JOE'S SECOND LIFE

Words by Natalia Barszcz

Ever wondered what happens with your leftover coffee grounds after you drink your morning cup? They end up in the landfill, left to decompose and pollute the air. Luckily, new innovative businesses have come to joe's rescue and found ways to prolong his existence after single use. And you can reincarnate him too.

We don't really need to explain the tremendous popularity of coffee, do we? The smell, the notes, the texture, the blend, the creaminess, the density… Perfect right when you wake up, when you check your morning emails, after lunch, as a late afternoon pick-me-up. Romanticised as such since the 70's, coffee was found to be consumed, on average, two times a day per capita, resulting in 95 million cups every day in just the UK. Unfortunately, your daily mug contributes to 22% of world's methane emissions as a result of the grounds' natural decomposition processes. What's methane, you might wonder? It's one of the most polluting greenhouse gases 28 times more harmful than carbon dioxide.

This information shocked Arthur Kay, a young architecture student at UCL. He began to wonder how to transform this polluting waste into something useful. Now 28 and twice featured in Forbes' "30 under 30" list, he is the CEO of bio-bean, the first company to produce energy from leftover coffee grounds.

Founded in 2013, bio-bean collects coffee waste from large coffee chains, restaurants and enterprises, then reuses them to make biofuel, eco heat logs, pellets and biochems. Their biodiesel, which is the first coffee-derived fuel produced on a large scale, is a blend of coffee oil extracted from leftover grounds, other natural fats and oils used to make mineral diesel. Mixed together, they create a natural and harmless fuel, which produces 15% less CO_2 emissions compared to fossil fuel. So far, such bioenergy, formally known as "B20", has fuelled some of the London buses as a part of bio-bean's collaboration with Shell and TfL in 2017.

More popular amongst the pulic are bio-bean's coffee logs an alternative to wood logs used to produce heat in stoves, chimneys, and for open fires. Each log is made out of grounds from 25 cups of coffee, and can produce up to 20% more heat and burn for up to 20% longer than wood. "Apart from Coffee Logs, we are also working on biomass pellets coffee-derived heating pellets for industrial-scale biomass boilers and leading research on biochems," explains Jessica Folkerts, bio-bean's international marketing manager.

Bio-bean prides itself in significantly reducing carbon emissions, since their coffee-waste recycling is 80% less polluting than if it were left to decompose in landfills. In fact, one of the bio-bean's biggest customers - Costa Coffee - has been involved in their coffee waste collection

YOURSELF DO IT YOURS

process since 2016, giving away 3000 tonnes of grounds, and preventing 360 tonnes of CO_2 emissions every year. Who would have thought your £2.50 cup of coffee could save the planet? "But there is a lot more going on within bio-bean, with plans to expand distribution of Coffee Logs, with potential export into the EU. We're looking to increase production of the biomass pellets, and will be furthering our research into the biochems as well. All of this will of course require greater volumes of feedstock, so we're continuing to engage with our waste management partners and businesses, on every scale, to increase our collections," says Jessica.

Six years before first coffee-derived energy was produced, a Taiwanese textile company called Singtex developed the first coffee-derived fabric S.Cafe. The material, made out of coffee grounds, regularly collected from major stores and cafes in Taiwan, such as Starbucks and 7-Eleven, mixed with polyester manufactured from recycled PET bottles, revolutionised the way people view recycling. S.Cafe also became a sign of sustainable, conscious fashion, as the fabric was ideal to use for clothing one T-shirt can be made from only three cups of coffee grounds and five recycled bottles. Not only eco-friendly, barely producing any carbon footprint, and using far less water than cotton garments, S.Cafe is also a soft, light and breathable fabric, which cools the body. It's great for outdoor clothing, as the yarn is impregnated with activated carbon (a raw version of carbon that absorbs contaminants from water and air) made from coconut. The use of such protection makes the garments resistant to not only pollutants and dirt, but also water and UV rays. Having been on the market for the last decade, Singtex has now more than 110 clients. You can find the fabric in American Eagle Outfitters' jeans, and outerwear from New Balance, Timberland, Hugo Boss, and The North Face.

Sintex's innovative concept has been adopted by Greencup, a British fair trade coffee provider, that developed Çurface a hard and thick component used as a base for seats, tables, panels for coffee machines, and bicycle parts. The company also distributes organic coffee beans to cafes, restaurants, shops, and offices. Greencup is also known for their soil fertilisers, which is described, on their website as a "shot of espresso for plants". Apart from being the most popular source of caffeine, it is packed with key nutrients and minerals for plant growth. Its high levels of magnesium, nitrogen, and chlorophyll a compound responsible for enhancing plants' oxygen, sugar, and water intake, as well as the intensity of their green colour. Other nutrients found in coffee, such as potassium and calcium, regulate plants' growth and reproduction processes, water penetration, chemical imbalance, and can help absorb heavy metals contaminating soil. If you want to give your plants a little health-boost this spring, consider purchasing one of Greencup's home fertilizing mineral kits.

