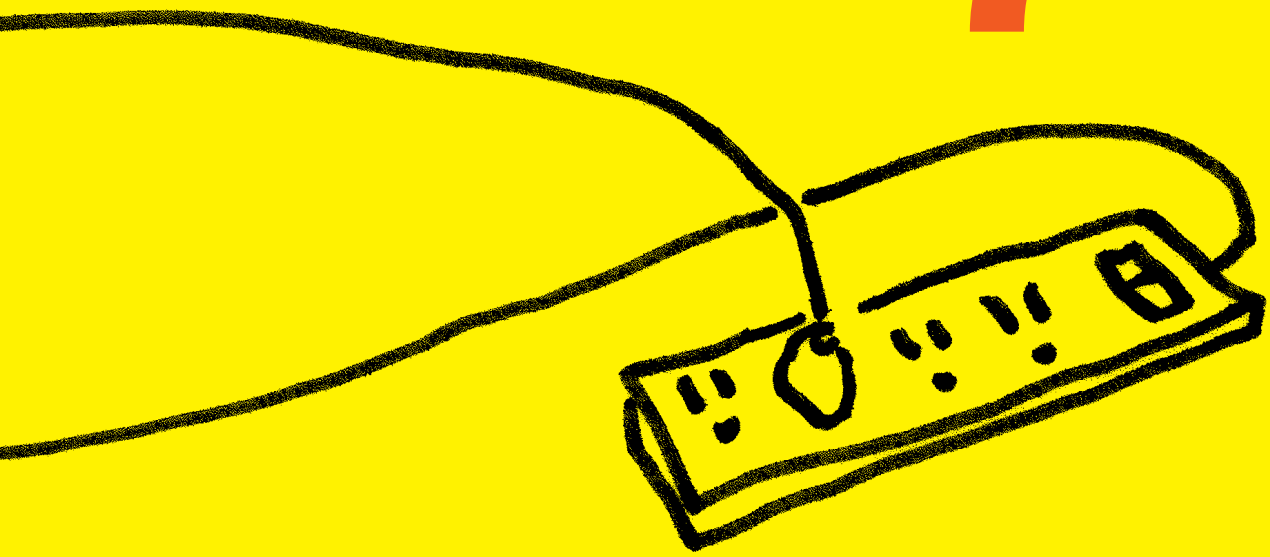
How much really?

