



Students' Working Papers

Food Waste for Change: A Journey into the Garbage

Silvia Ballarin

Waste materials of any kind and food leftovers, in particular, have been part of artistic production since the beginning of the last century. This unusual matter has changed a lot over time, taking on many different meanings, relevance, and shapes. The artists of the avant-gardes of the early twentieth century were the first to use raw materials, such as scrap paper, ropes, and junk. They assigned them the same importance and aesthetic value as any other traditional and more precious material. Let us recall, for example, the well-known Pablo Picasso's *Guitar* made in 1912, realised in paperboard, paper, thread, string, twine, and coated wire.

From the sixties, waste material in artworks characterised movements such as Pop Art, Nouveau Realism, New Dada, Fluxus, and Visual Poetry. It became an ironic medium to criticise society and consumerism. For instance, the artist and sculptor Edoardo Paolozzi – pioneer of pop art and member of the Independent Group – used paper leftovers to attack artistic elitism and incite a reflection about the relationship between art and mass production.¹

In the eighties and nineties, the use of garbage in artworks gave birth to the so-called Trash Art. As a consequence of the historization of the garbage problem, artists reevaluated the role of waste and made it the subject of a new aesthetic.² Moreover, during these two decades, mixing food and art became a pretext to bring attention to topics of utmost importance: e.g. gender and identity issues, feminism, body self-awareness in connection to AIDS. Also, artists started to interact with the public through social relations as part of the artworks defined as 'relational aesthetics'.³ One for all Felix-Gonzales Torres with the series *Candy Spills*.

From the very beginning, waste in art has represented the spirit of change of many eras and societies. During the last century, garbage and waste in art have become a language that turned trash into visual culture.⁴ Trash has represented a choice for artists, a new way to make art through new materials. They recycled old objects to create something new, leaving behind what has been before and embracing the future with a certain optimism.⁵ Although trash has never been useless, when we throw something

¹ Cf. Poli, F. (1997). *Minimalismo, Arte Povera, Arte Concettuale*. Roma-Bari: Laterza.

² Vergine, L. (2006). *Quando i rifiuti diventano arte, TRASH rubbish mongo*. Milano: Skira editore.

³ Bourriaud, N. (2010). *Estetica relazionale*. Milano: Postmedia.

⁴ Vergine 2006.

⁵ Levin, K. (2011). "Talking Trash". *Artnews*, June.

away, we are settling its dissolution. At this moment, everything around us can be seen as potential waste or considered future trash. At the same time, waste is strictly related to life itself. It is the symbol of human productive power, for better or worse.⁶ Therefore, in the art world, the charm of creating pieces of art using waste materials dates back to the past. What is changed then? Now we are witnessing a radical change of attitude. At this point, the signs of the unsustainable model of development are crystal clear everywhere. We live in a new geological era called Anthropocene, characterised by the huge impact of human beings on our planet.⁷ In 2015, after decades of scientific and political debate on sustainable development, the United Nations General Assembly stipulated and adopted the *2030 Agenda for Sustainable Development*, which involves food in relation to agriculture, hunger, food security, waste, and labour market.

Although culture and art were not formally included in the sustainable development process, artists and the art world showed that they are a fully-fledged part of the change, not only as of the aesthetic crowning of scientific discourse but also as an active agent of the change, offering a sustainable alternative of development.⁸

We saw it in the past months with the artist Gayle Chong Kwan, who drove us on an intimate and sensitive journey through trash and food waste, starting from the way we define it up to mapping and taking pictures of it in our homes and neighbourhoods. This exchange of personal food waste-related experiences has been led by the artist necessarily by computer through video calls and online platforms as this period requires. Nevertheless, it is not far from the participatory experiences and ideas characterising relational art and conceptual art. She led us to take care of the food waste we produced as a precious and rare species to safeguard. Waste became a point of view to consider what surrounds us.

⁶ Castagna, A. (2013). *Tutto è monnezza. La mia dipendenza dai rifiuti*. Bari: Libera-
ria Editrice.

⁷ Crutzen, P.J. (2005). *Benvenuti nell'Antropocene*. Milano: Mondadori.

⁸ <https://sdgs.un.org/goals>.

Food Fashion

Silvia Bertolin, Giulia Piovesan, Rubens Tola

It is a sunny Saturday afternoon, you go out with your friends for a shopping day, searching for the best deal. You walk inside a clothes shop looking around to see if something catches your eyes: there is an entire section dedicated to the “BUY 3, GET 1 FOR FREE” deal. But have you ever thought, looking at the tags, what is the real cost behind it?

Every year, the fashion industry has a high cost of energy, raw material, and CO₂ emissions. Only in 2015, it consumed at least 98 million tons of energy and was responsible for 2% of CO₂ emissions (over one million tons). The Ellen MacArthur Foundation predicted this consumption to reach, in 2050, 300 million tons of energy and 26% of CO₂ emissions produced by the fashion industry. Also, between 2015 and 2050, it is expected that 22 million tons of microplastics will end up in the environment.

Many companies took action in becoming more sustainable. To quote the Brundtland report: sustainable development is “the one that allows the present generation to satisfy their needs without compromise the possibilities of the future generations to satisfy theirs”.

We thought that repurposing the tons of food waste we are making every day could be an effective strategy for the fashion industry to become more sustainable: we searched online to check if our economic system had already developed this idea.

We found three companies that produce their fabrics by repurposing the food waste we made: Ananas Anam¹ is the brand that has patented Piñatex, the eco-leather made of pineapple leaves fibres according to an ancient Filipino tradition; during a job consultancy in the Philippines, Mrs Carmen Hijosa, designer and entrepreneur, experienced in the fashion field, notes that locals use pineapple leaves to make the fabric for their traditional costumes. After five years of study, the organic product entered the fashion industry. Ananas Anam is now a certified B corps, a title for for-profit companies that use the power of business to build a more inclusive and sustainable economy. This company, based in London, has already received numerous awards such as the Award for Material Innovation from the Arts Foundation UK in 2016 and the Innovation Award from Peta (People for the Ethical Treatment of Animals); in 2015, they also obtained the Peta’s Vegan Fashion Label.

Circular Systems² is a materials science company focused on creating a net-positive impact on our environment, society, and

1 <https://www.ananas-anam.com>.

2 <https://circularsystems.com/agraloop/>.

economy through innovation. Their circular and regenerative technologies provide systemic solutions for transforming waste into valuable fabrics for the fashion industry. Agralooop BioFibre is the name of a specific natural fibre obtained from food crop waste: it transforms low-value agricultural waste into high-value new fashion products. It processes a range of inputs, including oilseed hemp, oilseed flax, wheat, rice, corn, pineapple leaves, and banana trunks, and much more. It also produces a range of by-products, including bio-energy to power the local community and organic soil amendments to go back to the farm to support the fertility cycle. So, Circular Systems looks at these crop residues as valuable resources rather than just food waste, thus, turning the problem into a solution. Orange Fiber³ is an Italian brand that repurposes citrus by-products to create new fabrics made of a silk-like cellulose yarn to supply the entire fashion industry. Only in Italy more than 700,000 tons of citrus waste are produced every year and, until now, no one had developed an alternative to disposal. Orange Fiber identified this tremendous opportunity of industrial ecology and contributed to effectively reduce waste and pollution by transforming citrus juice by-products into a new and sustainable matter. This brand won several prizes: the ITMA Future Materials Award in 2015, H&M's Global Change Award, and the Italian COTEC for technological innovation.

Other companies must integrate sustainable systems into their projects without looking at mere profit only. Having said that, consumers should also be conscious about the environmental impact of their purchases: to change the economic system, companies must guarantee transparency by keeping their consumers informed about the environmental impact of their products through the price tag.

In our digital era, we could also use the power of social networks to make consumers more conscious about the products they purchase: we need a new type of influencers who can spread the powerful message of sustainability through their posts and their speeches not only to our generation but to the future ones too; for example, Venetia La Manna⁴ uses her profiles to spread the message of slow fashion, encouraging people to buy less and to rediscover, repair, and reuse old clothes to keep them as long as possible.

In conclusion, because the *produce-use-throw away system* is making our planet die, all the stakeholders in the fashion field too are called to cooperate towards a sustainable and circular economy to lower the environmental impact of this industry.

³ <http://orangefiber.it>.

⁴ <https://www.instagram.com/venetialamanna/>.

That Inspiration that Comes from Art

A Reflection on Food Waste and Dirt
Through the Art of Gayle Chong Kwan and Klaus Pichler

Sofia Borroni

During a rainy meeting in 2020 at Biennale Danza of Venice, the Italian performer Silvia Gribaudo extemporised the following words (I will try to report them by memory): “I suppose art is that quality that everyone can have, not necessarily an artist, that makes a route change possible. A quality that encourages to make an alternative road that nobody had ever thought”.

