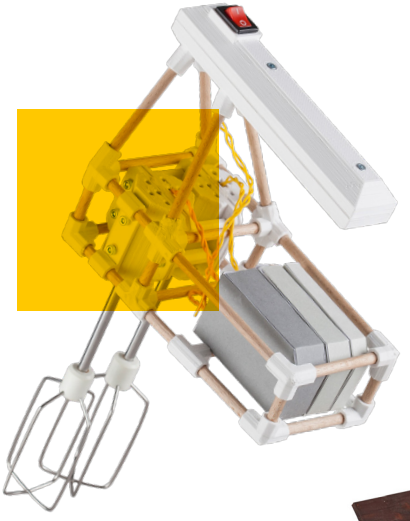
MAKE it WORK

Music machines &
sustainable design



MUSEUM
SPEELKLOK

2 FOREWORD

3 EXHIBITION SUMMARY

4 PERSPECTIVES ON SUSTAINABLE DESIGN

18 A (MORE) SUSTAINABLE EXHIBITION?

20 INSTRUMENT MAKERS, MATERIALS AND METHODS OF THE PAST

33 THE COLLECTION

FOREWORD

The historical instruments of Museum Speelklok are beautifully made. Both the often richly decorated exterior and the interior show craftsmanship, carefully carefully finished details and attention - a lot of attention. And yes, that takes time, but it is the only way to make something functional and beautiful. Moreover, the instruments were made in such a way so that they would last as long as possible. That's why we can still enjoy them today!

At the end of 2021, we started with the working title 'Design' to create an exhibition in which we could show how well and beautifully our musical instruments are made and in which we wanted to invite contemporary makers to reflect on this with their work. We soon discovered that the term 'design' distracted from what we really wanted to talk about: the making process. And with that the title 'Make it Work' was born. A title with a wink: if you want to make something good and beautiful, you need a lot of time. Until a century ago, time was less of an issue because labour was cheap. Materials, on the other hand, were very expensive. That is why residual material was traded and reused, clothing was endlessly mended - coats were even turned completely inside out so that the unworn interior was exposed - and furniture was maintained and passed on to subsequent generations. Repairs and maintenance were possible because parts were easily accessible and universal, thanks to the clear layout of the object.

After the Second World War the situation changed rapidly. Cheap raw materials, fast production processes and the acceptance that items had a short life before they ended up on the dumping ground meant that craftsmanship and wellmade items went out of fashion. That time seems to be over; we simply can't afford to produce poorly made things in large quantities anymore. And this gives the title of the exhibition a new meaning: the choice of materials is linked to the question of responsibility. Who or what is our use of raw materials at the expense of? We will have to look for sustainable solutions: reuse, repair, develop new materials and, above all, take the time to make something. We can learn a lot from the historical collection in that respect.

Today's makers are faced with new dilemmas, for example the fact that materials that last a long time are often difficult to break down. Is it possible to fix that? Are there alternatives? We asked designers who deal with these themes to give their views on the dilemmas of our time. We hope that, thanks to the perspective of these designers, you will find a new way of looking at both our collection and the objects in your own environment.

Marian van Dijk, director
October 2023

Skeleton pendulum with bell playing movement, Hubert Sarton, Liège (Belgium), ca. 1795

MAKE it WORK – EXHIBITION

All the objects in your home were once designed and produced by someone. The same of course applies to the instruments in Museum Speelklok. Each musical clock and every organ is the result of a process of deliberating about materials, costs and effective mechanics.

Nowadays, products are increasingly made with an eye to sustainability. The 'Make it Work' exhibition unites the work of contemporary designers and historic instrument builders around three themes. Can looking to the past help us find ways to shape a more sustainable future?

MATERIALS

In the past, instrument builders chose most of their materials with great care. These materials not only determined an instrument's appearance, but also its lifespan, scent, value and tone quality. For example, some types of wood were more suitable for certain functions than others. And which animal hide was best for leathering bellows? Other factors, such as what was available or close to hand, could also play a role.

Shown alongside self-playing musical instruments that illustrate these kinds of considerations is the work of designer Christien Meindertsma. She studied different uses for wool from a particular flock of sheep in Rotterdam, looking at properties of the material as well as methods available for processing it.

PRODUCTION PROCESSES

Production processes for mechanical musical instruments fall into three general categories: traditional craftsmanship, industrial fabrication and hybrid methods. Traditional hand-crafted instruments have a comparatively long lifespan. Yet it was industrialisation that made mechanical musical instruments more widely affordable.

With his installation of cupboards filled with objects, designer Jelle Mastenbroek urges us to think about our insatiable desire to accumulate more and more stuff. Building a sustainable world will require a shift in thinking among producers and consumers alike.

RESTORING AND REPAIRING

The oldest pieces in our collection date from before the 16th century and are often still in working order! Thanks to the simplicity of their components and accessibility of their inner workings, they have a long lifespan and are easily repaired. It is the job of Museum Speelklok's restorers to ensure these centuries-old instruments can continue to play.

Repairing objects is a good way to be a more sustainable consumer. At first glance, Jesse Howard's designs look like everyday objects: a lamp, a vacuum cleaner, a speaker, a mixer. But, because he dispenses with all superfluous elements, his products can easily be repaired and even replicated. The component parts are also easy to reproduce. All of the information needed for this is included with the design.

PAO LIEN DJIE
Guest Curator

PERSPECTIVES ON

Porcelain Piano, 2018. Image: Jelle Mastenbroek

SUSTAINABLE DESIGN

The ‘Make it Work’ exhibition spotlights various aspects involved in the production of self-playing instruments as illustrated by a number of historical models from Museum Speelklok’s rich collection.

Who made these instruments and how were they produced? What materials were used to make them and where were those materials sourced? How were these often complex instruments put together and how did the makers ensure they could be repaired if anything broke?

At a time when we are becoming increasingly aware of the importance of making sustainable choices, questions like these are more relevant than ever. To illustrate this, Museum Speelklok has chosen several special pieces from its collection of self-playing instruments to present alongside the work of three contemporary designers whose research and design practice is guided by these and related issues. Each of these three designers – Jesse Howard, Christien Meindertsma and Jelle Mastenbroek – approach and accomplish this in their own unique way.

These designers (along with a growing group of like-minded individuals) are by no means the first to be concerned with sustainability. Since the early 1970s, designers have been asked to tap their skills for societal objectives. The leading publication on this in the design field is Victor Papanek's ‘Design for the Real World’. In this book, published in over twenty languages, the Austrian-American designer and architect sets out how he believes design could and should be used to mitigate such major global problems as pollution, poverty and hunger. In his foreword, Papanek describes designers as a ‘dangerous breed’ responsible for creating thoughtless junk, often made of toxic materials that pollute the air we breathe.[1]

A year later, in his book ‘Dingen vormen mensen’(‘Things shape(s) people’), the Dutch design critic Simon Mari Pruys added to this: ‘The way out of this impasse can only be found by means of (...) an anti-modal design focused on the enduring value of form and thus on an optimal qualitative and technical lifespan. Both aesthetic and technical longevity must henceforth come first in any design.’[2]

In the same year, the Club of Rome published its report 'The Limits to Growth', in which the informal international think-tank warned of the irreversible consequences for human life on planet Earth if nothing was done to curb unabated global growth. The group predicted many of the climate and environmental problems that face our world today. But they also saw opportunities to create lasting ecological and economic stability for all people.[3]

