



"Clean" photography?

The amount of computer equipment buried each year equals the weight of about 28,000 adult African elephants. (C2P2 - Canadian Centre for Pollution Prevention)

I am a photographer. Passionately.

So far, nothing too surprising, you might say.

The astonishment usually starts when, during a discussion, my opposite number understands that I am still shooting and printing on film. And this astonishment becomes almost incomprehension when he realizes that my preference is in fact towards what he considers as obscure practices of another age. How can you spend hours in the dark? And then it stinks... And it's expensive... And it pollutes! Don't I have any respect for the planet?

Concerning this last question, and all the considerations concerning the impact of our photographic activity on the environment, I would like to set the record straight – or if you prefer, the church in the middle of the village.

Does film, and probably even more so the old photographic processes, pollute? Yes.

Like any human activity, no more, no less.

Of course, all the chemicals used in silver gelatin photography or in the old processes: silver nitrate, bichromates, acids of all kinds, oxalates – you name it ! – can be toxic, and therefore present risks.

In the not too distant past, when ecology did not yet receive the attention it deserves, these non-biodegradable, toxic or dangerous products often ended up in the sewers and in our environment, without any further process.

Today, things have changed; all these products have MSDS (Material Safety Data Sheet) widely distributed via the Internet that detail their composition, risks and precautions to take when handling or disposing of them. Many companies specialize in the treatment of toxic waste. All municipalities have set up a waste management system and have made arrangements for the elimination and recycling of this type of product via waste collection centers or specialized pick-ups, generally free of charge for non-professionals. These same provisions are valid for many other products than our photographic waste: synthetic paints, batteries, fluorescent tubes, mercury from thermometers, cleaning products, accumulators, used mineral oils, phytosanitary products, etc. Silver gelatin photography does not pose insurmountable or even exceptional problems in terms of environmental protection.

Moreover, the baths used contain only small percentages of these products, and the majority of these baths are easily recoverable. It is up to us to ensure that only minute quantities of the incriminated products end up in the waste water, mainly via washing with running water. Of course, we should not minimize their impact on our environment, and take all measures to reduce these disposals to a minimum, but it would be largely exaggerated to make the adepts of analog photography feel guilty by presenting them as the gravediggers of our environment.

But what I would like to emphasize is that we should not believe that simply switching to digital photography would avoid all these problems and regain an ecological "virginity" ... far from it!

Of course, we don't produce suspect chemical waste every time we print a file. But it is the global impact of the photographic activity – analog or digital – on the environment that should be examined. And there, things get more complicated...

To make an analog picture, it is not enough to prepare development baths: you need a camera, films, an enlarger, electricity, trays, photographic paper, etc.. All these products must be manufactured. And this induced production activity in turn leads to waste, and therefore pollution.

The same is true for digital photography: you need a camera, memory cards, external storage disks, batteries, electricity, a computer, software, possibly a printer, paper, ink and a scanner.

Moreover, the equipment for digital photography is very different from the one traditionally used in film photography: more petroleum-derived plastics are incorporated nowadays, and there are infinitely more "embedded" electronics, which consume a lot of heavy metals.

I haven't found any specific study on the ecological impact of the production and use of digital photographic equipment, but there are several ones dedicated to electrical and electronic equipment, including a 2003 report by Eric Williams and Ruediger Kuehr, two researchers from the United Nations University, a "Guide to Greener Electronics" by Greenpeace, now in its 8th edition, and various reports written in collaboration with independent organizations such as CNIID (National Independent Waste Information Centre) and the ADEME (Environment and Energy Management Agency) in France.

Here are a few facts that emerge and that encourage reflection:

- The goods we buy and throw away generate waste before and after use. This is included in the industrial waste and can carry substantial weight in the final count: together they constitute the "ecological weight" of goods, products and services.

Ecological weight of selected goods and materials	
Weight of the product	"Ecological" weight
1 kg steel	2,3 kg
1 kg copper	15 kg
Computer microchip (0,09 gr)	20 kg
Laptop (2,8 kg)	434 kg

Wuppertal Institut für Klima, Umwelt, Energie GmbH - Forschungsgruppe nachhaltiges Produzieren und Konsumieren , 2008.