The quote got darker when the topic of food-wasting plus the wider and indefinite topic of waste – food, objects, or whatever the experience brings – reveals as something that takes part in our lives like a dark shadow. As producers of our own waste/trash, natural ones, or created by the overabundance of things we have, we are completely disregarded. To quote Silvia Gribaudo: “is art creating a route change capable of giving a shape to this shadow?”. The answer is subjective because the wasting problem has a wide range since it is first a problem of all individuals.

But art is certainly one of the protagonists making a move towards this shadow: a world of images that spells and makes visible this shadow through figuration. The works the project *One Third* (2012), collected by the Austrian photographer Klaus Pichler, show this unknown and rejected reality with incredible sensibility and refinement. The collection describes the connection between individual wastage of food and globalised food production. Rotting food arranged into elaborate still life compositions portrays an abstract picture of the food wastage while the accompanying texts take a more in-depth look at the roots of this issue.¹ The project title refers to scientific data showing that one-third of food worldwide goes to waste. Here the image reveals its impact power and transmission speed.

Something known as repulsive, like rotting food, is shown under a light of originality that opens plenty of doors of possibilities on how we can re-elaborate how food waste is perceived. But food and food waste also have a thick social implication: deliberately or not, looking at it just as something granted is dangerous and unproductive (also some kind of narrow-minded). The gentle, empathetic, maternal touch of Gayle Chong Kwan vibrates with strength, vision, and drama in works like *Paris Remain* (2008) and *Global Panorama* (2008)² where waste food makes up every

¹ Klaus Pichler, *One Third*. Vien, Anzenberger Gallery, 2013. The works are available on the artist's website platform: <https://klauspichler.net/project/one-third/>.

² The works are available on the artist's website platform: <http://gaylechongkwan.com/works>.

particle of the world built. With the words of the photography scholar Sergio Giusti on the occasion of Gayle Chong Kwan's solo exhibition *Sensorial Universe* at Galleria Uno + Uno (Milan) in 2010, "Food is definitely sustenance but it's also a collector of belonging and building block for social community. And yet, on the other side, it may also be curiosity for the exotic which is always an attempt appropriation and – in the worst cases – a touristic almost neo-colonial devouring".³

Once the artist narrows his gaze on it, the topic assumes many shades like the colourful light that splits from a prism. We understand that waste can tell us something about our society, the city we live in, and the kind of life we have. Something that at a careless look appears so invisible and ignored, but that indeed is overwhelming. Gayle Chong Kwan's project *Les Precieuses* (2008) captures these 'invisible' elements lost on streets. Each of these photographs – taken from a worm eye angle on the crowded street of Paris – focuses on a small piece of discarded food such as an orange peel, a shrivelled peel, a banana skin. The photographs could show foods while trashed, but I find her genius deep and earnest in realising the potential of the 'little invisible world' composed by these objects.

Again, through the project *Dust* (2014),⁴ Klaus Pichler departs from a culture that has always led us to understand it in a specific way. Colourful wires, balls of dust, other objects hard to identify were collected from different contexts and used as fingerprints that show us the identity of those contexts: an army shop, a bed articles shop, a pet shop, a fine art photo gallery etc. "Dust, we believe", the writer Josef Haslinger says in the presentation of the catalogue of Pichler's project, "does not agree with us, because it conceals everything we create. Dust is the devil's trap, revealed only once it has caught its prey. Haven't we been forever treading all evil into the dust? Was the snake not cursed to grovel in the dust? Klaus Pichler's photographs have shaken off the demons. They urge us to look more closely next time we sweep dust and grime onto a pan. We always used to call it dirt, blind to this whole universe".⁵ The inspiration that moved him to mould and agglomerate the dust could not be less than inspiring itself to us.

But what does it inspire what? When in front of an image, don't we often ask ourselves if we can see what the creator saw and be moved by the same inspiration? Art, and perhaps more specifically figurative art, could become a wind that opens the curtain on the scene of much awareness. For us, it works like an input, an inspiration that guides us to desire to be present, earnest. It may have the quality to inspire an individual change of route.

³ Giusti, S. (2010). *Gayle Chong Kwang 'Sensorial Universe'*. Milan: Galleria Uno + Uno.

⁴ Works are available on the artist's website platform: <https://klauspichler.net/project/dust/>.

⁵ Klaus Pichler, Josef Haslinger, *DUST*. Wien, Anzenberger Edition, 2015.

Art and Sustainability

Anna Bullo

The universe of art well integrates into the increasingly widespread concept of environmental sustainability. One should only think of the title of the third edition of the Sustainable Development Festival, *Let's put our hands on our future*, recently organised by the Italian Alliance for Sustainable Development (ASviS). This event aimed to set the conditions to allow Italy to make *2030 Agenda for Sustainable Development* – signed by 193 nations in 2015 – feasible to achieve its 17 sustainable development goals.

Ca' Foscari University of Venice has been developing the theme 'Art and Sustainability' for years through projects that promote the link between sustainability and artistic context, both of which are inherently linked to the city of Venice and to some relevant research sectors of Ca' Foscari itself.

Art and science are a fundamental combination for developing a sustainable world; one should only think of the innovative proposal of a group of Canadian scholars from the University of Montreal, who have used art as an effective means to achieve sustainable development. Art arouses sensations, emotions, and feelings, so it is undoubtedly the most effective tool to increase our awareness of the planet, our planet, the one that allows us to live. Given its connotations, art can be evaluated as the most appropriate solution to ignite the will and commitment to living in harmony with nature. One should understand art in all its multiform aspects, ranging from major artistic manifestations (from poetry to painting, from music to dance etc.) to simpler or smaller individual contributions across all aspects of daily life. Passions move everything, and, in the case of art, they can stimulate the creative and innovative qualities of individuals in everyday life, work, social relationships, school, and the domestic context.

Sharing these qualities not only would allow humans to join forces but also to deeply integrate into the planet's natural environment, of which they are an essential part. In the distant past, in the Mesolithic and Palaeolithic, where there was little knowledge and very few 'technologies' available, individuals practiced the art of survival, namely the one that allowed them to continue to live and evolve until to what we are today. The art of survival was passed on through fables, mythological stories, tribal music and dances, songs, and fantastic poems, i.e. all artistic manifestations rich in meanings, reflections, and indirect teachings, aimed at instinctively developing defence processes against ferocious animals and possible predators of all kinds, against the unknowns and dangers of life as well as the risks of natural disasters.

Similarly, sustainable development in all its areas should evolve into a mechanism of instinctive self-defence for modern men. It also acts as a stimulus to carry out the most suitable actions ensuring the survival of future generations. Science and technology cannot in any way be alien to, or separate from, the complex and incredible characteristics of the human personality.

I will now expose the reasons for the utility of humanistic disciplines and the history of art in this context.

The study of the iconographic elements of nineteenth-century landscape paintings provides us with the knowledge and sensitivity to educate our eyes and sight to the work of arts. Art historians need this sensitivity to reflect on the environmental and landscape changes that affected the territory depicted by artists of the past. The works on show in the international Biennali of Art and Architecture offer myriads of interesting solicitations and stimuli related to climate change, waste, and mass consumption regardless of the individual artistic instances. These works also feature very current and interrelated emergencies such as environment, climate, and migration.

When art historians analyse landscapes, environment, archaeological pre-existences as widespread museums (i.e. open-air museums), they often face, as it happened to me, issues that seem far from the artistic discipline (i.e. illegal actions, degradation, garbage, land and labour exploitation, and the isolation of the citizen in the territory).

The history of art is useful in detecting the aspects of contemporary times and acts as a mirror in reflecting the ethnocultural and consumerist nature of our past. Thanks to their sensitivity, artists have often anticipated and proposed themes and urgencies that have become central in the contemporary debate. Art, in all its possible manifestations, can save us.

Between the end of the twentieth century and these first twenty years of the new millennium, a profound reflection has increasingly developed on the relationship – and the relationships – that human beings have with the environmental context, on the consumption of resources, and the impact of our species on other living species and the environment. This growing awareness of natural and man-made dynamics that we cause to the Earth and the consequent crucial responsibilities that come with it, as well as disastrous consequences, have profoundly changed, and still change, our culture and existence. In the last four decades, even the common lexicon has been affected by environmental issues. The Brundtland Report defines “sustainable development” as a development “that satisfies all the needs of the present without compromising the possibility for future generations to satisfy their own needs”. Thinking about sustainability as an issue related to the economy poses an evident problematic aspect of the “sustainable development” of the Brundtland Report, which solely concerns the economic and financial dimensions. We are simply thinking

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about the above-mentioned 'development' above all intended as economic growth. But not only that, since sustainability also means replicating nature and its dynamics – hence the concept 'art can save us'. Art can find a way and succeed where other disciplines fail. We find it hard to understand, define, and describe the complexity of our planet without using an artistic attitude and approach. Art has always acted as a philosophy of contemporaneity over time and has offered a tool to investigate the past, the present, and the future. Men can combine concepts such as art, play, passions, visions, also demonstrating qualities such as collaboration, problem-solving, and the potential of authorship in fruition, the advantages of sharing, the strength of sharing for the achievement of common goals.

