WORKING TITLES

Journal for Practice Based Research

Issue No. 02/2023:
COMPROMISED VISIONS:
"Lately, she's been seeing things differently"

Working Titles is an online journal for practice-based and led research initiated by students enrolled in the Ph.D. program for art and design at the Bauhaus-Universität Weimar. By "working titles" we hint at the journal's main objectives: To serve as a platform for the presentation of research carried out through any practice – from oil painting to anarchist urban plumbing – and to facilitate the self-publishing of practice-based working papers. Contributors submit their contributions to a non-blind peer review by those they deem suitable, regardless of their academic affiliation, and based on friendship and trust.

Editorial team for issue No. 2:
Xenia Mura Fink, Angela Matthies, Ann-Kathrin Müller, Gabriel S Moses

Special thanks to Francis Hunger and Be Körner

Supported by Bauhaus-Universität Weimar, Professorship Arts and Research.
Published by Working Titles, c/o Bauhaus-Universität Weimar, Ph.D. Studiengang Kunst und Design, Geschwister-Scholl-Straße 7, 99423 Weimar

Libre Fonts by Sun Young Oh Anthony velvetyne.fr/fonts/anthony and Lucas Le Bihan Happy Times at the IKOB velvetyne.fr/fonts/happy-times, under the SIL Open Font License, Version 1.1

www.uni-weimar.de/projekte/workingtitles/

In the Pipeline: A Bottom-Up Look at Social Inequity

Gilad Perelman

Abstract

You may be surprised at the grime you find on an otherwise clockwise-running society, once you've had a proper look at its plumbing. In my twelve years of working as a certified plumber in Israel, I have replaced hundreds of meters of pipeline, applied fixes, and witnessed damage amounting to millions of dollars. I did this while studying to become a historian with an additional outlook on related social sciences; which is why, though my handy work went deep in, the conclusions I dug up were on a much larger scale. What I discovered was that supposed advancements in pipe metallurgy end up working to deteriorate infrastructure, gradually, and mainly to the detriment of the lower classes. And the reason for this? Systemic, running an age-old line – and not just in the literal sense – all the way into late capitalism. Consider mine a provocation by a *non-artist* practice-based scholar who happens to know, from experience, that our systems get clogged because the system sucks. Peek inside to see why.

Top-down and All the Way Back Up Again

Back in the 2010s, I used to work as a renovation contractor. I started off as an apprentice, 9 years prior, and remained in the profession for more than a decade, until late 2013, roughly. My expertise was plumbing. Water damages were the main reason I encountered for house renovation. During that time I saw houses in all conditions and in different areas of the country. Eventually, I kicked off my own independent business which also granted me more free time that I then invested in my history degree studies at the University of Tel Aviv. I started my B.A. degree in 2007 and was done with it by 2011. Apart from history, the studies also encompassed some anthropology and sociology, as well as the imparting of different historiographical methods and approaches. The objective of this transdisciplinary approach, as I understand it, was to help me read between the lines of history books; to inspire me to detect patterns of social and cultural movements within the traces of historical documentation.

Historically, the field of practice-based research refers first and foremost (with the exception of health studies) to creative and performing arts and design (Candy). Practitioners of those fields either apply a scholarly-trained reflection on their "embodied work" or vice-versa. Still, at this point in time, something can also be said about the potential of scholarly reflection on the broader array of non-exclusively-artistic practices and the way this type of embodied knowledge can benefit countless fields. For instance, plumbing.

It's a strange thing to be trained in what seem like opposite professions. Plumbing trains you to see things from the bottom up. As the cliché goes, the smallest pipe coupling indeed affects the entire architecture. Conversely, my academic training as a historian pushed me to look at phenomena top down (or more currently, in retrospect – as is inevitably the essence of the historical exploration of any field) Coupled with the basic training I got in sociological and anthropological practices that project trends and behavioral patterns from the individual unto the populace, I landed pretty much smack in the middle of things.

First and foremost, as a plumber, I'm bound – and also most empathetic – to the client's POV and how wider policies and regulations affect my clientele. But these are all rooted in history and class-based norms. Much proverbial ink has been

poured about this subject but when things get murky, right at home, in one's comfort zone, is where the stain is felt the most, and it's the day-to-day year-long experience in a practical professional occupation that put all this into human-meets-(duct)-system perspective. This applies to my understanding of any new or old product, regulation, or broader development bound by human-made construction. The plumber in me knows why and just how much each spare part costs, the scholar in me knows who's eventually bound to pay the ultimate price.