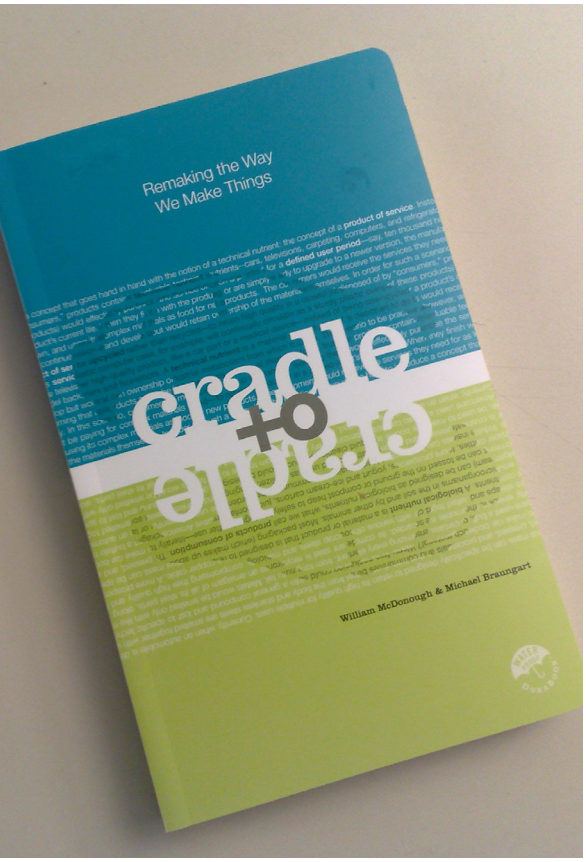
DOOM SCENARIO

Assessing the current state of sustainability with these calls and warnings in mind, there is no doubt that efforts have fallen far short. Despite clearly delineated concerns about the future and suggestions for how the design community might address them, most designers long carried on working primarily for commercial clients. The majority of commissions continued to be dominated by the economic drive for unbridled growth, as though nothing at all was wrong. The imperative for new products was never questioned, and appealing advertising campaigns fanned consumers’ desire for ever bigger, newer and more.

Cheap materials were (and still are!) used as part of a clever strategy to cut production costs and limit lifespans and so keep demand for new products high. After all, what would happen if all the devices we use every day lasted longer and could be maintained and repaired by users themselves? It would spell a revolutionary change for our current production and consumer society, with far-reaching consequences for producers and consumers alike. In a world geared towards economic growth, market saturation is nothing short of a doom scenario.

Architect William McDonough and chemist Michael Braungart think about ways to fabricate our products in ways that will minimise harms to the Earth. In 2002 they set out their ideas in their book ‘Cradle to Cradle; Remaking the Way We Make Things’.[4] Under the maxim 'waste is food', the authors advocate a production system in which used products can serve as raw materials for high-quality new products.

This obviously has implications for the kind and quality of materials used and how products are put together. The book was received with great enthusiasm by many people around the world when it came out in 2002. Its publication coincided with a growing realisation that designers and manufacturers play an integral part in creating a sustainable society.
The cradle-to-cradle (C2C) philosophy led to a certification system and turned the idea of upcycling into a mainstream concept. Unlike recycling[5], which tends to entail a gradual degradation of the reused raw material, upcycling reuses materials in high-quality new products so there is no value deterioration.
The original edition of McDonough and Braungart's book was itself a good example of this. It was printed on reusable plastic instead of paper and the ink was watersoluble. Both the pages and the ink could thus be reused.



Cradle to Cradle; Remaking the Way We Make Things;, Michael Braungart, William McDonough, Rodale Press, 2022 The first edition of Cradle to Cradle was printed with water-soluble ink on pages made of reusable plastic.

RIGHT TO REPAIR

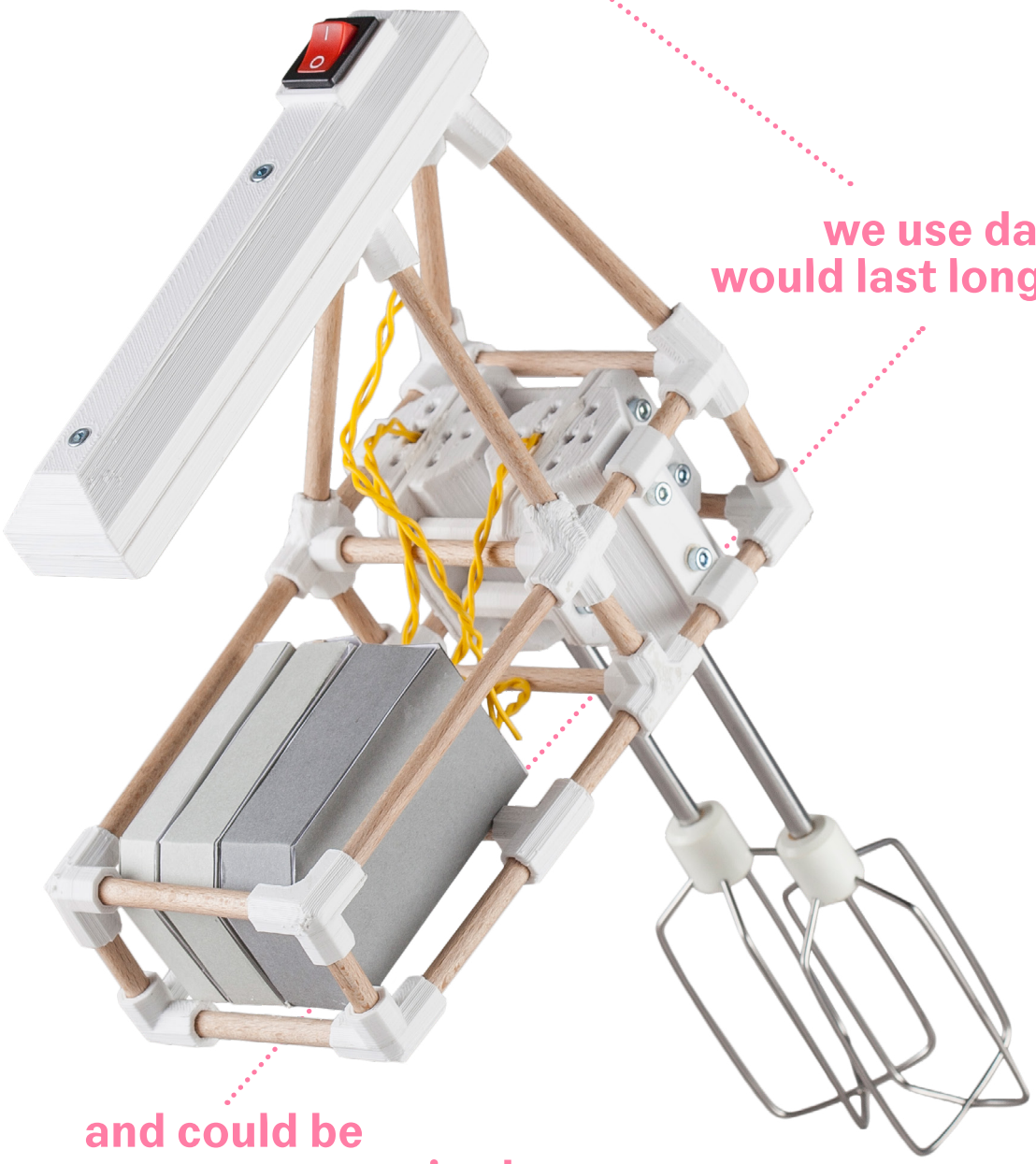
Any designer serious about upcycling builds this into their product's construction. But even before a product reaches the end of its life cycle, there may be ways to fix or replace broken parts so it can be used longer.
This seems logical to us when thinking of large, expensive products such as a car or an espresso machine. Sadly, however, many tech companies don't work this way. Instead, they guard their monopoly position by programming operating systems to crash if anyone other than the manufacturer tries to make certain repairs. Long after they sell a product, they continue to hold the reins.
This raises the question: who actually owns the product? [6] The Right to Repair movement is fighting back by lobbying for changes to laws governing electronics repairs.
Though progress has been slow, their efforts are bearing fruit, with the European Union adopting right to repair legislation to limit e-waste in 2021. Apple's recent decision, under pressure, to make all of its mobile devices rechargeable with a universal USB-C cable as from 2024 will further help reduce the mountain of waste, finally bringing us a major step closer to stemming the endless flood of obsolete chargers.

Designer Jesse Howard has a strong affinity with this critical stance. Inspired by an activist DIY (do-it-yourself) mentality, he designs household products so that users can fix them. His work is intended not so much to be mass-produced, but above all to contribute to a shift in mindset. By thinking about how to enhance consumer autonomy, Howard is helping to develop an alternative to the dominance of commercial industry.

The products he designs are assembled from a combination of off-the-shelf elements and parts 3D-printed using open source software. His products also incorporate reproduction manuals. So, if a component in one his toasters, vacuum cleaners or speakers stops working, it is relatively easy for any user to repair.