I will now report a series of examples of artistic manifestations of environmental sustainability: *The energy of the wind*, the work of Elena Paroucheva, a well-rounded artist, painter, illustrator, and author of art installations and urban planning. She became famous for the creative use of electricity applied to different forms of art: it is from this lighting that the 'wind sculptures' and 'wind art' are born, which are often monumental projects that transform structures and objects related to the production and transmission of electricity from wind energy in works of art. Among her works, the best known by the public are the ones that combine forms of energy production or transmission structures (such as pylons) with human figures. The project is called *Electric art* and was born back in 1999 as a creative project focused on installing works created with energy production sources. The goal is to investigate sustainable art forms through sustainable inductive materials capable of integrating landscape care (urban and natural) with agricultural and industrial product needs. In preparation for the 2014 Winter Olympics in Sochi, Russia, Paroucheva created a monumental figure of a skier illuminated at night by the white, red, and blue colours of the Russian flag. Her imposing electric sculpture, whose structure resembles that of the pylons, transmitted and still transmits energy to the nearby towns of Alder and Krasnaya Polina. Another relevant work is *Garbage Patch State* also called *Wasteland*. This project, created by the brilliant Italian architect and artist Maria Cristina Finucci, consists of a federal state featuring five oceanic islands formed by the accumulation of waste carried by currents, such as plastic bottles, bags etc. These 30-meter-deep islands sail the oceans, displaced, and modified by the streams that generated them. Through her artwork, Finucci founded a nation that shows the devastating consequences of marine pollution as a testimony of the actual environmental catastrophe. According to her, a work of art born with collateral events and installations is also a manifesto to condemn the environmental crimes perpetrated by human beings. The last example, *Bigger than the plate*, is an exhibition that has been installed inside the Victoria & Albert Museum in

London. The first printed cards were made of powdered sugar. These cards aimed to show that sustainability is making incredible strides today. Prince Albert, the visionary founder of the museum, would have undoubtedly loved it. The exhibition consisted of four areas dedicated to different topics: the 'compost' area, dedicated to the presentation of recycling projects; the 'farming' area, which collected all the projects dedicated to the recovery of abandoned areas; the 'trading' area to illustrate forms of fair market and present proper forms of communication to the consumer; the 'eating' area that combined the skills of chefs and artists for the creation of sustainable works of art. The exhibition invites the viewer to try and overcome the idea of final meal to understand the nature of the food behind each product. This different perspective allows individuals to have a clearer understanding of some critical factors affecting humanity, including: limited availability of food; poor eating habits; an excessively impactful production chain; abuse in the production of waste; and the lack of attention to the potential of recycling.

Conclusions

As for my personal experience, I believe that the awareness of food waste and its reuse are themes that can perfectly match art and cooking. What better place than the stove to understand how food, considered waste, can give life to incredible dishes? Several chefs have long been experimenting with old remedies and ancient recipes of the past, where almost no food went wasted. In ancient times, vegetables, fruit, meat, and fish were consumed almost in full, giving light to dishes, or soups, with leftovers or food scraps. But not only that, peels and rinds were, for example, used to produce cosmetics and perfumes, and the same is in the case of leftover and bones. So, given this period, why don't we take a step back and recover that ancient knowledge that for centuries has allowed men to live in dignity? Several restaurants offer 0 km food, thus proposing meals from traditional recipe books with local dishes and meals, and they exploit all parts of the food product, discarding only a few of it. The latter is a common practice among those farmers who produce the meat at a family level, aiming to use all parts of the animal. Art reflects in the art of cooking, where the taste and the dish are a work of flavours. We live in a society where waste is induced – not only in food but also in clothing. Against this backdrop, art should find its space of denunciation, sometimes raw and pure, on the reality of waste. In my opinion, we also need to be educated on food purchase habits. We should avoid foods that are too packaged and wrapped, opting for healthy and natural foods; we should support supply chains that do not exploit soil and labour, thus buying local products with lower transport impact. Art has always wanted to sensitise the individual

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by inducing messages and emotions. Now we face a real need for awareness. The need for proper waste disposal is an aspect that in some countries still seems to be not recognised, and so the need to use reusable containers that still is too far away in the current tight times of this inevitable emergency. I believe that food recycling is a fruitful form of art, not only from an anti-waste perspective but also to foster a conscious recovery during this economic crisis caused by the pandemic. Creating collective exhibitions on the theme of food waste, involving chefs, farmers, and peasants, as well as archaeologists and anthropologists, could be a convenient strategy where the experiences, knowledge, and perceptions of each professional can offer a fundamental message linking the use, consumption, production, and purchase of food.



The Second Soul of Waste

Marta Fogagnolo, Beatrice Iroha Wada

Global climate change is one of the most discussed topics to date. This subject covers a wide range of issues in terms of economic and social standpoints. The project *Waste Matters* – by artist Gayle Chong Kwan and Ca' Foscari University – provided us with a new and complete perspective on this matter.

We started by reading a statement by the artist in which she explains her use of sensory, liminal, and shared registers to ask questions about how to see and model the world, all the while connecting politics and poetics.¹ We decided to focus our research on the artistic field and investigate how subjects are portrayed across the current artistic environment and how set-aside, broken and, seemingly unusable objects act as means to explore new concepts.

Later, we focused principally on Jean Shin, a New York-based south Korean artist, who, we believe, shares some similarities with Gayle in terms of artistic values.

Her main works are monumental installations, products of the permutation of common objects into expressions of identity and community. The materials she uses have memories of the human body (like soles), or bear the marks of particular events (like broken umbrellas), and can express the absence of something as well (like a lone sock left behind in the clothes dryer). After she takes hold of these humble relics that still retain traces of their former life, she transforms them into a visually arresting explosion of form, texture, and colour.

Three projects drew our attention: *Pause*, *Worn Soles*, and *Sound Wave*.

In *Pause* (2020), a site-specific installation she realised under request by the Asian Art Museum, she recreates a Gonshi – the scholar's rocks of Chinese art – with cables and phones, inviting the public to reflect on how technology contributes to climate change. The artwork highlights our deep connection and reliance on technology and how often we overlook ethics when creating new technological devices.²

The installation wants to denounce our dependence on technology and provide a place where we can reflect on the toxicity of e-waste while finding ways to escape from this auto-induced daze from today's consumerism. In *Worn Soles* (2001), the artist separates the bodies of used shoes from their soles by arranging them neatly on

¹ Gayle Chong Kwan, on SINGULART: <https://www.singularart.com/it/artista/gayle-chong-kwan-21#interview>.

² Jean Shin, *Pause*, on Asian Art Museum: <https://exhibitions.asianart.org/exhibitions/jean-shin-pause/>.

the floor, recreating a symbolic and suggestive crew of people that only leave a faint trace behind. Every single sole is a memento of those who wore it, a mark that maps the owners' pasts.³ *Sound Wave* (2007), an oeuvre realised by melting 78 rpm records on a wooden armature and later sculpted to form a cascading wave, speaks of the constant waves in the technological field, that "render each successive generation of recordable media obsolete."⁴

Although its beauty is mesmerising, it causes a sense of dread too: it is like being submerged by the frenetic changes of everyday life, with its chaotic vibes and not enough time to adjust to them before being overwhelmed by another one.

As briefly mentioned before, we have found that some points of the poetics of Jean Shin converge with those of Gayle Chong Kwan. Although one focuses more on the use of non-organic materials and mainly chooses to create installations, and the other privileges organic waste, uses photographs and installations, and the active participation of the visitors in her projects, they share similar ideas and goals. Their breathtaking artworks use the past to portray the present and outline a possible future, showing a clear – and often oppressive – picture of our reality (the waste of yesterday is our present, and our present is the launch base for our future, a window of what could keep happening if we do not learn from our errors and strive to change).

Waste is indeed a means through which they show the ups and downs of society, challenging the visitors to look around and do, instead of passively staring and waiting for someone to step up for them. These two artists, having a sharp eye on reality, a keen intellect, and a deep knowledge of our daily challenges, use a powerful way to give us a message about the importance of waste and how not dealing with it could do more harm than good.

This (un)seemly protagonist is an everyday constant: whatever we eat, drink, buy or do involves its presence (and contribute to creating even more of it).

After gaining this awareness, we ended up with a deeper desire and need to learn more about this topic, how it is perceived by public opinion and how it concerns us all. We asked ourselves what we could do to help the current situation, what, in our little personal cosmos, we should do to start to improve things. The answer was quite simple: start from the little things. It may not seem enough, but even a simple act like turning off the light when leaving a room can be of great importance.

All things considered, isn't the ocean made of single drops?

After the end of this project, we can say with certainty that we will continue to acknowledge our community efforts, artistic and not, in expanding the public knowledge about waste, its uses, and impact on our environment while doing our share of work.

³ *Worn Soles*, 2001: http://www.jeanshin.com/worn_soles.htm (2020-12-31).

⁴ *Sound Wave*, 2007: <http://www.jeanshin.com/soundwave.htm> (2020-12-29).

Garbage In, Garbage Out?