Class Maintenance

In my early years as a plumber I worked in Modiin, a city altogether suited for the middle-upper classes, with my main clientele residing in two of Modiin's wealthiest neighborhoods, Maccabim and Reut. Later on, I would provide repairs covered by mortgage insurance claims in a wider geographic area, including some of the poorest cities in the country and in its main metropolitan area of Tel Aviv. What became very apparent in my transition was the differences in the level of maintenance from the better-off clients to the poorer ones. Water damage happens slowly, over a long passage of time, even years. Water seeps through the concrete and stone and causes swelling in the walls and floors (fig. 1). For insurance purposes (it's impossible to get a mortgage without insurance) and within the limit of what the insurance is willing to provide, the only fix applied is a temporary, local one – just enough for any apparent leak to stop and to delay an inevitable costly replacement of the entire waterline for as long as possible. So when the mortgage payment is paid in full, poorer households would usually cancel their insurance (which would cost them up to 2000 dollars annually; as high as the minimum monthly wage in Israel) and were then left with a dysfunctioning house. Swelled-up walls, a constantly damp and stale odor, and black mold made conditions almost unliveable whereas wealthier families that could afford to replace the entire waterline also without insurance coverage, kept a pristine household with flawlessly functioning systems. It would, however, be a careless simplification to reduce the problem to bad decision-making, spurred by the wage gap.

Fig. 1: Water damage. Photo credit: zo-jo.

It's the System, Dummy

Curiously, the situation I put forth in the previous chapter holds true as long as a house was built in the '80s-2000s and, actually, had the *newest* kind of pipes installed from the get-go. Houses built prior to those times had pipes over 100 years old that still operated perfectly, without a single leak. As it turns out, in the early '80s, a new method of maximizing profit was put into practice. Known either as planned, built-in, or premature obsolescence, the policy favors the planning or designing of a product with an artificially limited lifetime or a purposely frail design, rendering it obsolete after a certain predetermined period of time. The product may show decremental performance quality, it may suddenly cease to function altogether, or it might be perceived as unfashionable in a way that urges its replacement (Bulow). The driving rationale here is to generate a long-term sales volume by reducing the time between repeat purchases. In professional jargon, this is referred to as "shortening the replacement cycle" (Bidgoli). The planned obsolescence of consumer goods, even of the more expensive type like even electrical devices and automobiles, is a well-known secret to technicians and merchants. Arguably, it has a tolerable effect on the daily lives of most people. But an entire infrastructure that is planned to break down exacerbates the already existing social gap by stripping the lower classes of the only substantial asset they are capable of accumulating – their homes. In fact, when a house is built, it's already known exactly when it will break down.

If the Israeli standard requires pipes to hold for 15 years, you can rest assured they won't last a month after. In today's prices in the Israeli real estate market, it would cost an equivalent of 176 average monthly wages to purchase a house. Or by another count, it takes 15 years for the average earning Israeli citizen to buy a house, which by then already falls into disrepair by design.

The banal truth of the world of Israeli plumbing, however, is even sadder when factoring in human error. No formal education or official diploma is required to work in the field. Think you're good enough with the pipework around the house? Want to take a shot at it professionally? Just advertise. You will later find out, to the detriment of your first round of callers, that professional entry-level access to crucial information was much harder to come by than you assumed. I am actually a certified plumber myself, I took a six-month-long course at a professional government-provisioned school, and even there, I wasn't taught the down-and-dirty essentials that any plumber with a certain seniority can tell you; which is why, although most intended malevolent damages are easy to avoid if only waterlines are maintained correctly, a lot of repairs are botched. Maybe an essay on home repair isn't the first place you would think to find an allusion to Hannah Arendt but you might find a solid argument for Arendt's "banality of evil here" – depending on your degree of distrust in the system that runs the system that trains those fixing the system when the water starts running.

The Better the Tech, the Worse

The applied science of metallurgy demonstrates clearly just how relative the term progress is. As engineering and metallurgy advanced, factories actually worked to degrade material in a controlled manner that foresaw their planned malfunction according to a business model (Duncan). I saw that with my own eyes – "old is gold", as the saying goes; the older the pipeline, the better it functions. Contrary to common sense, the better the understanding of materials on a molecular level, the faster pipes seem to be corroding. I surmise from this that there's a plan at play.

The faults are in the core. When water encounters iron corrosion occurs, melting iron into a brown rot, hard enough to plug the pipe while spreading into the drinking water (fig. 2). Eventually, metal pipes start to "sweat" drippings of water into the walls and ever so slowly, the walls begin to gather moisture. A pipe that bursts with water gushing out ferociously is merely the weakest link in a rotting chain (fig. 3).

Earlier, more durable pipes were made of materials with much higher grades. A much higher volume of zinc was incorporated into all the pipe layers, as part of the iron casting. Today zinc is merely sprayed on the finished product. Adding zinc to a pipe is a process called “galvanizing”. Zinc prevents corrosion at an almost absolute level, but absoluteness – the enemy of plausible obsolescence – is exactly what industrialists were striving to avoid, which is why they started to use just as little zinc as necessary to pass regulation.

Figure 2: A rust-clogged pipe. Photo credit: Corrview.

Figure 3: A busted pipe. Photo credit: Corrview.

As you work on these pipes, you're careful not to harm or scratch the zinc layer while screwing it into place, because otherwise, you know just how fast things come undone. In my experience, low-grade iron pipes are installed in houses built up until the early 2000s, with homes built from the 1980s until then having it the worst. Furthermore, manufacturers began making the pipes thinner and declaring them up to bar, presumably because it takes 15 years to even notice the accumulated damage. The 100+-year-old pipes used before this time weren't pristine but they endured. And then, in the early 2000s, a new standard was introduced – plastic pipes, which ultimately turned out to be the pinnacle of all these bad ideas.