Of course, a sustainable lifestyle begins with the question whether a product is necessary. In 1972, Mari Pruys was already asking: 'What is "sustainability"?' To talk about radio alarm clocks, electric toothbrushes or fans for

What would happen if all objects we use daily would last longer and could be repaired by the consumer?



Jesse Howard, mixer from the Hacking Households series, 2014, produced in cooperation with Tilen Sepič, Leonardo Amico, Thibault Brevet, Coralie Gourguechon, Jure Martinec and Nataša Muševic. Image: Tilen Sepič.

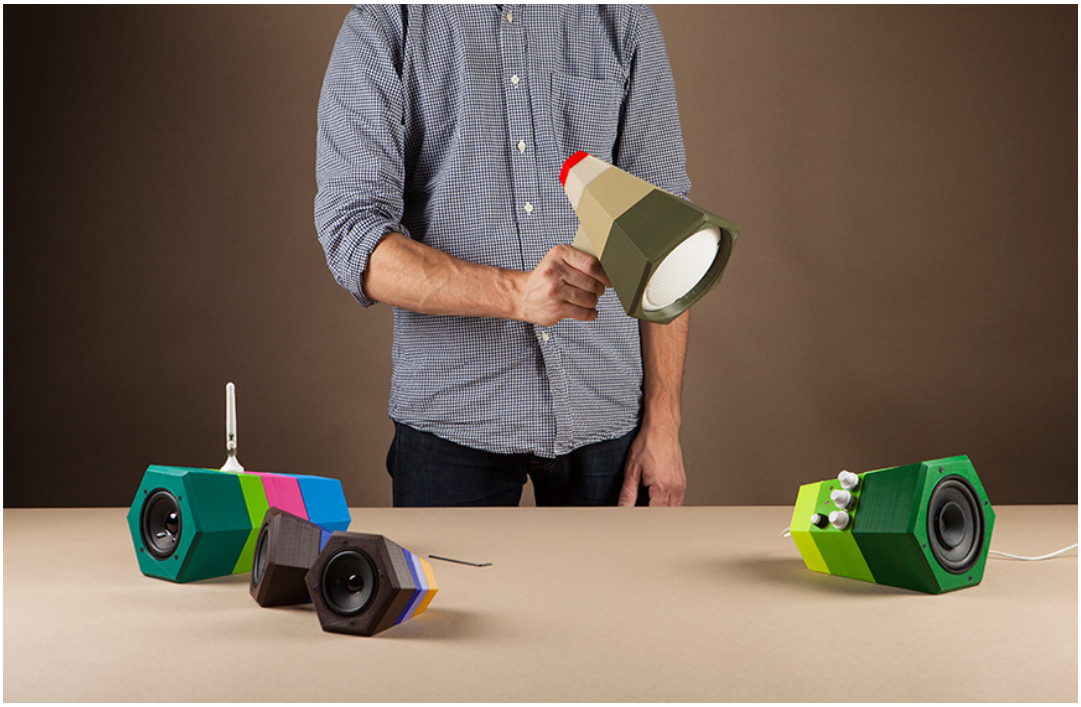
drying freshly-polished nails in this connection is not only cheap, but misleading.'[7] Looking at the range of stuff in an average shop, one can only conclude that most of it is superfluous. Jelle Mastenbroek's installation for 'Make it Work' is precisely about the sheer quantity of unnecessary stuff with which we surround ourselves. The work also embodies the vast confusion (some of it sowed deliberately) that exists around the concept of sustainability. His installations and monumental works, many of which are inspired by self-playing instruments like the street organ, often take playful aim at such social issues. His *Porcelain Piano* takes two standard elements of the traditionally furnished living room – a china cabinet and a piano – and fuses them into a completely new experience that gets us to see and think about fixtures of our everyday world in a new way.

The push towards more sustainable forms of production and consumption around the turn of the century also gave rise to renewed interest in artisanal production processes and in the properties and potential applications of natural materials.

Mass-produced goods are characterised by their uniformity. Artisan producers also sought to achieve uniformity, but never actually managed to do so, certainly not on any large scale. Particularly interesting in this context is the *B-Set* porcelain service designed by Hella Jongerius. She developed a method to have her tableware industrially manufactured by Royal Tichelaar Makkum, but with subtle differences between items. Jongerius used these minor variations, previously associated more with manual than industrial production, to imbue the set's individual pieces with personal character. Irregularities that would heretofore have been considered faults now actually constituted their added value.

MATERIAL AND CRAFTSMANSHIP

While Jongerius says she always looks at 'craft enterprises from an industry perspective'[8], Christien Meindertsma has been fascinated since her school-leaving project by the origins and properties of materials. Many of her subsequent projects have been about the process of exploring the various qualities and



Cloning objects: Radio, two speakers, megaphone and synthesizer.
Jesse Howard in cooperation with Leonardo Amico, Tilen Sepič and Thibault Brevet.

Hella Jongerius, B-set, porcelain, production Koninklijke Tichelaar Makkum 1997
Image: Gerrit Schreurs.

potential uses of a specific raw material from a particular place. She follows wherever that exploration leads, whether or not it results in the design of an actual product.

In her current project, 'The Soft City', Meindertsma is investigating potential uses for wool from a flock of sheep that keep the grass short in several areas of Rotterdam. Contrary to what was generally supposed, the quality of the wool proved eminently suited for high-quality processing. Only, the Netherlands lacks or is in danger of losing the specialist knowledge this requires. In her quest to find such specialists, she identified the handful of companies scattered across the European continent that are still capable of working locally produced wool. To process the wool into a given quality of tweed suitable for men's jackets, her search for the right specialist led her to England. In Germany, meanwhile, she managed to track down one of the last two remaining manufacturers in Europe that can make a particular class of felt (and seven others) used in pianos.

Christien Meindertsma is not the only (nor the first) designer whose work draws attention to local processing, craftsmanship and the quality of local raw materials. But in her wake there has been growing renewed interest in investigating and documenting this kind of specialised knowledge. Local cottage industries and designers are increasingly teaming up in a wide array of collaborative projects that are often also concerned with sustainability and circular design. Interest in and appreciation for craftsmanship is growing as well. This is attested by the popularity of vocational schools and the emergence of talent development programmes like the Crafts Academy, run by the Crafts Council Nederland in collaboration with the Museum of World Cultures.[9] Mina Abouzahra is a designer who blends Dutch Design with the tradition of hand-woven Moroccan Berber carpets. Her work presents a fine example of a contemporary fusion of traditional artisan techniques with the Dutch modernist design legacy as an expression of her own bi-cultural background.

Christien Meindertsma with an action model of a piano key in which the different types of felt are visible. Image: Pao Lien Djie.

GREENWASHING

Recent years have seen a noticeable growth in public appreciation for food and artisan goods that are produced locally, on a small scale, and preferably come with a backstory. Food production in particular offers plenty of good illustrations of this development. Examples include the Dutch marketing and communication campaigns for fruit (farmed by 'Boer Erik'), milk (from 'Boer Geert's' dairy cows) and crisps (fried by Ilse). Terms like 'home-made' and 'handmade' have acquired a more positive connotation and are no longer considered a sorry alternative for 'the real thing'. Indeed, the smaller the supply, more local the materials used and more specific the fabrication methods, the more popular these products become.[10]

Of course, anything made this way comes with a hefty price tag, and consequently these sustainably and locally made products are reserved for a select few. The elitist aura attached to a sustainable lifestyle also helps explain why too few people feel obliged to make sustainable choices. In the short run, mass production is still by far the cheaper option. The vast tangle of production flows, supply chains and shipping networks moreover has made it practically impossible for the average consumer to make environmentally sound choices at all. And with every product and producer touting their own sustainable qualities, matters have become still less transparent.

Due partly to the elitist aura that sticks to a sustainable lifestyle,

there are not enough people

who feel encouraged in making sustainable choices.

Abouzahra X Rietveld, chair by Wim Rietveld upholstered with various vintage fabrics, woven by Amazigh weavers from Morocco. Upholstery design: Mina Abouzahra, 2020.