Kristian Gandin

During the participation in the *Waste Matters* project, I had the opportunity to discover the artworks and the personality of the artist Gayle Chong Kwan and to approach a new, unknown concept of art: an art able to face ordinary matters such as food waste. As a result, my curiosity and attention have been attracted precisely by this topic: the power of contemporary art to become a symbolic stage where even the problem of food waste could be depicted to the public.

The deepening of this aspect led me to answer two main questions.

Firstly, I wondered whether broken and rubbished objects or leftovers and rejects – in one term, waste – could be art. According to Katrin Krottenthaler's essay, which refers to the artwork *Waves* of Beate Seckauer, the artist is the first one to decide if his work is art, he or she is the ultimate measure of what is to be defined as art.¹ Thus, Beate Seckauer herself says that "art is everything unique and new that is made only one time". Consequently, the practice of transforming waste into art is justified by the criterion of uniqueness, which gives to the object a symbolic aura that is untraceable inside a recycled but mass-produced product.

One should think about the purpose of this practice: in other words, in which way contemporary art can bring sustainability? Someone could reply that art is not helpful to confront pollution and food waste simply because it has been said that an artwork is unique and, therefore, all or most of the waste cannot be transformed into art. It is highly important to remember that art does not work with quantity, but with quality, and its role is primarily symbolic. As expressed in the enlightening article "From Waste to Art – The IWWG Art Gallery", artistic "activities do not dramatically reduce the amount of waste produced globally, but [...] they can be a channel of education towards a new 'waste mentality'":² From its symbolic dimension, art allows reflection, individual awareness, collective sensibility and finally promotes a concrete reaction to current issues. In this way, art inspired by food waste shows, through its contemplation, the road towards recycling and reducing.

1 Krottenthaler K. (2017). "From Art to Waste and Back: Beate Seckauer and her *Waves*", in "Artists' Waste, Wasted Artists: Exhibition Catalogue", special student issue, *Journal of Extreme Anthropology*, 1(2), 93-4. <https://doi.org/10.5617/jea.4887>.

2 Stegmann R.; van der Westhuyzen, C. (2014). "From Waste to Art – The IWWG Art Gallery". *Waste Management*, 34(5), 845-7. <https://doi.org/10.1016/j.wasman.2014.03.001>.

There are many examples of art concerning food waste to explain these topics. In particular, I chose three artworks that, in my opinion, share a similar *modus operandi*. The first one is *Tropical Hungry*,³ made by the Brazilian artist Marcelio Grud. He collected different types of scraps and rotten fruits and vegetables (tomatoes, peppers, pumpkins etc.) from markets and separated them by colour to use their pigments and create a mural. The result is a giant and dreadful wide-open mouth that has just insatiably fed on lots of food whose remains are on the ground. The second artwork is *Arc de Triomphe – From the Waste of a Civilization* by Markus Jeschaunig,⁴ a work realised for the *street gallery – Lendwirbel Festival 2012* in Graz, Austria. It consists of a triumphal arch-shaped structure made of metal grids and a wooden substructure and filled with 8.65 cubic meters – about 2.5 tonnes – of dry waste bread. It took the artist five weeks to collect the bread from bakeries, markets, and rubbish containers. Finally, the last artwork I would like to mention is the evocative *Paris Remains*,⁵ a series of large-format photographic wrap-around images realised by Gayle Chong Kwan, installed in ArtSway, Hampshire, and part of a touring project entitled *The Grand Tour*. The artist collected discarded food such as citrus and banana peels and other remains and created a miniature version of the city of Paris imagined as a ruin. In this so horrific sight, all the beauty gives way to a wasteland made of inert vegetables.

Making use of apparently worthless food waste, all three artists create artworks capable of public inspiration and reflection. Efficacy is allowed by the recurrent idea of transforming space by ironically glorifying consolidated symbols, bringing about mystification and overturning. *Tropical Hungry* can be seen as a parody of the well-known lips and tongue logo of the rock band The Rolling Stones, which, in some way, stands for our modernity; *Arc de Triomphe* refers to the famous Parisian monument, but celebrates the intrinsic wastefulness of consumer society; *Paris Remains* expresses the futility and fallacy of human taste that, once vanished, mutate even one of the loveliest cities into a pathetic desolation.

“Garbage in, garbage out” is generally said: will it always be true? At least not in art!

³ <https://www.narceliogrud.com/portfolio/tropical-hungry/>.

⁴ <https://agencyinbiosphere.com/archives/project/arc-de-triomphe>.

⁵ <http://gaylechongkwan.com/works/paris-remains#0>.

From the Food Supply Chain to the Sustainable Food System

Francesco Messina

The food supply chain (henceforth FSC) represents the process through which food is produced, reaches places of consumption, and, in the end, is disposed of. The FSC involves farmers, distributors, consumers, and other professionals contributing to satisfy the demand for food.

To reduce food, energetic and monetary waste alongside the chain, stricter controls, and accurate management represent a pivotal passage: these efforts would result in undebatable advantages. As sustained by Hamprecht et al. in their paper on the control of the FSC and its sustainability, a sustainable supply chain also helps improve productivity, thanks to the optimisation of production and distribution phases.¹

To strengthen and innovate the concept (and the praxis) of FSC, the Food and Agriculture Organization of the United Nations (FAO) provides a new, practical model to contextualise and understand how the FSC plays a central role in the achievement and compliance with the 17 Sustainable Development Goals 2030. To quote FAO's *Sustainable Food Systems: Concept and Framework*: a sustainable food system (SFS) "delivers food security and nutrition for all in such a way that the economic, social, and environmental bases to generate food security and nutrition for future generations are not compromised".²

The above means that:

- it is profitable throughout (economic sustainability);
- it has broad-based benefits for society (social sustainability);
- it has a positive or neutral impact on the natural environment (environmental sustainability).

Consequently, the whole food market (and, most of all, the stakeholders of this market) will benefit from a sustainable food system. In fact, in terms of economic impact, SFSs generate added value for five components: wages for workers, a return on assets (profits) to entrepreneurs and asset owners, tax revenues to the government, benefits to consumers, and impacts on the socio-cultural and natural environment. The paradigm of development propelled by SFSs trespasses the traditional domino-like vision of

¹ Hamprecht, J.; Corsten, D.; Noll, M.; Meier, E. (2005). "Controlling the Sustainability of Food Supply Chains". *Supply Chain Management: An International Journal*, 10(1), 7-10. <https://doi.org/10.1108/13598540510578315>.

² FAO's pamphlet on sustainable food systems: <http://www.fao.org/3/ca2079en/CA2079EN.pdf>.

FSC, taking into account the three dimensions involved (economic, social, and environmental): as a matter of fact, the adoption of an SFS model will eliminate the typical bijective relations of FSC (usually represented by linear graphs) in favour of a circular perspective. This change allows envisioning the process more broadly: considering the system holistically, the ties that connect different participants will be more evident and, therefore, open to improvements. As made clear by FAO, the sustainable food system should be conceived as a wheel (rather than the usual linear 'arrows') that globally intertwines all various stakeholders and subsystems. Indeed, the SFS considers all relevant causal variables of a problem and all social, environmental, and economic impacts of the solutions to achieve transformational systemic changes.

To conclude, a desirable outcome of the adoption of the SFS model would involve taking care of all the different steps and contributors to the food chain, promoting social and economic equality, and reducing all kinds of disadvantages (primarily, environmental pollution and waste disposal) to their minimum levels.

継ぎ: Golden Joinery

Matilda Nardoni

The tinkling of countless shards breaks the silence over shogun Ashikaga's court. Motionless in front of what remains of his favourite Chinese teapot, he observes the infinite fragments produced by the crash. Every attempt to recover the elegant functionality fails, as not even the industrious hands of Chinese artisans can give back to matter what time and chaos have thrown away. The teapot will not come back: delicacy, which was its strength, implied precariousness, which was its weakness. Now, infinite, worthless pieces explore the wooden floorboards.

Objects have within themselves the power of becoming witnesses, more than men are, of a beauty made of custom. They wear the essence of *Wabi-sabi*,¹ the ancient Japanese philosophy that discovers the sense of a disruptive vitality in the aesthetic of usage, followed by many enchanting principles. Shibusa, intangible refinement;² *mono no aware*, explosive pathos of matter;³ *yugen*, ineffable secret grace.⁴ It enshrines the idea of time as a spontaneous flow, continuous metamorphosis, impermanent creative action. And above all, the concept of *Ma*: the interval, the neutral zone, dense of possibilities.⁵

The Japanese artisans collect all the sharp cutting fragments and rejoin them together using a specific natural lacquer: the saturated lines only follow the drawing traced by the *kire*, the cuts, on the ceramic canvas. They wait weeks over weeks for the teapot to be cohesive again, and then, as the breath of a magic spell, they blow golden dust on its surface. All of a sudden, a dream-like luminous landscape emerges, branching of a story: the *keshiki*. The joints glow with the accomplished transformation, and to Ashikaga it is even more precious.

