

Back to the Future

How tradition inspires contemporary making

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“We have broken your business, now we want your machines!”¹ This was the tongue-in-cheek response UK writer and digital strategist Russell Davies gave when he was asked by The Guardian Media Group to talk about the implications for the newspaper industry of a company he co-founded in 2009 called Newspaper Club ■ 403. This is a digital web service that allows anyone to design and print their own custom newspapers on demand, from a single copy to ten thousand or more. What empowers it is the collapse of traditional print newspapers: the birth of low-threshold blogging platforms and free citizen journalism has decoupled news from the physical newspaper and subsequently ruined the industry’s business model. Newspaper Club does the reverse and reclaims the deprecated newspaper medium from the news business and frees its pages up for public appropriation. By injecting the logic and methods of the internet into an age-old infrastructure, it manages to show that people would still pay for a traditional newspaper, they just don’t want to pay for news any more.

This is just one example of how the digital revolution is putting pressure on current social, technological and economical models. Digitization has caused irrevocable shifts of tectonic scale, from media industries struggling with peer-to-peer music and film sharing, to computerized high-frequency trading algorithms taking over half of the US stock market, traditional stores being undercut and outrun by Amazon, citizen journalists monitoring illegal state-sponsored weapons deliveries and kids no longer having to interact face to face but able to kickstart political revolutions from their laptops. Increasingly we can see these digitally induced cracks and subsequent shifts starting to develop in the world of design and manufacturing too, with phenomena such as distributed digital manufacturing, crowd funding, open-source hardware and co-design.

It would be well to remember that this kind of dramatic change is nothing new, and more than a hundred years ago it was industrialization that played the role of the disruptor. And it is when under pressure – when the status quo isn’t working any more – that people tend to reflect on the past and carve out new roles for themselves. We see this today, but we also saw it in the early 1920s – shortly after the First World War shook up our beliefs with the founding of the Bauhaus in Weimar, led by the architect Walter Gropius.

Industrious craft

In the first 1919 *Bauhaus Manifesto and Programme*, Walter Gropius wrote: “Architects, sculptors, painters, we must all return to craft skills!”² Gropius pleaded for the end of “art for

art's sake"³ and a renewed focus in all artistic disciplines on materials, techniques and the making of objects. He argued that art itself cannot be learned and that education in the arts must instead be focused on the learning of a craft ■ 026 p. 98.

At the time of the foundation of the Bauhaus, roles and relations within the production industry were changing in major ways. Until the Industrial Revolution, most things were made by hand by craftsmen who embodied the entire making process from start to finish. These people possessed an extraordinary knowledge of the materials, tools and heritage of the things they made, transferred over centuries from master to apprentice. With the Industrial Revolution, this one-man show started to disintegrate into many different professions. Traditional activities and relations, inherently stringed together in the holistic practice of the craftsman, became separated from each other. The maker and the user became anonymous personae for each other, and designing, making and selling, once activities combined in one profession, broke up into many specialized professions.

The newly emerged designers – those responsible for the design and not the making – felt frustrated with these changes and tried to reformulate a meaningful position within the new industrial system. Some felt threatened, but all were challenged: how can we keep up standards of quality and perfection within an industrial system that is focusing merely on appearance and quantity? Many positions were taken in this debate, and all tried to reclaim some of the lost terrain, or stretch the definition of their profession. But the overall tendency was either to ignore the industrial production systems and try to preserve the artisanal past, or to embrace these new tendencies and try to face the challenges they brought.

When reading Gropius's statement about a return to the crafts, we might think his idea of craft was a romantic one, looking at the past rather than the future. At first sight, it feels as if he was rejecting the big changes in society – industrialization, mass production, and trying to go back to the old system.