Very few of the many ‘eco’ labels put on packaging are actually registered. Advertising campaigns also do their best to dupe us with unfounded sustainability claims. Terms such as 'ecological', 'green', 'organic', 'natural', 'fair' and 'recycled' are often empty marketing speak, known as greenwashing. They are all about tapping into the hype around these topics but have little or nothing to do with genuinely sustainable production. Misconceptions are therefore deliberately leveraged for economic ends. It takes a very critical attitude and no small amount of determination to make sustainable choices. Not only for consumers, but for everyone up and down the supply chain, including designers and producers.

SUPPLY CHAIN RESPONSIBILITY

Designers and producers who take the implications of sustainable production seriously recognise that fundamental changes are needed to justify full-scale sustainability. Such change goes well beyond what happens inside their own production halls and extends to how all the materials used – from raw inputs to individual parts – are sourced and fabricated. Fairphone is company that is spearheading this kind of supply chain responsibility. The Dutch smartphone producer literally leaves no stone unturned to find out who mines the precious metals used in their products and under what conditions they work. The company’s mission is to build a sustainable and fair electronics industry while upholding the interests of both the planet and the people involved in production.

In advocating for fundamental systemic change, Fairphone sees its own operations as a form of activism.[11] Repair and reuse are core values of its business philosophy and the company encourages customers to use its products as long as possible.

A Fairphone is simple to repair and all parts are easily replaced if needed.
Image: Fairphone.

SIMON DOGGER

Simon Dogger is the fourth designer who agreed to contribute to Make it Work. As a student, Simon was faced with a permanent visual impairment. He decided to make this profound change in his own perspective the subject of his design practice. In the exhibition he offers a glimpse inside his world through spoken responses to several of the pieces.

The concept of sustainability encompasses not only the state of the climate or of our planet, but also the way we co-exist together. A sustainable society is also one that makes space for the diverse perspectives and needs of each of its members. By taking us along into his world, Simon enriches our perceptions with that of individuals who are blind or visually impaired.

A sustainable society pays attention to the diverse perspectives and needs of its citizens.

Another example is the 'Rex', a chair designed by Ineke Hans and brought on the market by furniture manufacturer Circuform in 2021. This chair recycles one of her own most successful designs, first issued in 2011. In the reissue, she adapted its design and production to be wholly sustainable and fully recyclable. The price of the chair includes a deposit that is refunded to buyers if they trade it in at the end of its life. Depending on its condition at that point, the chair is either refurbished or the material reused for a new one.[12]

These are all brilliant examples that can help to draw attention to this important issue, raise awareness and contribute to more sustainable production. But to make real strides we need changes of a very different magnitude.
Less sexy, but highly impactful, are changes such as those supermarkets can make to their vegetable packaging designs. Even innovations like 'detergent strips' can have a significant effect, massively reducing plastic use while also substantially cutting transport costs and shelf space with packaging that is on average twenty times lighter as well as smaller than 'old-fashioned' forms.

Ineke Hans, Chair 'REX' with armrests, 2021.
Produced by Circuform Schalkwijk.

Many designers never make it beyond good intentions and a prototype. And, of course, we are fooling ourselves if we think technological developments can fix all society's problems.[13] Yet, even small steps can contribute to the solutions needed to live sustainably on planet Earth. In his book 'CAPSLOCK', designer Ruben Pater writes: 'the road to hell is paved with good intentions, and we shall see how design's intentions to do good play out in the real world.'[14]

We must not let good intentions that fall short stop us from making sustainable choices at the individual level wherever possible, nor from staying receptive to smart solutions both in the present and from the past.

DESIGN ACADEMY EINDHOVEN

The contemporary designers included in the exhibition are all connected with the Design Academy. They studied there in the past or are teaching there in the present. It illustrates the importance that this institution has had and continues to have in the development of successive generations of socially involved designers.

Christien Meindertsma graduated in 2003 and was part of the first group of students in the department called Het Atelier, which was led by Hella Jongerius. Jelle Mastenbroek graduated from the Man & Well-Being department in 2012 and Simon Dogger graduated from the Man & Communication department in 2017. Jesse Howard completed his DesignLab studies at the Gerrit Rietveld Academy in 2012, but has been affiliated with the Design Academy since 2015, including as a design tutor for the Master Social and Contextual Design.

1. ‘By designing criminally unsafe automobiles that kill or maim nearly one million people around the world each year, by creating whole new species of permanent garbage to clutter up the landscape, and by choosing materials and processes that pollute the air we breathe, designers have become a dangerous breed.’ Papanek, V., *Design for the Real World*, p. IX, https://papanek.org/publications/designer-for-the-real/.
2. Mari Pruys, S., *Dingen vormen mensen* (1972), in: Huygen, F., *Visies op vormgeving; Het Nederlandse ontwerpen in teksten deel 2*, 1944-2000 (2008), p. 372.
3. ‘Man can create a society in which he can live indefinitely on earth if he imposes limits on himself and his production of material goods to achieve a state of global equilibrium with population and production in carefully selected balance.’, www.clubofrome.org/ltg50/.
4. McDonough, W., Braungart, M., *Cradle to Cradle. Remaking the Way We Make Things* (2002).
5. Recycling is certainly not always really sustainable. Recycling a material such as PET bottles into clothes, for example, is problematic because washing them releases small particles of plastic (microplastics) that can hardly be filtered out of the water. Thus, they end up in the food cycle via the environment and ultimately in the human body. van der Pal, T., van der Wurff, H., ‘Microplastics.The evidence is piling up: the plastic in our clothes is making us sick’, *Trouw*, 1 November 2022.
6. van Dalen, O., ‘The right to repair, Milieu en eigendom’, *De Correspondent*, 12 juli 2023.
7. Huygen (2008), pp 372.
8. de Vries, M., *Represent Koninklijke Tichelaar Makkum* (2010), p. 70.
9. craftscouncil.nl/crafts-academy/
10. The American writer, environmental activist, cultural critic and farmer Wendell Berry described this as a shift of the 'total economy' to the 'local economy', Berger, J., in: *Sustainist Design Guide*, p. 39.
11. “The system that makes mobile phone production possible is of a political nature. (…) our design approach towards changing the system is (…) a form of design activism, aimed at the opening up the system.” “We need to take a holistic approach and design an entirely new way of doing business in order to make it happen.”, van Abel, B., in: *Sustainist Design Guide*, p. 55.
12. The company Circuform is dedicated to the circular production of furniture, based on the principles of recycling waste, longevity of products, possible repairs and, at the end of their lifecycle, recycling into raw materials.
13. Technology critic Evgeny Morozov named the assumption that there would be a technological solution to all social problems Solutionism. R., CAPSLOCK. *How Capitalism took hold of Graphic Design and how to escape from it* (2012), p. 431.
14. Pater (2012).

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- Tim van der Pal, Hannah van der Wurff, ‘Microplastics. Het bewijs stapelt zich op: het plastic in onze kleding maakt ons ziek’, *Trouw*, 1 november 2022
- www.clubofrome.org/ltg50/

JESSE HOWARD

Jesse Howard (Denver, Colorado (VS), 1978) studied mathematics at Colorado College before enrolling in the designLAB programme at the Gerrit Rietveld Academie in Amsterdam, graduating in 2012. Jesse works as a tutor in the Social Design Department at the Design Academy Eindhoven and as a design tutor at the Rietveld Academie. His work has appeared in a range of exhibitions in and outside the Netherlands and is represented in collections including the Stedelijk Museum Amsterdam and Museum für Angewandte Kunst in Vienna.

Image: Vera Duivenvoorden.

Repairing is not just about fixing what is broken,

but is also a first step towards rethinking the objects we surround ourselves with.

Image: Jan de Groen.

CHRISTIEN MEINDERTSMA

Christien Meindertsma (Utrecht, 1980) studied at the Design Academy Eindhoven, in the 'Het Atelier' programme, from 1998 to 2003. Her work has appeared in numerous exhibitions in the Netherlands and abroad and is represented in collections including the MoMa (New York), V&A Museum (London) and Museum Boijmans-Van Beuningen (Rotterdam). Her work has received several Dutch Design Awards, an Index Award and a Future Award.

Knowledge of materials, where they come from and how they are made:

I think these subjects should be as common as maths and language.