This transformative art – flourished in the fifteenth century after the story of the shogun's teapot – passed down through generations with the name of *Kintsugi*: *kin* (gold) and *tsugi* (joinery). It consists of repairing ceramics that have fallen apart and ennobling the marks

1 Cf. Koren, L. (1994). *Wabi-Sabi: for Artist, Designers, Poets and Philosophers*. Berkeley: Stone Bridge Press, 59.

2 Cf. Kato, S. (1997). *A History of Japanese Literature: From the Manyoshu to Modern Times*. New York: Routledge, 76.

3 Sartwell, C. (2004). *Six Names of Beauty*. New York: Routledge, 112-13.

4 Tsubaki, A. (1971). "Zeami and the Transition of the Concept of *Yugen*: A Note on Japanese Aesthetics". *Journal of Aesthetics and Art Criticism*, 30(1), 55-7.

5 Fletcher, A. (2001). *The Art of Looking Sideways*. London: Phaidon, 370.

of the experienced accident with gold powder.⁶ It features the creation of a caring culture based on respect, gratitude, and almost awe for all the gifts of nature, where people experience a profound connection with tradition and the constellation of objects that inhabit everybody's microcosm. Each one so abundant in secret, intimate spirituality. A map that only attentive travellers can explore.

The art of Kintsugi transforms chips and cracks into a golden narrative. Where nothing is wasted, everything can be reinvented, gifting with a new life what time and chaos have corrupted: corruption that not even the shogun could have avoided, but that the artisan's hands knew how to make it blossom.

This is what comes to mind to the few craftsmen who, thanks to the Kintsugi technique, take care of pottery worn out by daily usage as well as those destroyed by the earthquake and tsunami that ran over Japan in 2011.⁷

This is what moves Tomomi Kamoshita as she collects by hand the polished colourful shards that the sea has brought ashore. She joins their wandering story in the same golden frame, and her *hashi-oki*, delicate Sakura-coloured chopstick holders, flourish and thrive in the *Gifts from the Wave* exhibition.⁸

To the same creative reimagination turns Sookyung Yee, the Korean artist who, having witnessed destruction and the thousand fragments produced by the anger of an unsatisfied ceramist, has found inspiration for her series of "translated vase".⁹ The sought-after firmness and balance give way to an elegant and dynamic matter held together by Kintsugi. A matter that reinvents itself and shifts in front of the viewer's gaze.

And again, back to Wabi Sabi goes Kei Takemura's wit. Her shattered plates and the epicentre of violence: the place where she embroiders by hand transparent silk decorations, reconnecting the separated pieces with light, delicate fabric. She captures within the untouchable beauty of her "renovated vases" time, traditions, dedicated care.¹⁰

The responsible hand of those who share this vision is capable of turning the perishing nature of raw materials into the overflowing colour of vitality.

Today, Japanese activists gather for this purpose to the cry of *Mottainai*, which can simply yet powerfully translate into the exclamation 'What a waste!'¹¹

6 Gopnik, B. (2009). "Golden Seams: The Japanese Art of Mending Ceramics' at Freer". *The Washington Post*.

7 <https://asia.nikkei.com/NAR/Articles/A-Japanese-ceramic-repair-technique-teaches-us-to-embrace-our-scars>.

8 <https://eleanorbatemanportfolio.wordpress.com/2020/03/26/tomomi-kamoshita/>.

9 At La Biennale di Venezia. 57^a esposizione internazionale d'arte. Viva arte viva, 2018.

10 Lee, E. (2011). "Kei Takemura and Yee Sookyung: Two Ways of Re-Thinking Asian tradition". *Arte e Critica*, 66.

11 Maruko, E. (2014). "Affluence of the Heart: Wastfulness and the Search for Meaning in Millennial Japan". *The Journal of Asian Studies*, 73(1), 166-7.

o



Tomomi
Kamoshita

Sookyong
Yee



Kei
Takemura



Ugly Food, Making Visible What is Invisible

Sofia Pala

Vertumnus – one of the most famous works by Giuseppe Arcimboldo – became the mascot of Expo Milano 2015. It appears as a composition of fruits and vegetables of all four seasons, each painted with bright colours and reproduced in its best shape, either it is a cherry or a pumpkin. Although this allegorical representation seems bizarre, it is clear, instead, that the painter has chosen the appearance of the fruit and vegetable represented.¹ From this point of view, there is an affinity between this work and the *Oranges and Apples* of Cezanne. Paul Cézanne used to paint the same subject several times until he reached the desired perfection; his goal was to reach a formal synthesis and transform the objects into essential forms.²

Even there, shapes are smooth, and colours are perfect. Both works show perfect vegetables and fruits: peaches are all equal, apples have the same size, every fruit is shiny and without any sign of deterioration or imperfection. One could use these works at a supermarket chain with the sign 'first choice' vegetables. It is clear that, in such a store, the goal is to capture the gaze of potential buyers by reproducing the perfect picture that each of us has of a pear, a cherry, or a courgette. The hidden part of the iceberg is that pears and apples do not ever look the same, and probably certain products have been chosen at the expense of the others that were discarded. How did you get skin and colours like that? Who picked it up? How was it transported? In paper or plastic wrappers? What treatments has it undergone? And, finally, what happens to the fruit left on the tree that falls because it does not correspond to the parameters? What about the one that is not being sold?

That aesthetics criterion of selection is confirmed even today in the purchasing choices of many consumers. As recalled by Beth Vallen,³ Associate Professor of Marketing and Business Law at the Villanova University, we eat with our eyes. According to a study conducted by the University of Edinburgh, as many as one-third of the fruit and vegetables produced in Europe do not meet the requirements of the BDO, therefore, it does not reach the shops, because it is out of gauge, or marked by atmospheric events, or

¹ Makes, F. (2011). *Giuseppe Arcimboldo Vertumnus*. Visby: Gotland University Press, 13

² Benedetti, M.T. (2011). *Cezanne*. Milano: Skira, 46.

³ Block, L.; Keller, P.; Vallen, B.; Williamson, S.; Birau, M.; Grinstein, A.; Haws, K.; LaBarge, M.; Lambertson, C.; Moore, E.; Moscato, E.; Walker Reczek, R.; Tangari, A. (2016). "The Squander Sequence: Understanding Food Waste at Each Stage of the Consumer Decision Making Process". *Journal of Public Policy and Marketing*, 35(2), 292-304

rubbing with other fruits. But the selection, and therefore the waste, does not stop there. Consumers themselves tend not to trust deteriorated products, oranges with spots or apples with bashed skin. According to data, every year, the above-mentioned lack of trust causes consumers to produce waste equal to between 700 and 1,500 € per capita. If it is true that this is still a majority trend today, it is also true that in recent years another trend is being affirmed.

The iconic image could be the *Basket of Fruit* by Caravaggio. Beyond the undeniable value of this painting in the field of art, no one who wants to qualify itself as a first choice fruit&vegetable store would select it for advertising purposes as the apple has deteriorated, some leaves are dried, the grape is mashed. Beyond the symbolic meaning that the painter gave to this type of fruit as signs of time and corruptibility of nature, it becomes visible that the fruit is not all the same, the colours are not always bright, or the leaves green. This feature does not deny the fruit flavour or quality, although it does not meet the aesthetic parameters we are used to.

A different approach based on the valorisation of ugly food is becoming increasingly popular in Europe to reduce department costs and combat waste. Some examples are the operation *Les fruits et légumes moches* of Intermarché in France and *Too good to waste* by Lidl in Great Britain. Also in Italy, NaturaSì, in collaboration with Legambiente, has launched in its 500 stores the project *Così per natura*, dedicated to imperfect fresh fruit and vegetable products, i.e. too large, too small, or having different shapes.

To effectively reduce waste, this change of mentality must involve even larger sections of the population. What was previously invisible is about to become visible as an added value and not a limit. After all, what looks bad does not necessarily mean it is not good, or has to become a waste, or does not matter.

To Save Us All

Massimo Panaro

In the contemporary world, the interest in the environment has gained more and more relevance during these last years. One could think about the awareness projects carried out by artists and associations over the past years on this topic. However, one should also note that, in the last couple of years, movements like Fridays For Future and Extinction Rebellion have achieved to spread the message 'to be keen on the protection of the environment far more widely than in the past'.

Environmental sustainability has become not only something for a small elite trying to achieve some small victories in this field in their free time, but we might venture to say that it is now part of the pop culture. Still, hard work is needed to stop ongoing and future environmental catastrophes, but we have started to take some steps forward. The purpose of this small text is to point out a few topics that can be useful for further reflections about the issue.

Strictly connected to environmental protection, there is the food waste problem. This issue does not simply cover the 'not to waste the food on your plate' concept, but it includes a much broader idea. First, there is a need to tackle the overconsumption of meat. Given the increased request for meat-based products, large areas serve to produce cattle feeding; using those areas to cultivate food intended for human consumption would allow feeding millions of individuals.

