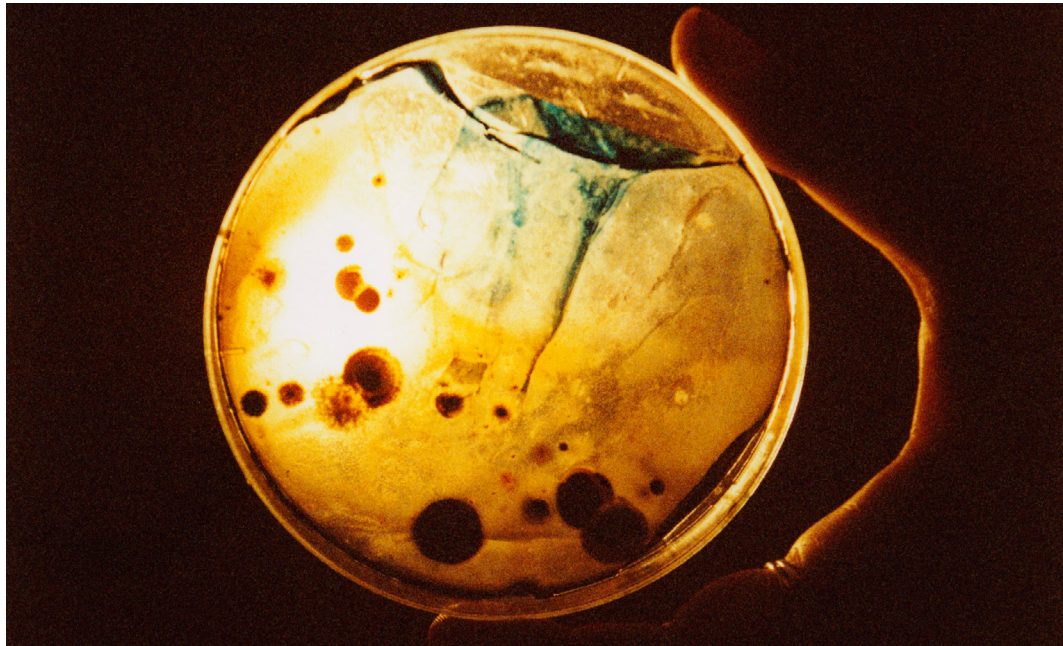




02

THE WASTE OF A PHOTOGRAPHIC PRACTICE

by Hannah Fletcher

Photography has a toxic and sticky history, especially regarding the development and printing processes.

Looking at the origin of the medium, the first photographs were created using the daguerreotype process, which involves exposing silver-plated copper to iodine and fixing it with mercury vapour. Mercury is highly toxic, especially through inhalation of its vapours, which can cause inflammation of the lungs, difficulty breathing, chest pain and coughing. Effects can worsen, leading to fluid accumulation in the lungs, respiratory failure, and death.

The daguerreotype was followed by the calotype process, which used paper coated with silver iodide, created by the reaction of silver nitrate with potassium iodide to create an image. Exposure to silver nitrate can cause headaches, dizziness, nausea and vomiting. Potassium iodide can cause stomach upset, rashes, and inflammation of the salivary glands.

But photographers of the time didn't seem to be deterred from these potentially fatal fumes and solutions spilling over apparatuses, onto desks and into their bodies. Thus, as they charged head on after the potential of representational imagery, inventors continued to browse the aisles of high-risk chemistries.

In the mid-1800s, collodion emulsions replaced the calotype process, and this became the standard material used in photography. Collodion is still used by a few practitioners today and is a syrupy mixture of nitrocellulose, ether and alcohol. Nitrocellulose is highly flammable and can be ignited by flame, heat, shock, impact, friction, sparks or static electricity. It is also harmful if swallowed, inhaled or absorbed through skin: it can affect your central nervous system, cause irritation to skin, eyes and respiratory tract. Moreover, breathing ether can cause drowsiness, excitement, dizziness, vomiting, irregular breathing, and increased saliva. High exposure can cause unconsciousness and death. According to Bill Jay, the author of *Death in the Darkroom: Poisonings of Nineteenth-century Photographers*, practically every week in the nineteenth century the press reported an accident or death of a photographer occurring during his chemical manipulations. Many photographers of the time paid the high price of exposure to the toxicity of chemical elements, defeated by the insatiable need to capture light onto a surface for eternity.

