass blowing involves the process of annealing. It is a final step where a finished object is released from its punty at about 1100F, scooped up by the assistant, and placed in a kiln to go from about 900F to room temperature in a very slow and calculated annealing cycle. I'm bypassing a lot of science here, but what annealing does is alleviate any thermal stress within the glass object as it cools. To skip this process is to guarantee catastrophe in some way. Sometimes in small ways like a crack or scallop or split. But sometimes in big spectacular ways like this. I saw an interesting opportunity here to study a different kind of relationship with heat when this rule about annealing is purposefully ignored and how that could help me develop another approach to some kind of weirdo, chance-based approach to image making.

An exploratory project was developed to investigate a super low-tech mapping strategy of energy changes within unannealed glass objects just after they've been created. One cup of specific design was created on three separate occasions. After completion, the cup was placed hot onto thick sheets of paper type in a variety of orientations: one tapped off right-side up, one upside down, and one tapped off sideways.

As the cup rapidly cooled down, it would stress and deconstruct itself. And I was curious if the deconstruction could be mapped through chromatic scales of brown: of the burnt marks made by what broken glass parts fell onto the paper and when (based on what heat was still held within them).

These finished “prints” are ultimately failed experiments in trying to record material failure. They didn’t do what I wanted them to do. Not a lot of burning happened aside from where initial contact was made. But this is how this question lives as an artwork right now. And because there isn’t a lot of over-the-top brown-based information, what I’m beginning to appreciate is that these prints ask us to get close. They invite us to look intimately to hear what the visual quietness has to say...

And when we do, the elements of time and temperature are told in the language of brown through two ways: the first through the various densities of the coloration across the paper’s surface. Almost like a value drawing. The second way is through the depth of the burning into the thick paper body.

Here are some other brown imaging studies still being worked out. And a collaborative one with Chicago artist, poet, and paper-maker Krista Franklin ,but I’ll save those for another time.

Chapter 5: Color Me Cloaked

“Chapter 5: Color Me Cloaked” will be a chapter about spectacular color palettes within clear glass hidden in plain sight.

To piggyback off the impulse to ignore the annealing cycle, I approached the same premise of exploring color-based phenomena happening within clear glass but through a higher brow method of observation by way of thermal imaging.

Early stages of this kind of curiosity was explored with a student from the Imaging Science program at RIT named Greg Nero using a Seek Shot pocket-size reader. Thermal imaging is a process where a thermal camera helps visualize the presence of heat given off by an object using the infrared radiation that that hot thing is putting out. Thermography allows one to see variations in temperature with the naked eye that are essentially hard to detect in real life...if not impossible. And, in case of interest, this is a

higher caliber camera than the slide before, a FLIR T640 (which has been recently discontinued).

So here's me tapping off a cup again onto the studio floor without annealing it. Just letting it free fall from 1100-ish F to room temperature. This video is sped up to maybe 4 or 5 times faster than real time. And for me I love the irony of this highly spectacular visual information happening all the time, in real space, right in front of us glass blowers while we're at work in between heats without having the full details of its thermal nuances. Not without a tool like this...

It should be mentioned that, as of now, my interest in this technology isn't totally out of a desire to gain quantifiable data about what is happening at specific temperature ranges during the glass-making process, but to visualize what parts of the cup from the previous project were losing heat faster than the others before falling apart. Some of these truths are obvious. Some are not. And this was a unique way to check what assumptions I had were right and which ones weren't. But not only that, but visualizing just how right or how wrong I was interesting in a few cases.

Regardless...

There are options. Thermal palette options are largely a matter of user-preference on these cameras. It should be known that, unlike the orange and brown color chapters, this is one that is extending more from a place of material *poetics* than it is material *science*. Thermal imaging colors of clear are arbitrary. They're not real color as my color scientist colleague Dr. Mark Fairchild would tell you. "They're not color, but they certainly are communicating color", he told me in my office.

And I really dig that distinction. This notion of color and communication sits well within my interests in language. Not in terms of words and writing, but in terms of the languages of time and temperature

Through fun with video editing, I was able to translate this observational moment into a video work based on both fact and fiction; chromatic signaling between two clear glass objects in conversation as they move between states of hot and cold. Going back and forth, but never really seeing eye to eye.