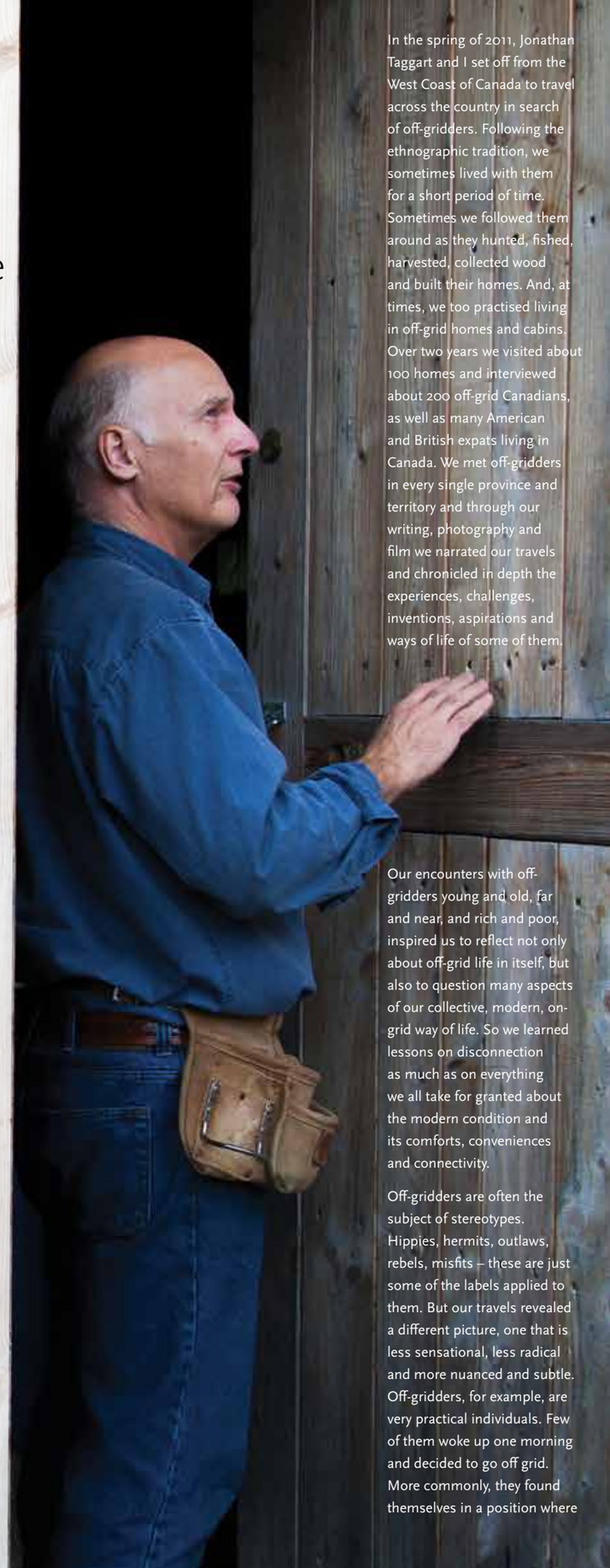


W/A Volume 3 · Issue 1 $30

the off grid

Written by **Phillip Vannini**
Photographs by **Jonathan Taggart**

Off grid isn't a state of mind. It's not about being out of touch, living in a remote place or turning off your mobile phone. The term simply means living without a connection to the electric and natural gas infrastructure serving a region. But as it goes, people who live in off-grid homes are also self-reliant for other vital resources, such as water and food. To live off grid, therefore, means to radically re-design daily life in a dramatically innovative but also quite traditional way.



In the spring of 2011, Jonathan Taggart and I set off from the West Coast of Canada to travel across the country in search of off-gridders. Following the ethnographic tradition, we sometimes lived with them for a short period of time. Sometimes we followed them around as they hunted, fished, harvested, collected wood and built their homes. And, at times, we too practised living in off-grid homes and cabins. Over two years we visited about 100 homes and interviewed about 200 off-grid Canadians, as well as many American and British expats living in Canada. We met off-gridders in every single province and territory and through our writing, photography and film we narrated our travels and chronicled in depth the experiences, challenges, inventions, aspirations and ways of life of some of them.

Our encounters with off-gridders young and old, far and near, and rich and poor, inspired us to reflect not only about off-grid life in itself, but also to question many aspects of our collective, modern, on-grid way of life. So we learned lessons on disconnection as much as on everything we all take for granted about the modern condition and its comforts, conveniences and connectivity.

Off-gridders are often the subject of stereotypes. Hippies, hermits, outlaws, rebels, misfits – these are just some of the labels applied to them. But our travels revealed a different picture, one that is less sensational, less radical and more nuanced and subtle. Off-gridders, for example, are very practical individuals. Few of them woke up one morning and decided to go off grid. More commonly, they found themselves in a position where

living off grid made practical and financial sense.

It typically started as a love story; they fell in love with a place, a piece of land outside of town that was far – sometimes very far – from the nearest electricity pole. After a quick phone call to their utility company they discovered that hooking up to the grid would cost them tens or even hundreds of thousands of dollars. So they decided to do it on their own: to generate their own power and procure their own resources for heating their homes. And few of them stopped there. They rolled up their sleeves and designed and built their own homes. They learned to collect and conserve water, grow food and dispose of waste cleanly and sustainably.

Most importantly, by living off grid they learned to authentically practise their values. Their involvement with their homes taught them about living sustainably, about being resilient in the face of challenges, about the pleasures of a simple lifestyle, about the need to tackle challenges with confidence and knowledge, and most of all about the importance of self-sufficiency.

Living off grid taught them to make virtue out of necessity. In most cases without any formal training, off-gridders found ways to re-invent our idea of home and, more broadly, our relation with the environment – by doing things themselves rather than relying on distant institutional providers or the market.

The off-grid nation is packed with DIYers: crafty individuals who – despite not being architects, electricians or professional contractors – manage to find ways to design, assemble, maintain and – when necessary – repair their own houses. The average consumer interested in doing it oneself these days has the ability to source knowledge from a bottomless pile of DIY books for dummies, reference manuals, websites, YouTube videos and zines that break down steps and demonstrate procedures.

Social historian Steven Gelber has observed that the moniker "do-it-yourself" (or "DIY" for short) dates back to 1912, when an article in the popular magazine *Suburban Life* first used that expression to encourage homeowners to take on minor renovation projects on their own rather than hire professional contractors. DIY was set for an impressive uptake in popular interest.

With the subsequent historical rise in suburban and exurban home ownership, the articulation of ordinary maintenance and home renovation with evolving ideologies of both masculinity and femininity, the progressive commercialization of home-improvement tools and supplies, and the explosion of lifestyle media inciting home- and garden-based hobbies and identity-based domestic consumption, DIY has become part and parcel of contemporary consumer culture. Part self-expressive hobby, part ostentatious consumption and ego-boosting skill display, and part convenient utilization of handy money-saving skills, DIY building and home-improvement symbolize and exercise practical knowledge capital, lifestyle choices and autonomous control over possessions.

Like off-grid living in general, DIY, however, is not exactly for everybody. Many everyday obligations compete with DIY projects for people's attention, including leisure options, family responsibilities and paid work. Heightened social and geographical mobility also end up reducing the transfer of skills across generations, friends and neighbours, rendering it difficult for aspiring DIY practitioners to learn how to tackle projects through personal networks. Formal building codes also make it impossible for unlicensed individuals to tackle certain projects, especially electricity-related ones. Ingenious DIYers who build their own homes with creative designs, innovative techniques and alternative resources and materials therefore easily stand out amongst a mass of weekend handymen and handywomen carrying out smaller projects.