Soon, gelatin silver emulsions took the main stage. This material was more stable and allowed the invention of mass-produced film, opening up photography to the everyday user. Nevertheless, one of the first developers used in this process included pyrogalllic acid, which can cause death from skin contact alone. Thankfully, the last use of this developer was around 1920 and since then, the chemistries and materials required for gelatin silver photography are finally less death-inducing to those using them. However, the same cannot be said for the harm they cause to the environment.

Today, to produce film and paper, high-grade gelatin, created from cow bones, is required; this is known as Type B ossein gelatin. The rapid rise of photography meant an increasing demand for gelatin, resulting in a dependency on this material that would have been impossible to facilitate without the revolution of a separate, yet interconnected, industry: intensive animal agriculture. As meat became ever cheaper, profit margins of the industry were kept afloat by the value of these 'by-products', intertwining the two industries and their dependency on each other. As co-director at Sustainable Darkroom (the research programme of which I am a member, conceived to equip cultural practitioners with new skills and knowledge to develop an environmentally friendly photographic darkroom practice), Edd Carr wrote that "a focus on profitability has motivated the many

adaptations and technological revolutions allowing for widespread use of gelatin in film, treating cows as an objectified byproduct and ecosystems as dumping grounds to power each click of the camera”.^[1] This statement makes the point that it is not the bones and skin that are the byproduct, but the animal itself, objectified as a material in the cogs of a capitalist society.

Gelatin is not the only problematic component covering the surface of family albums and shoeboxes full of nostalgic, aesthetically pleasing, grainy prints. Silver and resin are the other materials that make these physical images possible. Silver is one of the most precious metals in the world and its scarcity is a major concern. Its histories are deeply intertwined with colonial European powers, where silver mines were dug, often taking the land of indigenous peoples and polluting their rivers and lake beds. To this day, new silver mines are being excavated in remote areas and or developing countries, with little consultation with the communities that reside there. Waterways and soils are very easily contaminated during extraction, rendering whole areas inhabitable for both humans and non-humans.

Furthermore, very little of our silver comes from recycled sources: in 2022 173 million ounces of silver were recycled compared to the 917 million ounces extracted from mines across the world. That’s just 15% of the consumption of silver. In comparison, 60% of all copper comes from recycled sources and about 50% of steel.

As for the polyethylene resin, this is the same stuff that plastic shopping bags, drain pipes and medical supplies are made out of. It does not biodegrade and as it slowly breaks down, it forms micro plastics in landfills. These microplastics are slowly making their way into our water, our food and our bodies.

Given these premises, it is clear how photography perfectly sums up the notion of the ‘Wasteoscene’ invented by Marco Armiero, which argues that our current geological epoch is grounded in the waste we produce as humans and non-humans, being seen as indispensable for the capitalist system. The consumption that we partake in, in this case the consumption of photographic media, is not just of material items “but of bodies, of people who risk their lives and work in toxic environments to extract minerals and metals to make the things that we buy. These people end up in graves at the age of 50 — the graveyard becomes

[1] Carr, E. (2019) *The Ecology of Grain: An Ecological Analysis of Gelatin in Photographic Film*. MA Contemporary Art Practice. Royal College of Art.



a silent story teller of the ‘wasteocene’”.[2]
I’m not telling you this to scare you away from photography and resign it to the dungeon for all its sins, but to empower you with awareness and knowledge; a knowledge of the social and environmental legacies that these materials hold. Once we establish these, we can then begin to move forward towards photographic futures which are less destructive. Futures which are influenced by the “narrative linking waste, justice, and the making of our present world”. We can start to redefine the principles of photography

and work towards a radical reformation.