Also related to this specific topic are the illegal fires set out by arsonists in the Amazonian forest. Most of them are ignited directly from the landowners eager to use new pieces of land to expand their cattle feeding production, backed by the Brazilian government that, during the ongoing presidency, has gradually reduced the national environmental protection over the course of the years. Raging wildfires in the Amazon are a direct consequence of the overconsumption of meat in the First World.

Moreover, one should not forget that even the food on sale goes wasted too when it is close to its expiration date. Big supermarkets keep throwing away large quantities of food, and dumpster-diving to look for still edible food is illegal.

This phenomenon is not new. It also appears in the novel *The Grapes of Wrath* by John Steinbeck (ch. 25), which explains how to keep the prices high, that unsold food was dumped or destroyed in all possible ways during the Great Depression. Almost a century has passed, but this phenomenon still exists. Although the European countries are trying to work on different levels to tackle it, it is still far from being stated as solved.

The last thing to point out is the ineffectiveness of individual actions to tackle the climate crisis in a long-term period. The 'every individual has to think about how to reduce its carbon footprint' and 'this is the key to solving the climate catastrophe' are the typical scapegoat arguments used by corporations to avoid responding to their actions.

For example, ENI – the Italian energy company working in oil extraction – is responsible for several environmental disasters in Africa. While no one sheds light on these harmful activities, the Company keeps spreading greenwashing advertisements on the media to show that they are doing their best to save the planet. These spots invite people to recycle more, take showers instead of baths, and turn off the tap while brushing their teeth to save the world together. How naive is this thought?

Hoping that everyone will change his mind and move towards an environmentally friendly behaviour appears utopian. Even if that miraculously happens, the damages produced by State's policies and big corporations would not disappear, condemning all of us to an inevitable environmental catastrophe. The current achievement towards which we all must aim is to force governments, corporations, and the whole society to re-think our current consumerist system and try to reform it.

To save us all.

Art for Whose Sake?

Gaia Pellegrino

“For art comes to you proposing frankly to give nothing but the highest quality to your moments as they pass, and simply for those moments’ sake”.

(Pater, W. *Studies in the History of the Renaissance*. London: MacMillan and Co., 1873, 213)

This quotation at the end of the book *Studies in the History of the Renaissance* clearly states Walter Pater’s idea of the meaning and purpose of art. However, the search for the meaning of art is not exclusive to Aestheticism; on the contrary, it is a highly debated topic even nowadays. To date, there is no single answer to the question “what is the purpose of art?” (where art refers to all the forms it manifests itself), as it has changed numerous times according to the historical periods and the different needs of populations.

Focusing on Europe, since the very remote past, one could consider art in prehistoric times, whose purpose was mainly ritual and propitiatory. From this purely utilitarian function, one could move to art in the Medieval period, which in Europe mostly has religious subjects and was, therefore, used as a symbol of faith. However, as the centuries passed, the question became increasingly complex, and art went from being a means of religious representation to a means of social criticism, taking Charles Dickens as an example. In the nineteenth century, however, the Aesthetic movement completely overturned this view, believing that art should be an end itself and provide an escape from reality. This concept was, in turn, disproved during the twentieth century, where art, once again, spoke of social and political problems.

In essence, the issue is far from static. Nowadays, contemporary art has generally remained in line with the last century art: it is aware of its strength and aims to change reality. However, to do so, it needs to stimulate the viewer to find out more about the issues it covers. For this reason, the works tend to strike the viewers at first glance, fascinate them, and thus prompt them to seek an explanation. The artists express their inner selves and at the same time talk about the problems of our time, ranging from the atrocity of war, exploitation, abuse of power, lack of rights, consumerism, and environmental pollution also linked to the production and waste of food.

Countless artists are dealing with the problems of the Anthropocene,¹ the current geological era. Notably, as concerns

¹ <https://theanthropocene.org>.

pollution and spatial changes, three photographers (Edward Burtynsky, Jennifer Baichwal, and Nicholas de Pencier) organised an exhibition called *Anthropocene*, to raise awareness about the structural and climatic changes caused by human activity. The exhibit started on 28 September 2018, and it should tour globally for five years. It includes photographs, interactive films, and augmented reality installations, which fascinate the viewer with their distinctive shapes and changing colours of the images. These mark the contrast between the beautiful images and the actual damage done to the environment, totally in line with contemporary art standards.

So, amidst mountains of plastic bottles and lithium 'plantations', the viewer is left both fascinated and horrified. Although art has undoubtedly succeeded in achieving its aim in this era, it still requires a public willing to understand, internalise, and finally act to improve reality. Art brings problems to the surface, but good political action is needed to address and solve them.

Mussel Shells: Envelopes of Resources

Anna Piccolo

Hardly ever one thinks about the future of mussel shells while eating the contained mollusc. They are leftovers that not only fill our residual waste bin but represent a substantial issue at a global level. Accounting for 75% and 90% of the number of mussels produced,¹ the disposal of shells requires massive resources. That is why they are often just cumulated on landfills. Such practices are problematic due to the excessive amount of waste piles that negatively impact the landscape and create pernicious smells arising from decomposition and decay processes.² Moreover, they are of great danger to public health since bivalves can transmit several diseases.³

Alternative procedures to disposal are necessary to cope with the voluminous waste streams produced by the growing seafood industry. This phenomenon strongly affects New Zealand, for instance, where mussel shells constitute a relevant component of industrial waste, representing 90% of each factory's waste.⁴ The same as for Galicia, where around 25,000 tonnes of mussel shell

1 Gigante, V.; Cinelli, P.; Righetti, M. C.; Sandroni, M.; Tognotti, L.; Seggiani, M.; Lazzeri, A. (2020). "Evaluation of Mussel Shells Powder as Reinforcement for PLA-Based Biocomposites". *IJMS*, 21(15), 5364. <https://doi.org/10.3390/ijms21155364>. / Hamester, M.R.R.; Balzer, P.S.; Becker, D. (2012). "Characterization of Calcium Carbonate Obtained from Oyster and Mussel Shells and Incorporation in Polypropylene". *Journal of Materials Research*, 15(2), 204-8. <https://doi.org/10.1590/S1516-14392012005000014>.

2 Mohamed, M.; Yusup, S.; Maitra, S. (2012). "Decomposition Study of Calcium Carbonate in Cockle Shell". *Journal of Engineering Science and Technology*, 7(1), 1-10. / Morris, J. P.; Backeljau, T.; Chapelle, G. (2019). "Shells from Aquaculture: A Valuable Biomaterial, Not a Nuisance Waste Product". *Reviews in Aquaculture*, 11(1), 42-57. <https://doi.org/10.1111/raq.12225>. / Yao, Z.; Xia, M.; Li, H.; Chen, T.; Ye, Y.; Zheng, H. (2014). "Bivalve Shell: Not an Abundant Useless Waste but a Functional and Versatile Biomaterial". *Critical Reviews in Environmental Science and Technology*, 44(22), 2502-30. <https://doi.org/10.1080/10643389.2013.829763>. / Perea, A.; Kelly, T.; Hangun-Balkir, Y. (2016). "Utilization of Waste Seashells and Camelina Sativa Oil for Biodiesel Synthesis". *Green Chemistry Letters and Reviews*, 9(1), 27-32. <https://doi.org/10.1080/17518253.2016.1142004>.

3 Lertwattanaruk, P.; Makul, N.; Siripattarapavat, C. (2012). "Utilization of Ground Waste Seashells in Cement Mortars for Masonry and Plastering". *Journal of Environmental Management*, 111, 133-41. <https://doi.org/10.1016/j.jenvman.2012.06.032>.

4 Lertwattanaruk, Makul, Siripattarapavat 2012.

waste are generated every year;⁵ for Greece, reaching almost 12 tonnes daily;⁶ and for China, whose landfills are covered each year by about 10 million tonnes of shell waste.⁷ Overall, it is legitimate to define this as a global issue. Indeed, it has been estimated that over one million tonnes of mussel shell waste are generated worldwide by the canning industry.⁸

Mussel shells have been widely studied as biological sources of CaCO₃, covering ca. 95% of their composition. The vast range of application fields proposed for the mentioned food waste proves how it would better be seen as a resource, more than something to throw away. The main developing framework for mussel shells usage is in construction materials. Indeed, they can be either crushed to produce aggregates or calcined to produce limestone for cement mortar in concrete. In the former case, the obtained composite is not optimal for structural purposes⁹ but is a valuable material for coatings, as it is endowed with good insulating properties.¹⁰ The results for the mortar production are satisfying as both good mechanical and thermal properties can be attained.¹¹ The inclusion of mussel shells in the production of concrete is not only a way to reuse a voluminous waste stream, but it also contributes to lower the costs and environmental impact of the construction sector.¹² Indeed, the extraction of rocks and sand from quarries, rivers, beaches, and the seabed is expensive, energy-consuming, and implies damages to natural habitats and landscapes.¹³ A

5 Martínez-García, C.; González-Fonteboa, B.; Carro-López, D.; Martínez-Abella, F. (2019). "Design and Properties of Cement Coating with Mussel Shell Fine Aggregate". *Construction and Building Materials*, 215, 494-507. / <https://doi.org/10.1016/j.conbuildmat.2019.04.211> / Ez-zaki, H.; El Gharbi, B.; Diouri, A. (2018). "Development of Eco-Friendly Mortars Incorporating Glass and Shell Powders". *Construction and Building Materials*, 159, 198-204. <https://doi.org/10.1016/j.conbuildmat.2017.10.125> / Seco-Reigosa, N.; Peña-Rodríguez, S.; Nóvoa-Muñoz, J. C.; Arias-Estévez, M.; Fernández-Sanjurjo, M. J.; Álvarez-Rodríguez, E.; Núñez-Delgado, A. Arsenic (2013). "Chromium and Mercury Removal Using Mussel Shell Ash or a Sludge/Ashes Waste Mixture". *Environmental Science and Pollution Research*, 20(4), 2670-8. <https://doi.org/10.1007/s11356-012-1192-6>.

