CHARLES BENEKE **ARTIST**
The University of Akron
Myers School of Art
Folk Hall
150 E. Exchange Street
Akron, Ohio 44325-7801
330.972.2565 office
www.charlesbeneke.com
beneke@uakron.edu

Buckets, Clouds & Beasts
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My head's in the clouds. My portfolio is filled with them. But we're supposed to be talking about STEM. And yes, STEAM.

Steam makes some pretty amazing clouds!

I'm a product of liberal arts ideology. I look at the world through a fish-eyed lens focusing on the things in front of me. But my discursive mind is always wandering, wondering, seeking relationships with those things in the periphery. I spiral out, passing points repeatedly, bringing back new observations from sorties into the hinterlands before finding myself back near, only near, where I began.

I have a colleague who talks endlessly about buckets. This bucket of data and that bucket of data. If you only look in one bucket, you have no context. The world is not a series of independent buckets. Those buckets are points. And when you connect all of this points you have a sphere. Everything has meaning. But without context, without making connections, there's no structure; no value in that meaning. All you have is buckets fill of murky stuff.

So I ask myself, what are those clouds I'm so stuck on? What do they mean?

I'm going to use *Specter,* a recent installation, as a point of origin for my thoughts on the essential need for interdisciplinary practice and applied learning in education. *Specter* was an installation that was built from my drawings, patterns, and plans, but within it were art historical and pop cultural quotes, visual metaphors, charts of atmospheric carbon levels, and references to prevailing winds. It moved from traditionally hung, hand-printed wallpaper that then spiraled off the wall into a plume of pattern before finally confronting the viewer with a gaping mouth. To Yeates' call "what rough beast, its hour come round at last, Slouches towards Bethlehem to be born?", *Specter* was my response. I spoke about the global warming for which we are responsible. Dürer's four horsemen are galloping towards us. But, I didn't want to leave my viewers apoplectic. The final component of this installation was a wall with shelves of print ephemera and a book on a bracket. I invited viewers to trade their carbon for art. If willing to write a commitment to personally reduce his or her carbon footprint in the book, the viewer could take a piece of my work as a trade. My goal was to empower the viewer, to say you can do something. The end result is a document of my viewers', a community's, commitments that I will examine and mine for content.

If you add an A for Art to STEM, you get STEAM, a happy acronym. But, lets add an A for Art History, a third for Activism, a C for Cultural Studies, and an M for Meteorology. And maybe an S for Sociology.

My daughter is studying a different beast, a classic. She's reading *Frankenstein* in school right now. A fantastic work on so many levels. First, it's simply an amazing novel. Then there's the story of the circumstance in which it was written, a contest. And how it the tale has evolved—Boris Karloff's original portrayal of the creature, Mel Brooks's fantastic absurdity. Showtime's current mash-up, fan-fiction, *Penny Dreadful.* But beyond the popular hype, there's a profound parable of man's, and by man's I mean humankind's, but more importantly, the male's, obsession with creation, ownership, and power. With *Frankenstein* Mary Shelley asks questions about the motives, ethics, power plays, gender politics, and responsibility of scientific exploration. She urges her readers to consider the implications of biological enterprise and masculine god-like control—issues every bit as relevant today. Dolly the sheep? The Visible Human Project? Stem cell research? GMO's? The Large Hadron Collider? Mary Shelley should be revered for her narrative, but even more importantly for her prodding to rouse humanity from its many faceted, self-involved stupor.

Let's add an E for English Literature. Another for Ethics. A W for Women's Studies. And an H for History. Shouldn't we have learned something from history?

There must be some myopia inducing matter in those clouds, something filtering rational light and preventing us from seeing the reality of our present and our actions. Given the rhetoric and the regressive scientific and humanitarian policies of the Republican presidential candidates, there is clearly something shading our understanding of the differences between mine and ours, ownership and stewardship, being all powerful and the simple values of being polite and giving power to all. There are far more frightening monsters among us.

How about a second M for something as archaic as Manners. A P for Political Science and an L for Law.

The concept of parallel redundancy in data communication networks allows systems to overcome the failure of any single network without adverse affect to data transmission. If network A goes down, no big deal; network B is still in operation. But what's if A and B go down? This is the E for Engineering in STEM I'm talking about. I think that it's interesting that within the limited range of STEM, contingency plans exist for the possibility of failure created by self-imposed limitations. Isn't that a clear sign that limitations are not always the best idea? Haven't we learned hard lessons about exclusion in the past? Shouldn't we be opening things up rather than closing things down?

Consider a C for Communications and an N for Network Engineering. How about an R for Risk Management and another S for Statistics to make certain that we are adequately assessing the probability of failure in a self-limiting system.

Those clouds, those particulates, those contaminants up there. No, they weren't any big deal in the beginning of the industrial revolution. What's one or two factories? What's wrong with industry? Perhaps that's a risk we should have managed?

STEM is an industry, a machine we need to grapple with. We, as printmakers, know what happens when you place your hand on a crank and operate a machine with individual drive. We put the personal in repetition and multiplicity with our idiosyncrasies, our innovations, and our flaws. We know what happens when you mix the human, the organic, and the emotional, with the structured, the geometric, and the rational.

So yes, we need to put the A for Art in STEM. We need STEAM. But, it's not really much better if you only add Art. Let's forget the buckets and the limitations. We need all of those letters, a whole alphabet of disciplines. If we toss them all in and give them their place and structure, we'll have something really novel, a fully formed, real, gestalt education. Yes, I know our education system needs to be fixed, but not by exclusion. We need to model inclusive learning and thoughtful living.

As we move forward, let's go back to the enlightenment and embrace its essential core—the understanding of existing thought and generation of new knowledge. We're printmakers; this is in our DNA. Let's stop simply talking about this hacked off stem and help it grow. Let's create some eco-friendly steam to fire our world's engine. That's the right kind of pollution to spread in the clouds, not just a lot of damaging hot air.

Charles Beneke
Professor of Art
The University of Akron
Mary Schiller Myers School of Art