JELLE MASTENBROEK

Jelle Mastenbroek (Groningen, 1988) studied Man and Well-being at the Design Academy Eindhoven from 2006 to 2012. His installation Data Orchestra won the Milano Design Award 2016, in the category Best Technology. His work has featured in several exhibitions in the Netherlands and abroad and is included in various collections, including the Princessehof National Museum of Ceramics in Leeuwarden and the Groninger Museum.

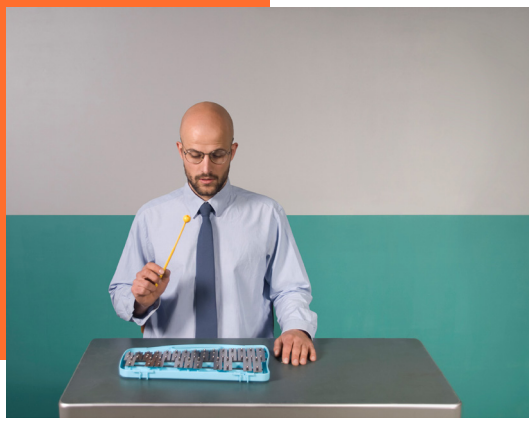


Image: Jelle Mastenbroek.

Our unlimited desires

appear to have limits after all

when we strive for a sustainable world.

©S. Dogger.

SIMON DOGGER

Simon Dogger (Grootebroek, 1977) graduated from the Design Academy Eindhoven in 2017 with a degree in Communication. His thesis project won the Renée Smeets Award. He won an IF Talent Award in the same year, and in 2020 a Dutch Design Award, in the Young Designer category. In addition to his design work, Simon regularly gives lectures and presentations about designing for the visually impaired.

Necessity is the mother of invention.

A (MORE) SUSTAINABLE EXHIBITION?

LISE CLAERHOUDT

It goes without saying that anyone making an exhibition about sustainable design has to start with themselves. Early on in this process, we set ourselves the task to produce the exhibition in the most sustainable way possible. This task was not always an easy one.

The first choices we made concerned the collection. In contrast to previous exhibitions, here we decided against using loans for the historical displays (with the exception of a long-term loan already in the museum). This let us limit the transports needed. We did request contemporary designers to loan work, however, and for this reason only included designers based in the Netherlands. We also tried to combine transports of their work wherever possible.

When putting together an exhibition, it is not unusual to design and build exhibits solely for that one show and throw all or most of the material used away afterwards. Nice as it would be, also financially, to keep all the display cases, partitions and consoles, this is not always feasible. Each new exhibition requires slightly different dimensions, and storage tends to be a problem as well.

But, for 'Make it Work', we wanted to avoid having to throw everything in the skip after the exhibition was over. The designer came up with a modular concept for the exhibits, using a system of grips between which panels are clamped. Called 'Playwood', this system makes it possible to keep the panels used to make the partitions and furniture completely intact. As well as minimising the need for drilling and sawing, it employs standard sizes, so the panels can easily be reused.
The panels (printed or not) can then be given to organisations like Buurman in Utrecht for subsequent building projects. The plastic grips take up little space and are easy to store. We can therefore hold onto them ourselves or give them to another institution wishing to use them. Unfortunately, these grips could not be made of recycled plastic as it cannot yet be made strong enough for our purposes. Reusable material thus won out over eco-friendly material partly for reasons of structural safety.

We also deliberately opted to print directly onto most of the panels instead of using stickers. Though it helped reduce the use of plastic, it also called for some adaptability on our part. Stickers are relatively easy to replace after all if something changes or a spelling mistake is discovered at the last minute.

Though we realise that the resulting exhibition is by no means 100% sustainable.

Moreover, they offer flexibility to change the layout of exhibits if it turns out that an object would look better on the opposite side of the room. For the panels to be printed in advance, the whole exhibition layout and content had to be fixed well in advance. No small feat for our writers and designers!

We also stepped off the beaten track by reaching out to our colleagues. With so many museums around the corner in Utrecht, why not share our materials more? It seemed a shame if a glass case was standing unused in storage at the Catharijneconvent, for example, when it could be showing off an object from our collection at our museum. It took a bit of shuffling in our respective exhibition calendars, but we are delighted to have been able to borrow a number of display cases, covers and projection screens. This let us minimise not only our footprint but also our costs!

In creating a sustainable exhibition, we came up against issues that will be familiar to any-one striving to live more sustainably. Issues such as the high cost of eco-friendly materials, being forced to choose between two evils and having to revise our wants and requirements to fit what was feasible. Though we realise that the resulting exhibition is by no means one hundred per cent sustainable, we hope to have made a step in the right direction!

Impression exhibition design 'Make it Work', Image: Kummer & Herrman.

JOLINE
WIJNANDS-STOFFEL

INSTRUMENT MAKERS, MATERIALS AND METHODS OF THE PAST

Being conscientious about our stuff has become a much-discussed topic. What do we really need? How has a product been made, and using what materials? How can we minimise our waste and keep our footprint as small as possible? And how can we all do that together in the smartest way possible? This, in a word, is 'smart sustainability'.

For makers, the question now is how to work as ethically as possible. The increasingly common refrain is: make products that last longer, from good, durable and eco-friendly materials, that users can repair themselves. Looking at the mechanical musical instruments in Museum Speelklok's collection, there is much that we today might call 'sustainable'.

The robust materials and functional components have performed for centuries and can be replaced if necessary without sacrificing the whole instrument. They are inspiring feats of technical ingenuity for modern day makers. In this light, shouldn't we try turning to the historical builders of these instruments for answers to our questions? Confucius advised looking back if we want to see the future.[1] Maybe there are things we can learn from the past to use in our own time.

LOCAL MATERIALS

Today, we consider a product to be sustainable if it is made from materials that can be produced or sourced locally. This is exactly what 17th-century clockmakers in Germany's Black Forest region were doing. *Schwarzwalder Uhrwerken* were robust, high quality and very affordable. There were a variety of reasons for this. The region had a strong timber industry. Almost all products in and from the area were made of wood.

Smart sustainability:

How can we all do that together

in the smartest way possible?

Iron and brass were hard to come by and moreover very expensive, so the mechanisms of musical (and ordinary) clocks produced in the region were therefore also made mostly of locally sourced wood. Producers sought alternative materials even for the bells.
The earliest of the *Schwarzwalder* clocks with musical movements actually have glass bells on which the melodies are played. This is because glass could also be produced locally (from sand). Glass bells are intriguing in terms of their craftsmanship, as casting them to have a specific pitch, as is ordinarily done, is impossible. However, you can aim for the right distance in pitch from one bell to the next. If the difference in pitch is the same between each successive bell, you have a working tone series. To achieve this, you have to produce multiple bells of varying sizes and then make a selection of those that sound best together.[2]

In contrast to other European production areas such as England, the Netherlands and France, *Schwarzwalder Uhrwerken* were made of wood

'Glasglockenuhr' hanging clock with organ pipes, maker unknown, Black Forest (Germany), c. 1800. *Collection of Museum Speelklok*

'Glasglockenuhr' hanging clock with bells, maker unknown, Black Forest (Germany), c. 1780.
Collection of Deutches Museum, Munich

until well into the 17th and 18th centuries. These skilful German clockmakers thus were able to make a product that was cheaper, yet of fine quality.[3] These days, we might call this a sustainable and efficient concept, but that certainly was not a conscious motivation for makers at the time.

REPAIRING AND RESTORING

The earliest pieces in Museum Speelklok's collection are mechanical clocks with musical movements dating from the mid-16th century. Telling time indoors was originally reserved for monks, who built their own ingenious clocks. From the 17th century on, the well-to-do were also eager to acquire these technological marvels, with which they could underline their elevated status and affluence. Interested in fine art, science and technical novelties, they also had the wherewithal to buy such precious objects. And precious they certainly were. The technology was innovative and impressive and the materials were costly, making these unique pieces singularly suited to showcasing power and wealth. Of course, the mechanisms inside these showpieces had to be kept in good working order, which most owners were unable to do themselves. Clockmakers were usually the ones called in to perform such repairs. A sensible clockmaker therefore designed his clock in such a way that the mechanism was easy to access and made from the most suitable materials. Thanks to this, we now have organs in the collection whose leather bellows have never been replaced and that can still give a resounding musical performance.