- A CRT monitor contains, among other things: PVC (releasing dioxin upon incineration), up to 4 kg of lead, barium, phosphorus, polybrominated biphenyls (PBB) and polybrominated diphenyl ethers (PBDE), The latter two are brominated flame retardant chemicals that affect the environment as well as the people who dismantle them (a Swedish study measured PBDE levels in the bodies of different categories of workers, showing that recyclers of electrical and electronic waste were particularly affected).
- A quarter of the world's mercury consumption is used in electrical and electronic equipment. It is present in thermostats, switches, relays, sensors, cell phones, and also in flat screens, which are increasingly replacing cathode ray tubes.
- Products such as beryllium, cadmium, lead and hexavalent chromium are also found in the computer's central unit and its peripherals.
- While the producers of these equipments rightly underline their efforts to reduce the electric consumption of their devices, and the quantity of heavy metals which are incorporated in them (pushed, to say the truth, by the European directive RoHS 2002/95/CE aiming at limiting certain dangerous substances in electric and electronic equipments), big problems remain for the plastic components.

"The main difficulty is plastics," says Fabrice Mathieux, an academic from Grenoble specializing in "eco-design" and recycling issues. "There are industrial recycling processes for only three types of plastics out of the thirty or so commonly used in the manufacture of WEEE (Waste from Electrical and Electronic Equipment).

- Despite the existence of international legislation such as the Basel Convention which came into force on May 5, 1992 and makes it illegal to export e-waste to developing countries where no license was acquired, and/or which are lacking appropriate facilities to receive large volumes of e-waste, such exports of hazardous waste are still commonly practiced, endangering the lives of thousands of people by dumping thousands of tons of such dirt on their doorsteps. For example, the Guiyu dump in China: 52 km², 150,000 people, 100 trucks per day in 2005...

I'll stop here, as it is not my intention to draw an apocalyptic picture to banish digital photography from society.

One more thought now about two factors increasing the impact of our activities on the environment: the technical life span of the products and their obsolescence.

I use a technical camera made around 1960 and an enlarger dating from the same period, a medium format camera produced around 1985, two 35mm reflex cameras dating from 1977 and 1980. All this equipment is perfectly operational, and will undoubtedly serve me for many years to come. As there are no electronics, the only breakdowns that can affect the functioning of these cameras are mechanical... and can be repaired – if necessary by "cannibalizing" a camera that is out of order, kept for this purpose. One single hand-held cell is sufficient for light metering when using any of these devices. For this kind of equipment, lifetimes of 10, 25 or more years are not exceptional.

Today's digital cameras are certainly not inferior – the shutter of a current mid-range digital SLR is guaranteed for 50-100,000 shots – but the absence of any film in digital cameras encourages their owners to "shoot up". Existing surveys mention 10-20,000 shots per year for "active" photographers, as many of the readers of this article probably are. The risk of failure is thus real after the fifth year.

Nowadays, considering the importance of the on-board electronics, the presence of unremovable castings and the cost of an efficient after-sales service, repair often is considered technically or economically impossible, and the manufacturer will use all his power of persuasion to push you to simply replace your defective camera.

This tendency is further aggravated by the policy of programmed obsolescence practiced by many manufacturers who, in order to ensure their commercial success, focus above all on the conception of futuristic-looking products, on the mastery of design, and on advertising and marketing strategies designed to exacerbate the attraction of novelty. According to sociologist Colin Campbell, the dominant trait of the late 20th century consumer is his insatiability, his propensity to want to acquire the latest consumer goods at any price.

We can therefore estimate that the life span of digital cameras, like other electrical and electronic devices listed in the following table, is hardly more than 5 years, and that very few of these devices are bought back second hand.

Estimated life span of selected devices – recycling percentage		
Desktop computer with monitor	5 – 8 years	26,1 %
Laptop	5 – 8 years	26,1 %
Printer	5 years	26,1 %
Mobile phone	4 years	19,2 %

Sources: (1) UNEP : Sustainable Innovation and Technology Transfer. Industrial Sector Studies, 2009, p. 41. and(2) Chris Carroll, Déchets High-Tech, National Geographic France, n°100, janvier 2008, p.63

The devices being quickly replaced, will be produced in greater numbers – hence an increase in pollution linked to their manufacture, and the waste to be disposed of.