According to Professor Sir Christopher Frayling, the now widely quoted "return" in Gropius's early statement is a mistranslation of the original German. Gropius's intention was a "turn" to craft in a contemporary way, rather than a "return" to a nostalgic idea of craft.⁴ Gropius wanted the architects, sculptors and painters of his time to take the traditional system and make it valuable within a present-day society.⁵ This interpretation is corroborated by a lecture given by Gropius to a large group of industrialists on 28 June 1919, in which he explained the intentions of the Bauhaus and asked for their support.⁶ In an essay he wrote in 1925, Gropius's vision of the crafts is much more elaborated: "The Bauhaus represents the opinion that the contrast between industry and the crafts is much less marked by the difference in the tools they use than by the division of labour in industry and the unity of the work in crafts. But the two are constantly getting closer to each other."⁷ In other words, Gropius envisioned a new kind of craft that unites both craft and industry. He tried to connect the traditional past with the unknown future, using craft as a bridge between the two.

Today we see again a renewed interest in the crafts, especially in the last decade. Design magazines and blogs have been full of stories about designers rediscovering the crafts, sometimes as a nostalgic "return", but a growing number of designers are "turning" to craft with, in their hands, the tools brought by the digital revolution. In his groundbreaking 1996 book, *Abstracting Craft: The Practiced Digital Hand*, Malcolm McCullough aimed to open up the definition of craft in order to find a place for digital technology within it: "Craft is neither the design nor the individual artifact: it is the tradition of the very production. It is the presence of many objects identical in their conception, and interchangeable in their use, but unique in their execution."⁸ His words perfectly intertwine with Gropius's interpretation of craft in his second Bauhaus manifesto.

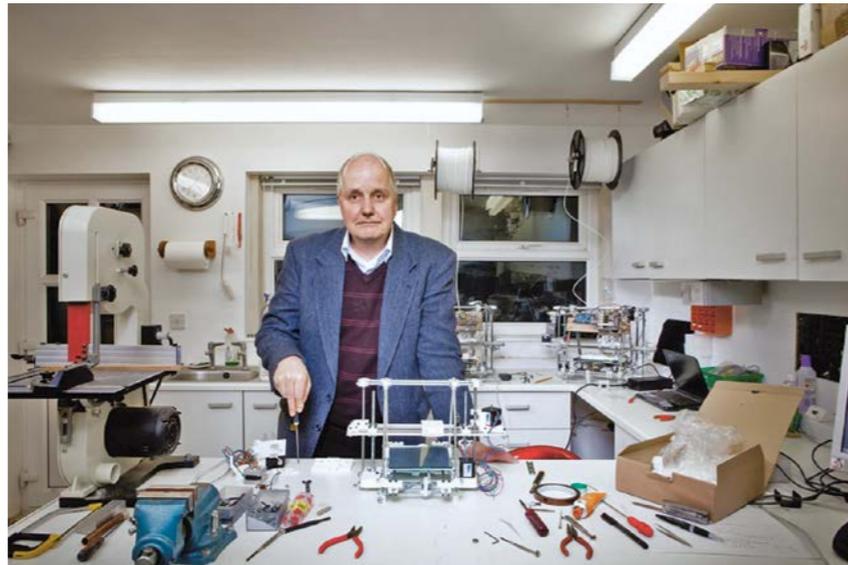
the bauhaus

Essay



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■ 404 Dirk Vander Kooij, *Endless Chair*, 2010
Photograph: René van der Hulst

■ 405 Adrian Bowyer, initiator of the RepRap
open source 3D printer project, 2011
Photograph: Georgie Clarke

What this turn to crafts in a digital context might look like can be illustrated with the work of Dutch designer Dirk Vander Kooij. In 2011 he obtained for himself a decommissioned industrial robot arm from a Chinese car factory and equipped it with a plastic extruder ■ 404. He installed this oversized 3D printer in his small studio and started to print out “endless” chairs with thick toothpaste-like plastic coils of various colours. Despite using industrial gear, Vander Kooij operates more like a traditional craftsman, constantly honing and improving his tools and the products he makes with them. In his process, there is no distinction between the pre-production prototype and the final – often mass-produced – object such as we see in industrial production. Every chair produced is a prototype for the next one and, as such, his production process follows more the logic of craft production. This type of feedback loop opens up the development of products to become a more public affair as opposed to the classical closed-doors design of products for industry. It is this continuous iterative design and making process that for centuries formed the heart of the craft way of manufacturing.