As a finished artwork it exists as something like this for now. The video in this case is slowed way down - painfully slow - playing out as an 8-hour thing leaning into something conversational, something along the line of chromatic division or chromatic

polarity. But this thermal imaging angle is just beginning. It's cultivating an interest in this somewhat hidden color palette held within clear glass to the naked eye. Invisibility radiating visible through another interesting case of color I'm wanting to still tease out and further develop.

Chapter 6: Color Me Tense

"Chapter 6: Color Me Tense" is a chapter about remnants, rainbows, and irony.

Some projects of mine over the years have shifted focus away from the cup and directed instead at the residue of my cup making. Ever since about 2016, I would take a photo at the end of my blow slot of all the remnants of the cup making process down beneath my bench. The residue of my cup making became a focus for a weekly posting on Instagram, Facebook, and Twitter (and an attempt to create my own hashtag in the days when I thought those were cool...)

I wanted to honor this happening. and still do. But instead of only taking images of these floor arrangements with my phone perhaps move into an area of making something of them. A first thought was to create a situation that would allow me to keep it as it is on the floor to give it a new life as an object itself. In one case I fused sheets of compatible black glass to our furnace glass, placed that panel underneath my work area as a "residue catch" and conducted my work over a six-hour period. After completion of the work, the panel and all its debris were loaded into a kiln, fired low to tack fuse (which means melting the debris to the panel ever so slightly to permanently join them together), and then annealed.

I've always seen these panels as one-part painting, one-part map. A diagram of my working as seen in its remains. And this was a first step in developing ways to honor the residue.

In other cases, I've used those photographs of the scene below my bench from those social media posts as its own kind of arrangement or cataloguing of this happening down below. But I've recently begun shifting away from the idea of capturing these remnants photographically to collecting them physically. Picking them up by hand and keeping them. So I used a semester to bag up this debris at the end of my slot for project ideas I'm still developing.

Here, on the left, you'll see a peek in my sketchbook thinking about one idea developing in the form of a book project: a potential collaboration with essayists, storytellers, and poets I'm currently calling "The Book of Down Below" where each collected remnant is photographed in a highly professional, high-res way and paired with text inspired by thoughts revolving around the ideas about discarding things, the downward, and the remnant.

To help chase this idea down I'm working with current RIT student Mackenzie Serwa who's shooting these many glass remnants in a few different ways. One of those methods of photography includes a shared interest we have in visualizing stress within glass objects through polariscopic filters.

I'm again bypassing a lot of science here - and I'm using this image that isn't mine - but a polariscope is a tool used to read the optical character of glass to see if stress is within the piece and where a strong LED light source in the back, a polarized filter in the front, and the glass object in question in between the two. So when light passes through these unannealed glass remnants of mine when placed in this polariscopic set up the stresses inside show up in quite mesmerizing ways. Something of a patchwork of rainbows. The bad news is that the glass is communicating that it's in structural danger, but it's communicated in such a dazzling, chromatic way.

This exploration into color and the foundling is just beginning to take some kind of shape. And one irony that this potential residue project will continue to honor is the one where value and attention is attempted to be put into these constantly overlooked, abandoned objects. But the other irony is not just about the color within clear thing, but of cataloguing the depth and breadth of an almost invisible chromatic spectacle at the hands of material stress. Of finding something as hopeful, dreamy, and magical as a rainbow is at the hands of something scientifically prompted by strain and tension. More to come on this one...

Chapter 7: Color Me Done

"Chapter 7: Color Me Done." this is where I wrap this clear/color thought exercise up. And, truth be told, I don't have a great way to end this. Other than to say this is how I'm wired. I do this kind of thing all the time. I see weirdo dots floating about in my world of interests and sense a pattern that isn't naturally there. And so I try to connect them and,

for some reason, put myself in very public positions to work them out in front of fine people like you who so generously decided to join me tonight. And I thank you for that.

But this clear/color thing is something that I want to keep my eyes open to even more so moving forward. And maybe it opened a new door of thought for you about what you're working out right now. I hope so.

I want to thank these students who've had a hand in helping me with these color explorations in one way or another over the past couple of years (*text on slide not printed here). And, if needed, these are the places where you can find me online (*text on slide not printed here).

But this is where I'll leave you tonight. Thank you for coming.