So, what conclusion can we draw from all this?

I get a kick out of it when I isolate myself in my dimly lit den, far from the worries of everyday life and moved as on the first day when the image appears slowly in its developer bath.

You, on the other hand, rejoice when your latest crop of images spills from your memory card onto your hard drive, and when you are about to juggle with the pixels before seeing your latest printer spit out another masterpiece cleverly reworked with your favorite image processing program.

We're both right. For us amateurs, photography is a pleasure and should remain so. Let's leave the notions of profitability and speed to the professionals and the demands of their clients. Pleasure is personal, it cannot be discussed, it cannot be reasoned; it is lived. And we each live it as we wish.

But, whether we are "film" or "digital", it is essential that we adopt a responsible attitude, without falling into an ecological fundamentalism.

For the "analog" ones, it is essential to avoid that chemicals presenting even a slight danger to our environment are discharged into our wastewater. Learn about the characteristics of the solutions you use - the MSDS sheets are there for that. Collect your used baths and take them - possibly after decanting to reduce the volume - to your local waste disposal facility. Find out about the possibility of using alternative products, such as the "ecological" developers that are beginning to be marketed.

For the "digital" ones, the first thing you need to worry about is the fate of your used ink cartridges. Today, the majority of them are neither recycled, nor refilled (more than 70% of the cartridges are still eliminated in the dumps). Knowing that in France, for example, 55 million inkjet cartridges were sold in 2005, it is easy to imagine what mass ends up in landfills every year. The body of the cartridges contains PVC, and the solvents and heavy metals added to the inks have a polluting effect on the soil and water. Alternatives do exist: recycling programs organized by manufacturers, collectors offering to buy back used cartridges, solidarity campaigns suggesting to donate empty cartridges that will be resold, purchase of "reconditioned" cartridges or refill kits (there exist good ones, but the electronic chips included by the manufacturers in their products don't always allow their use), etc.

Avoid "shooting" indiscriminately: your shutters and mirrors are not eternal and will be difficult to repair after a few years. In any case, believing that by "mass shooting" the "right" picture will automatically be part of your harvest is a delusion, and watching for the "decisive moment" is so much more exciting...

Remember that for consumer goods, obsolescence is more a personal concept than an industrial one. If your equipment (computer, camera,...) meets most of your needs, it is not obsolete, even if one or two "superior" models - according to the manufacturer - have been released since. Buying the latest model or the latest version of your image processing program will not guarantee you a better picture. In any case, the quality of your photography will depend more on heart and mind than on technique...

Jacques Kevers

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Sources :

- *The Romantic Ethic and the Spirit of the Modern Consumerism* - Colin Campbell - Blackwell Publishers - 1987.
- *Computers and the environment: understanding and managing their impacts* - Ruediger Kuehr & Eric Williams - Kluwer Academic Publishers, United Nations University - 2003
- *Sustainable Innovation and Technology Transfer. Industrial Sector Studies: RECYCLING - FROM E-WASTE TO RESOURCES* - United Nations Environment Programme (UNEP) - 2009 (www.unep.org/pdf/Recycling_From_e-waste_to_resources.pdf)
- *L'obsolescence programmée, symbole de la société du gaspillage - Le cas des produits électriques et électroniques.* - Marine Fabre et Wiebke Winkler - Les Amis de la Terre France / CNIID - 2010
- *Guide to greener electronics* - <http://www.greenpeace.org/international/en/campaigns/toxics/electronics/>
- *Déchets High-Tech* - Chris Carroll - National Geographic France, n°100, janvier 2008
- *Managing E-waste: Working towards a Canadian Solution - Canadian pollution prevention roundtable, June 12, 2003, Calgary - C2P2* (Canadian Centre for Pollution Prevention), Voir www.c2p2online.com/documents/michaelvanderpol.pdf