In Vander Kooij’s re-appropriation of industrial machines, we hear echoes of Davies’s statement to The Guardian Media Group. While many similarities can be drawn between today’s turn to craft and the one envisioned by Gropius, this do-it-yourself attitude is in juxtaposition to the Bauhaus vision of the craftsman-designer serving industry, as today’s generation rather bypasses industrial institutions altogether. And the vital information to do so isn’t locked up in industry any more but can be openly found and shared online.

Distributed education

*“It is only through constant contact with newly evolving techniques, with the discovery of new materials, and with new ways of putting things together, that the creative individual can learn to bring the design of objects into a living relationship with tradition and from that point to develop a new attitude towards design”.*⁹

The Bauhaus was first and foremost an educational institute and Gropius wanted its workshops to become the laboratory for a new kind of craftsman. The workshops in the Bauhaus were operated by masters, journeymen and apprentices and facilitated hands-on experimentation with new technologies and materials. The laboratories of today are not educational institutes: they have been superseded by an ad-hoc knowledge-sharing infrastructure of blogs, open-source instructions and wikis with their physical hubs in the form of FabLabs and hacker spaces. Contemporary design studios are nested within this structure, both benefiting from it and feeding it with new developments. As such, education has become distributed.

An interesting example of knowledge distribution in this context is the way 3D printing as a technique became popular so rapidly over the last decade. In 2005 Professor Adrian Bowyer and a tiny group of students at the University of Bath began researching a machine that could reproduce itself. This resulted in the development of the first simple, open-source 3D printer called RepRap ■ 405. The blueprints for the machine were published online and soon people everywhere – including our own design studio Unfold – joined its development, improving and extending every aspect of the machine and learning from each other’s developments through a so-called “blog of blogs” that aggregated every individual’s openly published, but disconnected, efforts into one feed of information, discussion and learning.¹⁰ Within a few years, a cottage industry of consumer 3D printer manufacturers was born, with by-now established names such as Ultimaker or Makerbot. Today, every maker, inventor, designer, hobbyist or artist can enjoy the fruit of this platform and have a 3D printer in their studio. The lowering of the barriers into digital manufacturing triggered an

unprecedented explosion of creative experimentation with 3D printing. Just like a craftsman who would constantly improve his own tools, these machines are conceived in such a way that they are easy to hack into and alter to suit one's needs – from Royal College of Art graduate Markus Kayser's Solar Sinter ■406 ■407, a machine that turns desert sand into a glass vessel using focused sunlight, to the work in *Unfold* on developing ceramic 3D printing processes akin to traditional coiling and the resulting research on a distributed ceramic manufacturing network ■408 ■409.

The collaborative open learning spirit that resulted in the RepRap 3D printer continues to live in the projects it's being employed in. Richard van As, a carpenter from South Africa, lost all four right-hand fingers in a tragic accident. He soon discovered the incredibly high cost of a custom-made prosthesis but, being a maker, he created a provisional solution in his own workshop. But his life really changed through a chance encounter on YouTube with American puppeteer Ivan Owen. Together the two men designed a fully functional prosthesis, first from aluminium and later using 3D printing, which allowed them to work unhampered even though they lived on opposite sides of the world. Files could be emailed, printed, tested and commented on in the span of a single day, allowing for rapid iterative development. Other people started noticing the Robohand project and joined in, to develop and produce a €50 prosthesis. The world took notice of this example of amateur healthcare, and today professionals are pitching in and bringing their expertise to the Robohand and e-NABLE communities that formed around the project.