I’m happy to inform you that the road toward this horizon of degradable materials, recycled silver and plant based chemistries and gelatines is already partly paved. Since 2019, I have been leading the Sustainable Darkroom, which has worked with and supported individuals across 29 countries to date. This road towards sustainability is unlikely to have an easy passage: we don’t have a set of off-the-shelf eco papers and chemicals ready for you to use at your convenience. Rather, what we do is encourage community actions and moments of collective research

Through our mutual exchange, we have learned that one of the easiest changes we can make concerns water. All development processes involve at least one washing phase, and like many of us, when I was inducted into the darkroom, I was taught to wash my black and white film for 20 minutes after fixing. If, in the presence of darkroom purists, we pointed out how ridiculously wasteful of

[2] Armiero, M. (2021) *Wasteocene*. Cambridge: Cambridge University Press.

water this is, we would surely receive a stern look, as if to say that this is sacred knowledge passed down from ancient photographic ancestors and darkroom wizards. It was only after leaving this circle of purists and venturing into home darkrooms and informal spaces, that I found these doubts, buried at the back of my mind, began to burn brighter than ever. I began to consider that these ancestral wizards of photographic knowledge had been operating at a time where there was little understanding of the complex environmental balance in which we live. But now it was long overdue for new photographic knowledge to flood into these spaces, to shine under the red lights and hover over the chemical-stained trays.

For instance, by changing the way we wash our materials, the average person could save over 58 litres of water for every 35mm film washed. In practice, here are some recommendations: when you wash a film or print, cover it with a layer of water; there is no need to fill the tank or tray to the brim. Agitate the material for 5 minutes, then tip the water into a waste container. Repeat these steps twice more to render the material stable and thrice for archival usage. In order to save water, think about what you are going to use that work for: do you need it to be archival, or is stable perfectly fine?

As you may have understood by now, the history of photography is littered with death, pollution, risk and contamination. In many ways, it's a story of waste: wasted chemistries, wasted environments, wasted lives and wasted relationships. Underneath the waste it is also clear that this is a rich story of innovation and change.

Photography is a medium that has continually transformed itself: from the darkroom to digital photography to programs such as Photoshop and hardware that extend the limits of photography in new directions. Photography has never stopped moving forward.

Amidst the excitement of LCD display screens and increasing mega-pixels, what gets left behind is the process before the next invention, before the next great leap in innovation. This is where we find analogue photography, a medium greatly treasured and utilised by photographers, artists and festival goers alike; nonetheless, this was left behind the scenes as digital photography took centre stage. In the late 2000s it looked like the death of analogue photography was just around the next corner. However, ten years on, it is clear that analogue photography is far from being at death's door. With over forty independent film labs now operating in the UK, many of them having opened their doors within the last three years, it is evident that this medium is going to stick around for a while longer.

With this in mind, this is a critical moment for analogue photography to move

forward and make itself relevant for a contemporary society facing ecological breakdown. A chance to question the gatekeepers of darkroom etiquette and move away from its lingering ties with toxic chemistries, industrialised animal agriculture, exploitation, single-use plastics, unnecessary water wastage, pollution and unethical mining.

Collectively, we can reform the process, materials, systems and cultures of photography, reinventing the medium to one of environmental care and ecological consideration. We are living at a time of great uncertainty about the future of our planet. If we want analogue photography to thrive, we need to shift it radically away from the toxic legacies that remain.

Hannah Fletcher is an artist working with cameraless photographic processes, founder of The Sustainable Darkroom, co-director of London Alternative Photography Collective and a facilitator of sustainability within the arts. She works with and researches the many intricate relationships between photographic and not-so photographic materials, intertwining organic matter such as soils, algae, mushrooms and roots into photographic mediums and surfaces. Fletcher questions the life cycle and value of materials by incorporating waste from her studio and workshops back into the system of making. In 2019, she set up The Sustainable Darkroom; an artist run research, training and mutual learning programme to equip cultural practitioners with new skills and knowledge to develop a more environmentally friendly analogue photography practice.