MUSEUM SPEELKLOK RESTORATION WORKSHOP

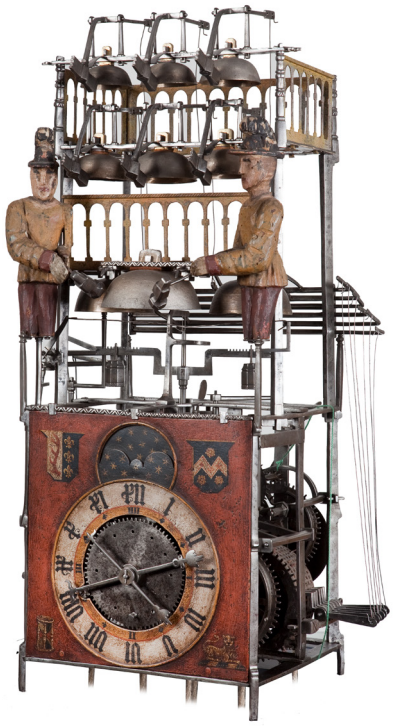
In the Museum Speelklok workshop, everything revolves around restoration and conservation. All of the mechanical musical instruments in our collection of approximately 1,450 objects were originally functional pieces, made to be used. Made to make music. Where once they performed for their proud owners or delighted passers-by on the street, now we love playing them for the enjoyment of museum visitors. The instruments are therefore still in use today, even some that are hundreds of years old. Keeping them in working order requires careful conservation by our restorers. Sometimes they even manage to get instruments playing again after decades of silence. All thanks to their highly specialised knowledge.

Our collection ranges from clocks with bell or organ chimes to complete orchestrions, and from the biggest barrel organs to the tiniest music boxes. Repairing them requires a range of different specialists, all of whom work under one roof at Museum Speelklok.

Where other museums may have to send a clock with organ chimes on a journey to be repaired (from a clockmaker to fix the movement to an organ builder to work on the pipes), Museum Speelklok does not. Instead of treating each individual part separately, our restorers can tackle projects as a whole.

This makes them a very skilled and successful team, but also confronts them with unique challenges. For example, if the façade of an organ has been painted several times and in different ways, on which stage should you base your restoration? How do you work out exactly what a builder intended if parts have been lost, or, worse, replaced over the centuries? How do you get a clock running again if the cogs have worn down? You can replace them, but that means putting a new part in a historic piece. These are questions we often think about in the restoration workshop, always trying to step into the shoes of original makers. Among other things, by closely studying comparable surviving examples. In some cases, we do opt to replace a cog needed to make a clock's gears turn with a new one. We try to make it exactly as it would have been in the past. When that clock finally plays again, we get to hear the music as it must have sounded originally, giving us valuable knowledge and recapturing the historical experience.

Restorers at work in the workshop at Museum Speelklok. Image: Museum Speelklok, 2015.



'Jacquemarts' table clock with bells and automata, maker unknown, Southern Netherlands, c. 1550

Of course, not every material or technique was future-proof. Clockworks have to be oiled, for example, to keep the mechanism running. But there were no synthetic oils yet all those centuries ago. Natural oils were used instead and they had a tendency to harden, eventually causing the movement to jam. To prevent this, the clockwork had to be re-oiled and the gears cleaned from time to time. Being able to access the mechanism obviously made this considerably easier. Six hundred years later, Museum Speelklok is still reaping the benefits. Our restoration workshop is specialised in restoring organs as well as fine clock mechanics, woodwork and textile. And although the makers of old regularly present us with new mysteries, we can unravel them step by step precisely because the mechanisms are so easy to reach. This has helped us to become one of the most specialised sites in the field worldwide.

PROTO-DIY

Another example of the repairablity of historic instruments is provided by a reed organ made around 1890 by Jerome Thibouville-Lamy in Paris. These instruments offered their 19th-century owners a relatively easy way to enjoy popular music of the age at home. It was operated by cranking a handle, which pumped air across a row of metal strips (the reeds) to produce music. This 'Coelophone' played all manner of tunes whose titles are listed in the accompanying manual. Composers include Jacques Offenbach, Richard Wagner, Gioachino Rossini, Georges Bizet, Hector Berlioz, Giuseppe Verdi and many other popular names of the day.

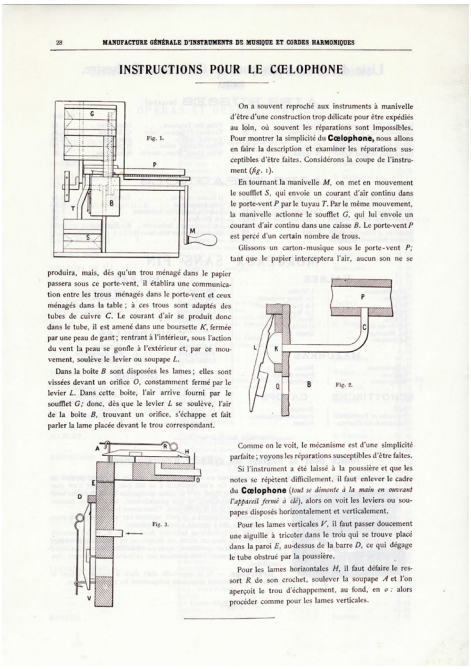
As well as detailing the enclosed repertoire, the instruction booklet also contains a defence. According to the makers, instruments of this type were criticised for their fragility: besides supposedly not travelling well, it was unlikely that your instrument could be knowledgeably repaired if you did take it along on a trip and it happened to break. The makers assure us that these so-called assumptions certainly do not apply to their precious instrument. The booklet additionally gives a basic explanation of how the instrument works. Turning the handle activates the bellows, which pump air into the wind chamber, which in turn has 'a specific number of holes drilled into it'. Where the paper music roll is unperforated, no air passes from the wind chamber to the reeds. But where there are holes, it produces the corresponding note. It is, the makers claim, a 'perfectly simple mechanism'. And if all this were not convincing enough, the prospective owner is assured that routine repairs and maintenance are easy to do. For example, by 'carefully' inserting a knitting needle through a hole on the side of the instrument to remove accumulated dust. To make it as painless as possible, there are illustrations showing exactly how to do this.[4]

Charmingly, the makers assumed that no household would be without knitting needles. This assumption no longer holds these days, even if the art of knitting is enjoying a serious resurgence thanks to social media influencers. In the desire for a life and work that is artisanal and sustainable, knitting techniques are now being brought together all over the world.[5]

‘Coelophone’ reed organ, Jerome Thibouville-Lamy, Paris (France), c. 1890

With their practical manual, the makers of the coelophone may well have been able to find a willing buyer in our own day.

More relevant for us is that, with its apparently simple, repairable construction, this instrument offers a historical counterpart to Jesse Howard’s work in the exhibition ‘Make it Work’, even if Howard’s motivations are very much about empowering consumers so they are not forced to depend on the commercialism of mass producers. The makers of the coelophone were motivated by a different objective that presumably had more to do marketing. And perhaps it helped. Whatever the case, Jerôme Thibouville-Lamy’s company was highly successful. Founded in 1730, it flourished in the 19th century and still exists today in the form of J. Thibouville-Lamy, specialised in making bows for musicians.[6]



28 MANUFACTURE GÉNÉRALE D'INSTRUMENTS DE MUSIQUE ET CORDES HARMONIQUES

INSTRUCTIONS POUR LE CŒLOPHONE

Fig. 1.

On a souvent reproché aux instruments à manivelle d'être d'une construction trop délicate pour être expédiés au loin, où souvent les réparations sont impossibles. Pour montrer la simplicité du **Cœlophone,** nous allons en faire la description et examiner les réparations susceptibles d'être faites. Considérons la coupe de l'instrument (*fig.* 1).

En tournant la manivelle *M*, on met en mouvement le soufflet *S*, qui envoie un courant d'air continu dans le porte-vent *P* par le tuyau *T*. Par le même mouvement, la manivelle actionne le soufflet *G*, qui lui envoie un courant d'air continu dans une caisse *B*. Le porte-vent *P* est percé d'un certain nombre de trous.