Quality through transparency

*"The Bauhaus workshops are essentially laboratories in which prototypes of products suitable for mass production and typical of our time are carefully developed and constantly improved. In these laboratories the Bauhaus wants to train a new kind of collaborator for industry and the crafts, who has an equal command of both technology and form."*¹¹

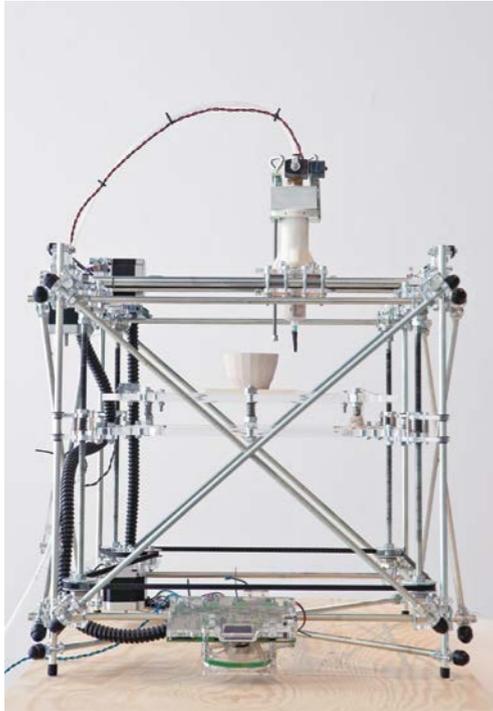
Through the education of a new breed of craftsmen, Gropius argued, the industry could be guided to produce quality products. He wrote: "The Bauhaus fights against the cheap substitute, inferior workmanship, and the dilettantism of the handicrafts, for a new standard of quality work."¹² In the Dessau period, the Bauhaus started to pay more attention to the creation of quality products and systems for an industrial society. "The machine, capable of producing standardized products, is an effective device, which, by means of mechanical aids – steam and electricity – can free the individual from working manually for the satisfaction of his daily needs and can provide him with mass-produced products that are cheaper and better than those manufactured by hand."¹³ The Bauhaus philosophy was noble, and in essence it was part of a larger movement that intended to utilize industrialization to democratize production and to provide quality products to the masses. Many goods considered ubiquitous today were luxury products before industrialization. This optimistic utopia lived on until late in the twentieth century. Kaj Franck, one of the emblematic designers at Nuutajärvi, now Iittala, used the motto "Echt gepresst – nicht geschliffen" [genuine pressed glass – not hand cut] for his Delfoi range of pressed glass designed in 1976, a tongue-in-cheek reference to the traditional exclusive hand-cut and polished glass which went under the tagline "Echt Kristall – handgeschliffen" [Genuine Crystal – hand cut].¹⁴

But around the same time dissident voices started to emerge. While it was a noble goal to create better products, there was a growing sense that industrialization merely gave people access to more, but often inferior, products disconnected from the people they were meant to serve. Industrialization gave birth to consumerism and overconsumption.



■ 406 Markus Kayser, *Solar Sinter*, Egypt 2011
Photograph: Markus Kayser Studio

■ 407 Markus Kayser, *bowls printed with the Solar Sinter*, Morocco 2012
Photograph: Markus Kayser Studio



■ 408 Unfold, 3D printer for ceramics, 2009
Photograph: Kristof Vrancken

■ 409 Unfold, 3D printed ceramic structures, 2009
Photograph: Kristof Vrancken

In his collection of essays, *Small Is Beautiful*, the British economist E. F. Schumacher pleaded against the idea of economic growth, an inhumane system that requires people to buy and replace more stuff in perpetuity. "The economic calculus [...] forces the industrialist to eliminate the human factor because machines do not make mistakes which people do."¹⁵ He called the industrial system a leftover of nineteenth-century thinking and he argued that it was time to think of a new system, a system based on attention to people rather than goods. He quoted from Gandhi's economic vision of "production by the masses" instead of "mass production".

In today's manufacturing system people are demoted to "target groups" who need to be studied with "market research" in order to understand their needs, instead of being involved directly in the process. The two-way conversation between maker and user has long since been reduced to one-way broadcasting. Modernism's elitist idea of "good taste" and a single solution for everyone surely did not help alleviate the problem,¹⁶ but the reduction of the individual to a large generalized group was also the collateral damage of industry's necessity for economies of scale. A product always has to be produced in gigantic quantities to compensate for the high cost and complexity of starting up production. Personal manufacturing, the production of personalized artefacts for individual people, was no longer feasible nor desirable. The complexity of the industrial manufacturing system, with its long chain of marketeers, designers, investors, engineers, factory workers, retailers and distributors, also resulted in obfuscating for the user where and how stuff is being made, aspects that used to be a great deal more transparent in the short chains of craft production.