Plastic is a reliable enough material. For pipes, we usually use polypropylene (PP) or some other durable material. Durable for 15 years, that is, the time required by law. But plastic pipes still cost much more and the standards keep dictating the use of iron pipes here and there. The combination is deadly. Iron melts when left in the water with brass, in a process called "Galvanic Reaction". Be it by coincidence or by design, all the fittings and connective parts of the plastic pipes just so happen to be made of brass (fig. 4). When a waterline is fixed, or when some external part gets replaced, it's usually replaced with a plastic-brass pipe. As a result, homes that somehow held it together, rust plugging holes in the pipes in time, become water sagged within a few years. Those who can't replace the entire system end up patching up hole after hole in the iron, each time a pipe bursts and leaks into the walls (fig. 5). This altogether intensifies the problem and harshens social disparities: Cheap houses use mainly iron pipes, from the most inexpensive, modern, zinc-sprayed model. Affordable untrained and inexperienced plumbers fail to apply proper isolation where iron and brass connect, nor are they mindful of the vulnerable thin zinc layer. They then fix the already bursting pipes with brass and plastic parts that end up worsening the problem they were put in place to fix. 15 years down the line and the inevitable result is that lower-class families, with no funds left to cover the mounting repair costs for a collapsing infrastructure, are forced to put their houses back on the market, dirt cheap, turned gunk.

Figure 4: Iron reaction to brass. Photo credit: Corrview.

Figure 5: Replacing a small part of a line. Photo credit: Corrview.

The Grimy Conclusion

If I didn't know any better I'd think an economic conspiracy of sorts is at play. Metal factories master the knowledge of metal reactions; theirs is the responsibility to regulate the amount of carbon and zinc in the iron to hold it up to standard. The state that sets the standard is advised how to by various consultants and is therefore clearly aware of the ramifications of its policies. If this indeed is all a scheme to keep houses in market circulation, it is an extremely lucrative, easy, and sleek one. To them it's tradeable tokens in the form of real estate, to the rest if not most of us, our houses are the most substantial capital that we have. Realizing that my words here are read by international eyes, I need to stress just how reliant the Israeli lower and middle classes are on the housing economy. For my clients (of similar background to mine), purchasing real estate was an essential life aspiration. With no soundly regulated rental culture nor a reliable welfare system, these families – often with many children and with only modest fortunes accumulated over several generations – put all their savings into buying a house. The house becomes our fortune. We don't just dwell in it, we bank on it, it is supposed to last us all our lives so that it may later be passed on, in the best condition possible, to our children and even our children's children, either as shelter or as a capital asset for a rainy day because aside from this asset, we don't have any financial security. The bitter realist in me knows that possessions that used to be regarded as soundly familial by previous generations are just as easily swept under the feet of entire families who couldn't afford to override or outsmart a suspect fraudulent standard. The practice-informed historian in me might surprise you and reveal to you that the clay and stone pipes of ancient Athens can still, in theory, run water better than our most technologically advanced modern pipes made of the newest materials. Something here is rotten, it shouldn't take a genius to realize this – maybe a plumber.

Works Cited

Bidgoli, Hossein. *The Handbook of Technology Management. Supply Chain Management, Marketing and Advertising, and Global Management*. John Wiley & Sons, 2010.

Bulow, Jeremy. “An Economic Theory of Planned Obsolescence.” *The Quarterly Journal of Economics*, vol. 101, no. 4, 1986, p. 729, https://doi.org/10.2307/1884176.

Candy, Linda. "Practice based research: A guide." CCS report 1.2 (2006): 1-19.

Duncan, William P. “The Superior Quality of Older Pipe.” *CorrView International, LLC*, 5 Jan. 2023, https://www.corrview.com/the-superior-quality-of-older-pipe.

Smith, Chris. “Galvanic Reaction: Incompatible Metals Responsible for Corrosion.” Monarch Metal, 21 July 2021, www.monarchmetal.com/blog/galvanic-corrosion-common-questions-answered/.

Fig. 1 royalty free image by zo-jo, found on FreeImages. https://www.freeimages.com/photo/urban-decay-rust-1204901 Accessed 1 Nov 2023.

Fig. 2-4 used with permission by Corrview. https://www.corrview.com/ Accessed 1 Nov 2023.

Gilad Perelman received his certificate as a Lever C Sanitation Plumber from the Tel Arza professional school in Jerusalem in 2006 and registered as an independent business in 2006. Altogether, he worked in the profession between 2001-2013. Between 2007-2011 he attended a first-degree study program in history at the University of Tel Aviv. Today he works as a Product Manager in a software development firm.

Gilad would like to thank his reviewers: **Shalom Miara**, the longest-living and operating plumber he knows; **Elad Benin**, a second-generation Tel Aviv plumber, running 12 professionals on scooters in the city center, and **Gabriel S Moses** of *Working Titles* who served both as reviewer and co-author of the essay’s final draft.