Glissons un carton-musique sous le porte-vent *P*; tant que le papier interceptera l'air, aucun son ne se produira, mais, dès qu'un trou ménagé dans le papier passera sous ce porte-vent, il établira une communication entre les trous ménagés dans le porte-vent et ceux ménagés dans la table ; à ces trous sont adaptés des tubes de cuivre *C*. Le courant d'air se produit donc dans le tube, il est amené dans une boursette *K*, fermée par une peau de gant ; rentrant à l'intérieur, sous l'action du vent la peau se gonfle à l'extérieur et, par ce mouvement, soulève le levier ou soupape *L*.

Fig. 2.

Dans la boîte *B* sont disposées les lames ; elles sont vissées devant un orifice *O*, constamment fermé par le levier *L*. Dans cette boîte, l'air arrive fourni par le soufflet *G*; donc, dès que le levier *L* se soulève, l'air de la boîte *B*, trouvant un orifice, s'échappe et fait parler la lame placée devant le trou correspondant.

Fig. 3.

Comme on le voit, le mécanisme est d'une simplicité parfaite ; voyons les réparations susceptibles d'être faites.

Si l'instrument a été laissé à la poussière et que les notes se répètent difficilement, il faut enlever le cadre du **Cœlophone** (*tout se démonte à la main en ouvrant l'appareil fermé à clé*), alors on voit les leviers ou soupapes disposés horizontalement et verticalement.

Pour les lames verticales *V*, il faut passer doucement une aiguille à tricoter dans le trou qui se trouve placé dans la paroi *E*, au-dessus de la barre *D*, ce qui dégage le tube obstrué par la poussière.

Pour les lames horizontales *H*, il faut défaire le ressort *R* de son crochet, soulever la soupape *A* et l'on aperçoit le trou d'échappement, au fond, en *o* : alors procéder comme pour les lames verticales.

Instruction manual issued with Coelephone, c. 1890

Longcase clock with organ pipes, Charles Clay,
London (England), c. 1738

HISTORICAL PRODUCTION STRUCTURES

Another important aspect of our modern quest for sustainability is knowing where and how products are made. Buying local, one-of-a-kind is encouraged, whereas buying from polluting industry giants is frowned upon. Historically, there were different production methods to choose from as well.

In the 17th and 18th centuries, many goods were unique pieces made by hand. By a sole maker, for a sole prospective owner. As described earlier, clocks performed a double function as status symbols. In some cases, they were even made with a particular buyer in mind. Like the owners, their makers are among the most renowned in history. Such as Charles Clay, who was 'Clockmaker to his Majesty's Board of Work' at the English royal court in 1726 and worked with other leading artists of the day including the painter Jacopo Amigoni, the sculptor Michael Rysbrack and the composer Georg Friedrich Handel. His musical clocks are still among the finest ever made.

Amsterdam's elite were also eager to surround themselves with mechanical musical instruments, such as those made by Diederich Nicolaus Winkel. A gifted and renowned instrument maker, Winkel strove to make each instrument better, more beautiful and more mechanically inventive than the last. This made him famous and his instruments much sought after. Instruments made by skilled craftsmen, by hand, long remained popular and in high demand. The downside was that only a small, wealthy group of people could afford them.

EARLY MASS PRODUCTION

The opposite of a one-of-a-kind, handmade object is a mass-produced product. History furnishes plenty of examples of these as well to serve as inspiration for modern day makers. One is Switzerland's renowned watch industry, still famed for its quality, innovation and materials to this day. What makes Swiss production particularly fascinating is that a system of extreme labour division was introduced early on. Having emerged as far back as the 16th century, this industry was characterised from the outset by a large number of expert clockmakers. In the 17th century its growth was greatly stimulated by a large influx of Huguenot watchmakers forced to flee from all parts of Europe on account of their religious beliefs. Triggering this mass migration was Louis XIV's decision on 17 October 1685 to revoke the Edict of Nantes, which had guaranteed religious freedom.

Salon organ with bells, Diederich Nicolaus Winkel, Amsterdam (Netherlands), ca. 1814

As soon as this freedom was revoked, the Huguenots were effectively outlawed. Of the half a million or so Huguenots who fled hearth and home, more than a hundred thousand found refuge in Switzerland, including a large number of watchmakers.[7] For this group, religion also dictated dress. Calvinist edicts of 1541 had ruled for example that it was improper to wear jewellery and other such frivolous, decorative, 'useless' luxuries.[8]

Ironically enough, Switzerland at this time was already renowned for the quality of its goldsmiths and jewellers. Calvinist rulings condemning and discouraging vanity and frivolity could gain no purchase here and the taste for luxury and the display of wealth was undeterred. Fortunately, watches also qualified as supremely 'useful'. This made them quite possibly the perfect solution for all of those gifted goldsmiths and jewellers, who could supply rich customers with a product that was opulent, yet also functional. These craftsmen fabricated high-quality pocket watches enhanced with delicate ornamentation and, in many cases, musical movements as well. Switzerland by now found itself in the rather unique position of possessing more labour than production resources. But commercial watch production solved this problem, too. Watches had the advantage of being very small and technologically extremely complex gadgets. They were labour-intensive, yet required few materials to make. This gave rise to a system of production known as *etablissage*, effectively linking together different workshops of specialised craftsmen. Each was responsible for a specific component of the watch. By the end of the 18th century, as many as thirty specialised trades might contribute to the manufacture of a single watch that fit in the palm of one's hand.[9]

Although this production structure of interlinked workshops arose long before mass production, it was clearly an economic innovation. Capitalising on a diversity of specialisations made production faster and outputs larger. Yet, what is particularly inspiring is how resistant Swiss manufacturers were to further streamlining the production process. Factory production of basic watch movements, called *ébauches*, became possible from as early as the first half of the 18th century. Clockmakers who used these *ébauches* in their watches could ramp up production and charge lower prices. But Geneva clockmakers wanted no part of this. Indeed, they were determined to prevent larger producers from replacing their thriving, traditional workshops and thus robbing them of their autonomy. Several attempts to establish factories in Geneva in the late 18th century hence failed.[10]

In time, of course, 19th-century industrialisation would significantly expand local watchmakers' production capabilities even in Geneva. But, remarkably enough, the ideologies of Swiss craftsmanship, peerless style and ingenuity stood firm. Though musical pocket watches remain a niche product, the country is still renowned for its 'Swiss made' wristwatches and wall clocks. Familiar names such as Leon Breitling,

By the end of the 18th century, as many as thirty specialised trades might contribute to the manufacture of a single watch that fit in the palm of one's hand.

Pocket watch music box, maker unknown, Switzerland, c. 1815. *Collection of Museum Speelklok*

Jeager-LeCoultre, TAG Heuer and many others all have their roots in these craft traditions. Even with competing designs and the faster and cheaper manufacturing of timepieces overseas, Swiss watches are still the touchstone. This is not to suggest that they are necessarily sustainable, use the right materials or that their production methods do not harm the environment. What we can say is that the 'Swiss made' label stands for superb quality, technical excellence and innovative design. Manufacturers can use this label only if the movement was in fact produced in Switzerland, thus excluding imports of cheaper, ready-made movements from mass-production factories in places like Japan.[11] Modern-day collectors clearly value the prestige and perfectionism that these timepieces offer and represent. In 2022, Swiss watch exports were even valued at more than 23 billion euros, the largest amount ever.[12] Although the manufacturers of these watches are larger than the small workshops of old, many have a long heritage, passing their knowledge down from generation to generation.

THE FUTURE IS PAST

The past can be instructive when seeking answers to questions around sustainability. Including answers to questions about when something is particularly *un*sustainable. There are plenty of examples of mass-produced music boxes that were absolutely not made to last. Yet, the accessibility of the movements inside 17th and 18th-century musical clocks remains an intriguing design principle. Though born from necessity, it seems a straightforward solution.

PROBLEMATIC MATERIALS

Instrument makers of the past often selected materials based on how durable and strong they were. In this sense, they can be models for makers today. Aesthetics also came into it, however, and the materials used to give instruments their luxurious look and feel no longer fit with our present thinking about sustainability and humane treatment. In some cases the materials used are even downright problematic in view of the significant ecological and social impacts.

For example, musical instrument cases were made of European hardwood but were often finished with a layer of tropical wood such as ebony, mahogany or rosewood. Decorative inlays could be made from tortoiseshell, ivory and mother-of-pearl. These materials lent furniture and other household objects a luxurious appearance and were particularly popular in the 17th century. The problem was that they had to be shipped from European colonies.