Stefano Giovannoni is an Italian industrial designer famous for his work in the eighties and nineties for Italian kitchenware brand Alessi. In a recent interview with online design publication *Dezeen*, he argued that the furniture and product brands we know today "will disappear in five years" due to the way the internet revolutionizes the way we market and distribute goods. And traditional design brands are not investing enough in new (read digital) business models. Giovannoni is referring to online platforms such as Etsy, Shapeways, Monoqi and Bezar, where designers and makers can sell directly to end-users, sidestepping the long chain with its numerous gatekeepers. The success of such platforms has been created by people looking for more personal products, created in smaller quantities and with the stories of the makers. Giovannoni draws an interesting parallel, suggesting that in the future product designers will take a page from the book of fashion designers and become their own brands, arguing that "the role of the designer is to be an entrepreneur".¹⁷ Where Giovannoni falls short is in understanding that designers will not only become brands, managing their own marketing and distribution using online tools, but they will become manufacturers too . . .

With manufacturing going digital, industry is being scaled back to the size of the studio, and we see a merging of aspects of the pre-industrial craft economy with high-tech industrial production methods injected with the internet. If we are able to learn from the past, this combination has the potential to shift power from industrial mass producers to the entrepreneur-designer and the consumer, whose involvement in the process leads to better and more transparent production.

Due to resemblances in the spirit of the age, it is relevant to reread the Bauhaus today, but the interesting observations happen where the marked differences are. How can we learn from some of the mistakes the Bauhaus made? While we should embrace the opportunities digital manufacturing brings, we should keep a critical attitude to how our well-intentioned actions today might overshoot in the future.

- 1 Russell Davies, "Not just electronic", for the exhibition *After the Bit Rush* in art gallery MU, Eindhoven, 2011.
- 2 Walter Gropius, *Manifest und Programm des Staatlichen Bauhauses*.
- 3 Christopher Frayling, "We must all turn to the crafts", in Daniel Charny, *Power of Making. The importance of being skilled*, V&A Publishing, London, 2011, pp. 29–33.
- 4 Ibid.
- 5 Ibid.
- 6 Lecture given by Walter Gropius during a discussion of the Director of the State Bauhaus with tradesmen and industrialists on 28 June 1919; source: Bauhaus-Archiv Berlin, Walter Gropius Archive, GS 3/folder 12 (Design), printed in Volker Wahl, *Das Staatliche Bauhaus in Weimar. Dokumente zur Geschichte des Instituts 1919–1926*, Böhlaus, Cologne/Weimar/Vienna 2009, p. 244ff.
- 7 Walter Gropius, "Grundsätze der Bauhausproduktion", *Bauhausbücher* 7, 1925.
- 8 Malcolm McCullough, *Abstracting Craft: The Practiced Digital Hand*, MIT Press, Massachusetts, 1996.
- 9 See note 6.
- 10 <http://blog.reprap.org/2010/06/reprap-aggregation-pipe-v2-update.html>, retrieved 17 April 2015.
- 11 See note 6.
- 12 Ibid.
- 13 Ibid.
- 14 Päivi Jantunen, *Kaj & Franck: Designs & Impressions*, WSOY Publishers, Helsinki, 2011.
- 15 E. F. Schumacher, *Small Is Beautiful: A Study of Economics As If People Mattered*, MIT Press, Massachusetts, 1976.
- 16 Paul Atkinson, "Orchestral Manoeuvres in Design", in Bas Van Abel, Lucas Evers, Roel Klaassen and Peter Troxler, *Open Design Now. Why design cannot remain exclusive*, BIS Publishers, Amsterdam, 2011, pp. 24–31.
- 17 Interview by Marcus Fairs with Stefano Giovannoni, "Most Design Brands will disappear within five years", <http://www.dezeen.com/2015/02/28/stefano-giovannoni-most-design-brands-will-disappear-within-five-years-design-indaba-2015/>, published February 2015, retrieved 17 April 2015.