Who knew your daily coffee waste could heat your house or that fuel you morning busride?

But can leftover coffee grounds be turned into coffee again and actually be reused in the same way it was used primarily? This was a question Julian Lechner, a Berlin-based product designer, was asking himself during his studies in Bozen, Italy, the home of espresso itself. In 2009, after a few years of research and experimenting, he produced the first espresso mug made fully out of natural, recycled ingredients. The base material of which is, in fact, coffee waste. In 2015, Julian founded Kaffeeform. One small coffee mug has now turned into a successful business offering mugs for your cappuccino, flat white, latte, and coffee on the go, available online and in stores across Europe. All of them are made out of dried coffee grounds, that are compressed, heated and mixed with natural biopolymers materials produced by living organisms such as cellulose, wood grains, and natural fibres. "It is at the core of our heart and business that we use alleged waste material, and only other renewable components, and with the still globally increasing coffee consumption coffee grounds are increasingly available, a resource otherwise wasted," explains Anika, Kaffeeform's team member. Together, →

Photograph by Madison Inouye

they create a one-of-a-kind, light, smooth, yet durable, unbreakable, and dishwasher friendly base to hold your morning coffee. The high content of coffee in the material will also infuse your drink with stronger, deeper taste and light notes of coffee aroma.

Is Kaffeeform worried about competition? Although there are so many brands coming up with innovative solutions and alternatives to fast consumption, the team doesn't view them as a threat in any form. "The green and sustainable scene in Berlin and Germany is growing, it's very collaborative and supportive. We all want the same thing, we're all working for the same goal - to increase awareness of sustainable topics, to reuse and recycle instead of throwing away and buying new, to reduce waste and pollution of our planet. And the more people are on the same page, the better," Anika describes. Although mainly known for their mugs, the business has now flourished into something much bigger. "We are more than just our cups, and that's what sets us apart. Our goal is to replace fossil based plastics with our unique ecological material mix in the long run, and we are currently exploring new application possibilities in design, interior and even fashion products," she says. A never ending, very green, and incredibly inspiring story about a relationship between coffee waste and recycling - for Kaffeeform, it seems like the sky's the limit. "We need to take one step at a time but our minds are running wild with ideas and collaborations. For example, we recently created a small skateboard out of our coffee-derived material that is totally working out, but needs more testing first!"

Inspired to give a second life to your daily cup of joe (or should we say joy)? You don't have to come up with a business idea to save your leftover coffee grounds, as there are plenty of ways for you to reuse them at home. Following GreenCup, you can easily transform it into a soil fertilizer simply add dried grounds to your plant's soil. The coffee will act as a nutrient boosting compost that will attract worms, boost sunlight and water absorbtion and keep plants healthy for longer.

Another valuable coffee mineral, nitrogen, is great at eliminating odours and gases floating in the air you can leave a jar with dried grounds in your fridge to catch the smell of food going bad or scatter them over the ashes in your chimney. This will not only reduce the intense smoky or burning smell, but also weigh the ashes down and prevent smoke clouds.

Coffee can also help you out with your regular household chores, as they have plenty of antibacterial and antiviral properties. Due to high levels of antioxidants, such as ferulic, chlorogenic and caffeic, naturally occurring in coffee beans, adding a few teaspoons of grounds to your cleaning products will act as a great surface sanitizer. The texture of leftover grounds, especially when mixed with a liquid, is also perfect for gentle surface scrubbing, as it doesn't leave harsh scrubbing marks, yet is invasive enough to scrape unnecessary build up from your kitchen counter, sink and cookware.

Speaking of scrubbing coffee grounds are a perfect, more natural (and a lot cheaper) alternative to mechanical body scrubs, scrubbing face masks and other exfoliating products found in stores. Mixed with natural oils for that extra boost of moisture, the grounds can easily exfoliate dead skin cells, increase blood flow, and detoxify our skin from inside-out. When used on your hair, apply on the scalp, massage for a few minutes, and follow with your regular shampoo and conditioning routine. Caffeine speeds up and increases hair growth by stimulating your blood flow and combating a DHT hormone, which is responsible for hair loss. s

Have we sparked your interest? Turn the page to find out how to make your own coffee body scrub and natural cleaning products next.