6 Papadimitriou, C.A.; Krey, G.; Stamatis, N.; Kallianiotis, A. (2017). "The Use of Waste Mussel Shells for the Adsorption of Dyes and Heavy Metals: The Use of Waste Mussel Shells for the Adsorption". *Journal of Chemical Technology and Biotechnology*, 92(8), 1943-7. <https://doi.org/10.1002/jctb.5247>.

7 Yao et al. (2014).

8 Martínez-García, C.; González-Fonteboa, B.; Martínez-Abella, F.; Carro-López, D. (2017). "Performance of Mussel Shell as Aggregate in Plain Concrete". *Construction and Building Materials*, 139, 570-83. <https://doi.org/10.1016/j.conbuildmat.2016.09.091>.

9 Martínez-García et al. 2017. / Barnaby, C. (2004). *An Investigation into the Reuse of Organic Waste Produced by the New Zealand Mussel Industry*. Auckland University of Technology. / El Biriane, M.; Barbachi, M. (2021). "State-of-the-Art Review on Recycled Mussel Shell Waste in Concrete and Mortar". *Innovative Infrastructure Solutions*, 6(1), 29. <https://doi.org/10.1007/s41062-020-00394-9>.

10 Martínez-García et al. 2019.

11 Ez-zaki, El Gharbi, Diouri 2018; Lertwattanaruk, Makul, Siripattarapravat 2012.

12 Ballester, P.; Mármol, I.; Morales, J.; Sánchez, L. (2007). "Use of Limestone Obtained from Waste of the Mussel Canning Industry for the Production of Mortars". *Cement and Concrete Research*, 37(4), 559-64. <https://doi.org/10.1016/j.cemconres.2007.01.004>.

13 Martínez-García et al. 2019.



sustainable solution envisages avoiding the need for such practices by using a readily retrievable resource: discarded mussel shells.

To close resource loops and implement a circular economy, the use of mussel shells in 3D printing is also attempted.¹⁴ The combination of finely powdered shells with sugar water provides a paste suitable for extrusion. The final material is similar to ceramic and is easily recyclable. Hence, failed prints or old objects can constitute new material input. Moreover, being composed of CaCO_3 , they are ideal for plant vessels, being a suitable fertilizer.¹⁵

In the context of material synthesis, the usage of mussel shells as fillers in polymeric composites has been studied.¹⁶ The calcium carbonate extracted from these bivalves is particularly useful for improving the rigidity of the final material since a non-negligible part of it is in the form of aragonite. These acicular crystals form elongated particles that positively affect the mechanical properties of the bio-composite.¹⁷

The nutritional properties of calcium carbonate have been exploited too by employing mussel shells in the production of calcium supplements, both for animals and for plants. Different

14 Sauerwein, M.; Doubrovski, E.L. (2018). "Local and Recyclable Materials for Additive Manufacturing: 3D Printing with Mussel Shells". *Materials Today Communications*, 15, 214-17. <https://doi.org/10.1016/j.mtcomm.2018.02.028>.

15 Sauerwein, Doubrovski 2018.

16 Gigante et al. 2020; Hamester, Balzer, Becker 2012; Yao et al. 2014.

17 Gigante et al. 2020.

companies have produced mussel shells-based products such as soil additives and conditioners, bird feeds, and supplements for horses.¹⁸ Moreover, after calcination, the attained oxide can help to recover the buffering capacity of soils and act as an antibacterial agent.¹⁹

Furthermore, substantial contribution in improving environmental issues can derive from the recycling of mussel shells. One example is the production of biodiesel: a biodegradable, non-toxic, and renewable fuel. The use of mussel shells as catalysts for its synthesis considerably lowers the costs, making it competitive in the global market.²⁰

Mussel shells have also been widely studied for their adsorption properties. One can take advantage of them in the flue gas cleaning process to remove acid gases,²¹ or in the removal of phosphates²² and heavy metals²³ from water bodies, or in the purification of textile effluents from dyes.²⁴

Finally, shells are used in Australia for restoring reefs, in the attempt to reconstitute the natural habitats destroyed by the human impact.²⁵

Concluding, it is palpable how mussel shells can be recycled in numerous ways so that not only is their disposal issue mitigated, but other environmental benefits are achieved. The development of studies on the field is a promising push towards eco-sustainable solutions to establish a circular economy.

18 Barnaby 2004.

19 Yao et al. 2014.

20 Yao et al. 2014; Perea, Kelly, Hangun-Balkir 2016.

21 Yao et al. 2014.

22 Jones, M.J.; Wang, L.Y.; Abeynaike, A.; Patterson, D.A. (2011). "Utilisation of Waste Material for Environmental Applications: Calcination of Mussel Shells for Waste Water Treatment". *Advances in Applied Ceramics*, 110(5), 280-6. <https://doi.org/10.1179/1743676111Y.0000000016>.

23 Papadimitriou, Krey, Stamatis, Kallianiotis 2017.

24 El Biriane, M.; Barbachi, M. (2021). "State-of-the-Art Review on Recycled Mussel Shell Waste in Concrete and Mortar". *Innovative Infrastructure Solutions*, 6(1), 29. <https://doi.org/10.1007/s41062-020-00394-9>. / El Haddad, M.; Regti, A.; Laamari, M. R.; Slimani, R.; Mamouni, R.; Antri, S. E.; Lazar, S. Calcined Mussel Shells as a New and Eco-Friendly Biosorbent to Remove Textile Dyes from Aqueous Solutions. *Journal of the Taiwan Institute of Chemical Engineers*, 2014, 45 (2), 533–540. <https://doi.org/10.1016/j.jtice.2013.05.002>.

25 Rebuilding Australia's Lost Shellfish Reefs. The Nature Conservancy, 2020. <https://www.natureaustralia.org.au/what-we-do/our-priorities/oceans/ocean-stories/restoring-shellfish-reefs/>.

The Art of Food Waste

Sara Sandrucci

Europe generates around 88 million tonnes of food waste annually.¹

Food waste is an important topic in these times where waste and environmental themes are faced more than ever before. Wasting food is not just an ethical issue. Wasting food plays a paramount role as the Earth will run out of limited natural resources if human beings do not act. Most people think that personal food waste is almost zero, but if we focus a little, we will notice that any little things can make the difference: peels and seeds of various vegetables and fruits, eggs' shells, cheese crusts, to quote a few. There are many ways to prevent and fight food waste; one of these is art. Many initiatives have been made over the past few years. To name one, the National Geographic photo contest *#UglyFoodIsBeautiful*, in which people were called to photograph rotten food and make it look beautiful or fascinating, instead of throwing it away, bringing crucial topics of everyday life. I have mentioned this contest as it demonstrates how everyone can make art on their own. Ca' Foscari University of Venice also proved it through the *Waste Matters* project led by the international artist Gayle Chong Kwan. This project provided us students with the opportunity to approach this topic differently and uniquely: the artist Gayle Chong Kwan gave us some insights from which we could take a cue, and through our creativity, we developed them into our little artworks, like poems, photographs, paper works, everything concerning the food waste theme. In this way, we realised how close we are to this subject. Everyday life can be so different if we look at it from another perspective, an environmental one. I think that art is a great instrument to raise awareness about social and global issues. It also provides an interesting way to stimulate personal creativity and combine it with social good. If everybody can make art, everybody can contribute to environmental well-being. I took a chance and got in the game. I wanted to challenge my creative skills for this social issue and make my point. Here is my little artwork, then: in this photograph I created, you can see a classic Italian plaid tablecloth. The special feature is the food: it is rotten, expired, simply food waste. I realised this 'still life' with food waste to express that the food is not waste, it is life. We, human beings, can give it another life through art. The flower, in the middle, is a metaphor for our Earth, our Pachamama. The flower fell and spilled its water all over the table, a metaphor for the limited natural resources that are slowly ending. We have to think of the consequences of our little daily actions. To conclude, I have

¹ Food Waste, European Commission. https://ec.europa.eu/food/safety/food_waste_en.



the pleasure to give some bits of advice to avoid food wasting: to organise the grocery shopping in order not to buy extra food, to well preserve food products, to reuse some food waste creating delicious new recipes, to donate the extra food we will not consume and, last but not least, to make art!