Mother-of-pearl was used in all manner of smaller items (such as inkwells, snuffboxes, fans and cardholders). Beds of pearl oysters, with shells containing an iridescent layer (the mother-of-pearl), had been discovered in tropical waters during the voyages of discovery in the 16th century. Decorative use of mother-of-pearl reached a peak in the 19th century, when thousands of tonnes of this fragile material were harvested and shipped around the globe.[1] Ivory had been actively traded for more than 1,000 years and was desirable for its colour, easy workability and durability. The value of this trade grew exponentially in the late 18th and 19th centuries as prosperity and hence demand for luxury goods increased. But the consequences of 'harvesting' elephant tusks were horrific, decimating the elephant population from 26 million in 1800 to fewer than 1 million in 1989.[2] Tortoise shells were another immensely popular luxury good used to make elegant combs and brushes, jewellery boxes and decorative ornaments. This trade began as early as the 17th century and continued well into the 19th. It, too, has been closely linked to ecological depletion and species extinction.[3]

Fortunately, synthetic alternatives have meanwhile been developed for these materials. Tortoiseshell and mother-of-pearl can also be produced artificially now. Although the production methods and importation of these synthetic varieties are of course still environmentally damaging, in this context it is more important to prevent ecological depletion, extinction and exploitation of the environment in places of origin.[4] If we are to reduce these impacts to an absolute minimum, we will have to completely give up this kind of ornamentation with no practical utility.

The use of tropical woods to finish furniture and instruments has also had far-reaching impacts. Such as ebony, which was a coveted material in the early 17th century. Being very expensive, only the wealthiest classes could afford it, making it a marker of status. The problem with ebony is that it had to be impor-ted from the Tropics. In this period it was used mainly in northern Europe, supplied by Dutch merchants who traded with countries where ebony was produced. The largest merchant company was the Dutch East India Company (VOC), which had a monopoly on trade with Asia from 1602 to 1799. The VOC swiftly built the first form of global supply chain. As well as dealing in raw materials, it also facilitated a worldwide trade in enslaved peoples. This traffic in humans was directly linked to the trade in ebony, mahogany and rosewood. We must not be blind to these impacts of material choices made in the past. They show that history not only offers pathways to a sustainable consumer society, but also warnings about the disastrous consequences of unethical production and consumption.

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For an interesting thought experiment, just consider: how many household products out there could make our lives easier if only they were designed to be comprehensible and repairable – even for users with no technical know-how? Quite a few, if you ask Jesse Howard. Makers of the past also clearly had ready access to local raw materials. The *Schwarzwalder Uhren* are proof that this did not automatically lead to concessions in quality. The Swiss watch industry teaches us that we need not abandon an industry's roots in an artisanal past.

Obviously, there are many more important facets to this story. Makers of the past never made products that could be called one hundred per cent sustainable. Though production structures may have been built on traditional craftsmanship, the materials used could still be polluting, or vice versa. What matters now is choosing the right elements that can help us in our own daily quest for sustainability. The makers who will design our future are therefore invited to take a deep dive into a rich, musical past. What might this yield? Time will tell.

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10. Idem (1985), pp. 57-60.
11. Daniels, George , *Watchmaking*, (London: Philip Wilson Publishers 2011).
12. It should be mentioned that price increase of products in general, have also contributed to the high profits of this industry. Consulted: september 29, 2023.

Longcase clock with bell-playing movement,
Gerrit Marcus, Amsterdam (Netherlands), 1779

THE COLLECTION

Automaton ‘Whistling student’, Karl Griesbaum, Triberg im Schwarzwald (Germany), ca. 1930

0023

Mechanism of a cylinder music box, maker unknown, most likely Switzerland, ca. 1880

Mechanism of a table clock with bells, Higgs & Evans, London (England), ca. 1775

0874

Toaster, 2012, from the Transparent Tools series, Jesse Howard

Portable organ, Cocchi, Bacigalupo & Graffigna, Berlin (Germany), 1891-1894

0194

Cylinder organ ‘Serinet’, maker unknown, Tavistock (England), ca. 1800

0092

Radio, two speakers, megaphone and synthesizer, from the Cloning Objects series, Jesse Howard in collaboration with Leonaro Amico, Tilen Sepič and Thibault Brevet

Hanging clock with bells ‘comtoise’, maker unknown, France, ca. 1860

0885

Hanging clock with bells ‘Glasglockenuhr’, maker unknown, Black Forest (Germany), ca. 1780 Bruikleen: Deutsches Museum München, Duitsland

0906

Improvised Vacuum, 2012, from the Transparent Tools series, Jesse Howard, vacuum cleaner

Journey of a sheep’s fleece, 2023, Christien Meindertsma, 3D tufted rug, white Rotterdam sheep’s wool, yarn with flecks made from sweaters from Rotterdam, yarn made from residual material from furniture fabrics. Photography by Roel van Tour, Production by CS Rugs, furniture fabric by Gelderland collectie

Mechanical external player, Jérome Thibouville-Lamy, Paris (France), ca. 1885

1050

Mixer, 2014, from the Hacking Households series, Jesse Howard in collaboration with Tilen Sepic, Leonardo Amico, Thibault Brevet, Coralie Gourguechon en Jure Martinec, Nataša Muševic

Muziekdoos met metalen plaat, Symphonium Musikwerke, Leipzig (Duitsland), ca. 1900

0045

Music box pocket watch, maker unknown, 11, ca. 1815

1311

Music box pocket watch with cylinder movement, maker unknown, Geneva (Switzerland), ca. 1820

1282

Onderzoek naar pianovilt, 2022

Research into piano felt, 2022 , De Zachte Stad, 2020-now, Christien Meindertsma, different variaties of piano felt

The Soft City, 2020-now Christien Meindertsma, unprocessed piece of technical felt, timpani sticks and piano key, Rotterdam sheep's wool.

Organ figure ‘Bandmaster’, maker unknown, location unknown, most likely ca. 1900.

1154a

Porcelain Piano, 2018, Jelle Mastenbroek, installation, mixed media

Salon organ with bells, Diederich Nicolaus Winkel, Amsterdam (Netherlands), ca. 1814

0735

Skeleton pendulum with bell playing movement, Hubert Sarton, Liège (Belgium), ca. 1795

0968

Longcase clock with bell-playing movement, Gerrit Marcus, Amsterdam (Netherlands), 1779

0959

Disc music box, Polyphon Musikwerke A.G., Leipzig (Germany), ca. 1900

0120

Disc music box, Regina Music Box Company, United States, ca. 1900

0860

Disc music box, Symphonion Musikwerke, Leipzig (Germany), ca. 1895

1018

Reed organ ‘Coelophone’, Jerome Thibouville-Lamy, Paris (France), ca. 1890

1147

Organ clock without case, Sigmund Dufner, Furtwangen (Black Forest), ca. 1850

0115

Verwarrend Verlangen, 2023, Jelle Mastenbroek, installatie Mixed media

EXHIBITION

Concept
Museum Speelklok

Guest curator contemporary design
Pao Lien Djie

Design
Kummer & Herrman

Exhibition builder
Fiction Factory

Films
Frank Smits

Exhibition materials (loan)
Museum Catharijneconvent,
Spoorwegmuseum Utrecht

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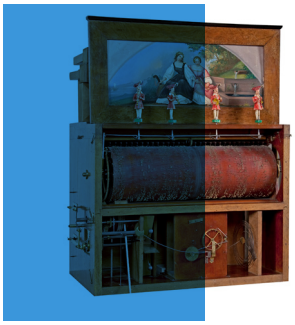
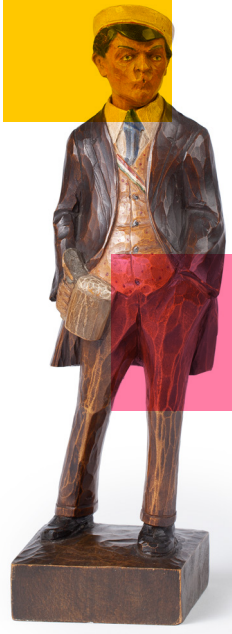
14 december 2023 – 3 september 2024





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