Reflection and Consciousness

Maria Tiziana Sprenger

Philosophers and art critics have tried to define what an artwork is for centuries. In the Plato era,¹ art was considered a mere reproduction of reality, an idea that continued throughout the following years; for example, during the Renaissance, Leon Battista Alberti defined an artwork as an imitation of the visible.² However, the twentieth century produced many changes in the art field, and this definition was not appropriated anymore. In his essay *The Origin of the Work of Art*,³ Martin Heidegger marks the distinction between a piece of equipment (an everyday object) and an artwork. The first only reflects the use that we make of it, whereas the artwork has an inner meaning and, more importantly, it conveys multiple and infinite meanings. In short, to be considered an artwork, an object must speak to the people, make them think, and express an infinity of meanings.

One of the most significant innovations in twentieth-century art is using materials different from the traditional ones. In the beginning – as we can see, for example, in cubist collages or in Schwitters' works – artists employed fragments of broken objects, pieces of newspapers, cardboards, twine, used tickets, and other simple items to break the art categories and underline the opportunities to create art also with un noble materials.⁴ With the passage of years, the use of discarded objects acquired new meanings, as was well explained by the art exhibition *Trash. Quando i rifiuti diventano arte*⁵ realised in Trento in 1997 by Lea Vergine. The use of junk, waste, and rubbish in artworks to draw the public attention to new, essential, and complicated issues affecting our modern society increased; indeed, pollution, food waste, ecology, and eco-sustainability continued to be the focus of an increasing number of artists. The Brazilian artist Vik Muniz,⁶ for example, became famous for the use of discarded materials as rubbish; by using the waste of the dump Jardim Granacho in Rio de Janeiro, he realised portraits of the catadores, the garbage collectors considered

1 Platone, *La Repubblica*: <http://www.ousia.it/content/Sezioni/Testi/PlatoneRepubblica.pdf>.

2 Alberti, *De Pictura*: <http://www.ousia.it/SitoOusia/SitoOusia/TestiDiFilosofia/TestiPDF/Alberti/DePictura.pdf>.

3 Heidegger, M. (2000). *L'origine dell'opera d'arte*. Milano: Marinotti.

4 De Vecchi, P.; Cerchiari E. (2019). *Arte nel tempo. Dal postimpressionismo al post-moderno*. Milano: Bompiani.

5 Vergine, L. (2006). *Quando i rifiuti diventano arte. Trash, rubbish, mongo*. Milano: Skira.

6 <https://artmuseum.princeton.edu/collections/objects/133973>.

human waste. Instead, John Dahlsen,⁷ a member of the environment art movement, created installations with waste picked up on the Australian coast.

Another theme that some artists have tried to investigate is food waste. This theme not only includes the waste resulting from industrial processes but also the one produced every day when we eat or cook, such as packaging in plastic or paper, discarded leftovers, or rotten food. The problem is that frequently we are not aware of the quantity of food waste that we produce. For this reason, the contribution given by artists to this argument becomes fundamental to make us conscious about these issues.

During the realisation of the project *Waste Matters*, the international artist Gayle Chong Kwan has worked with us, students of Ca' Foscari University of Venice, to deeply investigate and analyse food waste. With a lot of different activities, we tried to understand, for example, what food waste is, how much food waste we produce every day, and how it changes and rots in one week. At the same time, we reflected on the possibility of reusing food waste in innovative ways; we found different recipes that use waste food and analysed a particular technique to create paper with it.

As we have seen at the beginning of this text, artwork must be full of infinite meanings that reach people; indeed, one of the most important goals of contemporary art is to stimulate reflection and consciousness about the issues of our society. In this context, Gayle Chong Kwan's artistic project provides an excellent example of the importance of art to make people aware of the deep problems related to food waste.

⁷ <https://johndahlsen.com/environmental-installation-art-2003/catch/>.





Some Awareness in the Artist's Pantry

Francesca Weber

Food and art have a relevant role in human life. They are the essential nutrients for people to stay alive and to feel alive. But what if there is more? What if we try to understand the strong relationship between these two factors? Since the very first mural paintings, food was always in art, as an ornament, as a symbol of prosperity and abundance, as a way of expressing the power of a social class.

Considering food not only as a need but also as a malleable material to be admired, offered, and perceived with all senses, has become a tendency connected to the approach we have to art.

The history of the depiction of food is ancient and constitutes a fundamental heritage for the knowledge of customs and traditions of peoples and civilisations.

With his *Basket of Fruit*, Caravaggio paved the way for 'genre painting', specifically still life. The eccentric artist Giuseppe Arcimboldo is considered a sort of precursor of art with food as its protagonist. He is known for his composite heads, which portray imperial figures constituted by vegetables, flowers, fruit, meat, and fish.¹ However, we have to wait centuries before coming up with a conception of art that changes our perspectives and visions of things. Dadaism and Surrealism began to use new artistic techniques and media to carry different messages. The concept of leftovers, of waste to create collages and assemblages, as we saw with Rauschenberg and Paolozzi has been the premise for a new way of thinking and acting in the art field. Thanks to this artistic background, a new generation of artists could develop new themes by using different approaches and media.

And there it is, like a punch in the stomach, with their revolutionary artwork, artists can reach people directly, to make them think, to disgust, to provoke, to sensitise, to send out a message, and raise awareness.

Moving forward in time until Postmodernism, it is worth mentioning one of the masters of Pop art: Andy Warhol and his *Cans of Tomato Soup (Campbell Soup I)* repeated and repeated, in such a way as to turn the spotlight on the combination of society and consumerism² as symbols of American mass culture. However, he was not the only one who wanted to report and relate to the global consumerism issue through art.

1 "Il cibo nell'arte. Conversazione con Philippe Daverio". <https://www.youtube.com/watch?v=2vEoCjZLAxk>.

2 <https://www.artuu.it/2018/05/10/7-artisti-raccontano-il-binomio-tra-cibo-e-arte/artisti/>.

The Swedish artist Claes Oldenburg reproduced everyday objects and food by changing their size and appearance, giving them a new meaning by exaggerating, deforming, and emptying the consistency. Oldenburg performs a critique of consumerism in American society, in particular focusing on food.

Cakes, hot dogs, and ice cream cones of different sizes and materials, and the soft texture of the stuffed canvas. They are invertebrates that rely on gravity for their conformation, and they stand as a parody of the quantitative excesses of consumerism.³ The 12-meter-long ice cream cone that the artist rested on the roof of the Neumarkt Galerie in Cologne is just an example of his works, while *Floor Burger (Giant Hamburger)* from 'The Store'⁴ takes its cue from the American fast-food empire, which developed with incredible speed in the 1960s.

The artistic movement called Fluxus, led by George Maciunas, gave new legitimacy to the way of making art. Any object, any action that we can make, can be considered an artwork. And that is also how and why food gained a new role. If any process or action could be art, then even eating or cooking – or just a meal itself – is considered an artwork. First, Allison Knowles with *The Identical Lunch*⁵ and later Judy Chicago, in the eighties,⁶ or Rirkrit Tiravanija,⁷ Felix Gonzales Torres⁸ and Olafur Eliasson⁹ were all artists who used food not just as a pretext to do art but as art itself.

Last but not least, the artist Daniel Spoerri who, in 1967, came up with the idea of 'eat art' which, like Pop art, used food as a symbol of uncontrolled consumerism and overproduction in supermarkets.¹⁰ A sensitivity to sustainability was growing into the minds of people and artists. Excess, cheap products, little attention to transformation: it was in this period that the first forms of artistic denunciation against the choices of the present, mistakes, useless waste, consumerism that crushes and resets everything to zero, began to appear.

An example of artwork that followed this lead is the one of Björn Steinar and Johanna Selemann: *The Banana Story*.

With this artistic project, they could show the effects of the lack of seasonality and the need for constant availability of goods, by revisiting the concept of 'made in' through a common fruit.¹¹ A work

3 <https://insideart.eu/2017/07/27/la-storia-di-the-store-il-negozio-in-cui-claes-oldenburg-vendeva-i-suoi-cibi-giganti/>.

4 <https://www.wikiart.org/en/claes-oldenburg/floor-burger-giant-hamburger-1962>.

5 <https://www.wikiart.org/en/alison-knowles/george-maciunas-performs-the-identical-lunch-1969>.

6 <https://tinyurl.com/y6t2d42p>.

7 <https://www.moma.org/collection/works/147206>.

8 <https://www.felixgonzalez-torresfoundation.org/works/untitled48>.

9 <https://olafureliasson.net/archive/publication/MDA118052/studio-olafur-elias-son-the-kitchen>.

10 <http://www.danielspoerri.org>.

11 <https://johannaselemann.com/Banana-Story>.

Waste Matters

that makes people think about the meaning of sustainable food.

All in all, the use of leftovers as artistic subjects, the introduction of food in the artistic practice, art as a social agent that raises awareness among people – particularly on ordinary things, such as food – are constantly developing. What remains is that the themes of food and art will always be part of us and will always be in a never-ending dialogue.