The expression "do-it-yourself" connotes an individualistic, self-oriented, self-sufficient approach that does not match actual practice. It is therefore no accident that doing-it-oneself has taken on the aura of a lone, last-man-standing, heroic, resistant response to a stable structure of domination. A corrective to this notion is to view individuals such as off-gridders as people who do not break away from, or openly contest, greater social forces, but rather articulate their practices with the evolving traditions of alternative designs.

In fact, our encounters with off-gridders showed us that it always took a village to raise a barn, so to say. Despite ingenuity, creativity and resolve, off-gridders could only practise self-sufficiency with the help of other people, such as friends willing to invest time and skills, occasional professionals able to provide advice and Internet-mediated experts waiting to be downloaded at a moment's notice.

This is a practical way of being self-sufficient: a self-consciously practical and pragmatic orientation to living independently as a way of establishing connections rather than severing or resisting ties. More of a DIW, or Do-It-With, if you like. A DIW through which off-gridders exercised some control over their life circumstances and through which they brought practical know-how, dedication, resolve, judgement, creativity, passion and their lifestyle values to bear on their day-to-day existence.

And most of all, theirs was a way of doing it with – rather than in spite of – the resources that the land and the skies provide, sustainably. And in that, there is a lot to learn for all of us.

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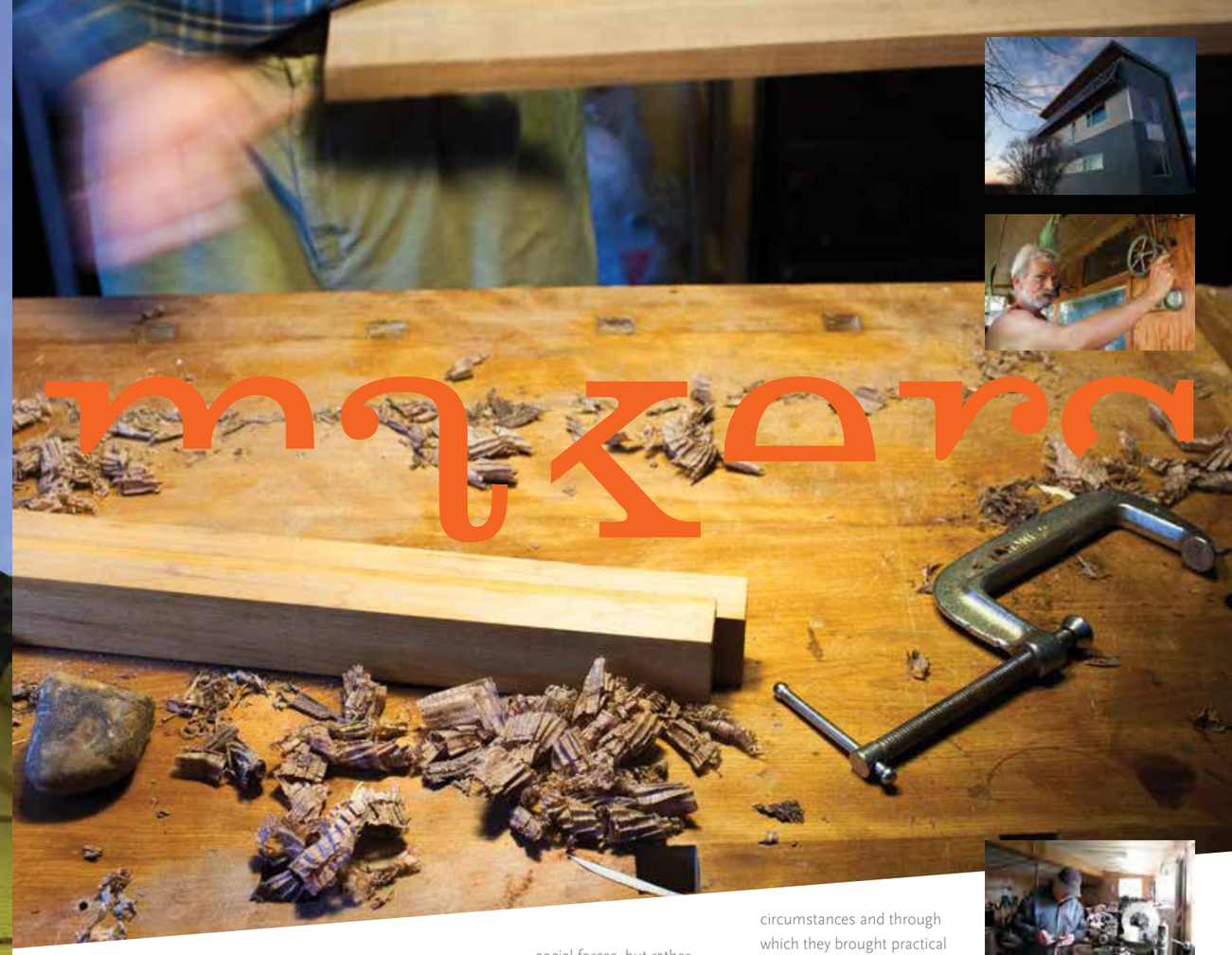
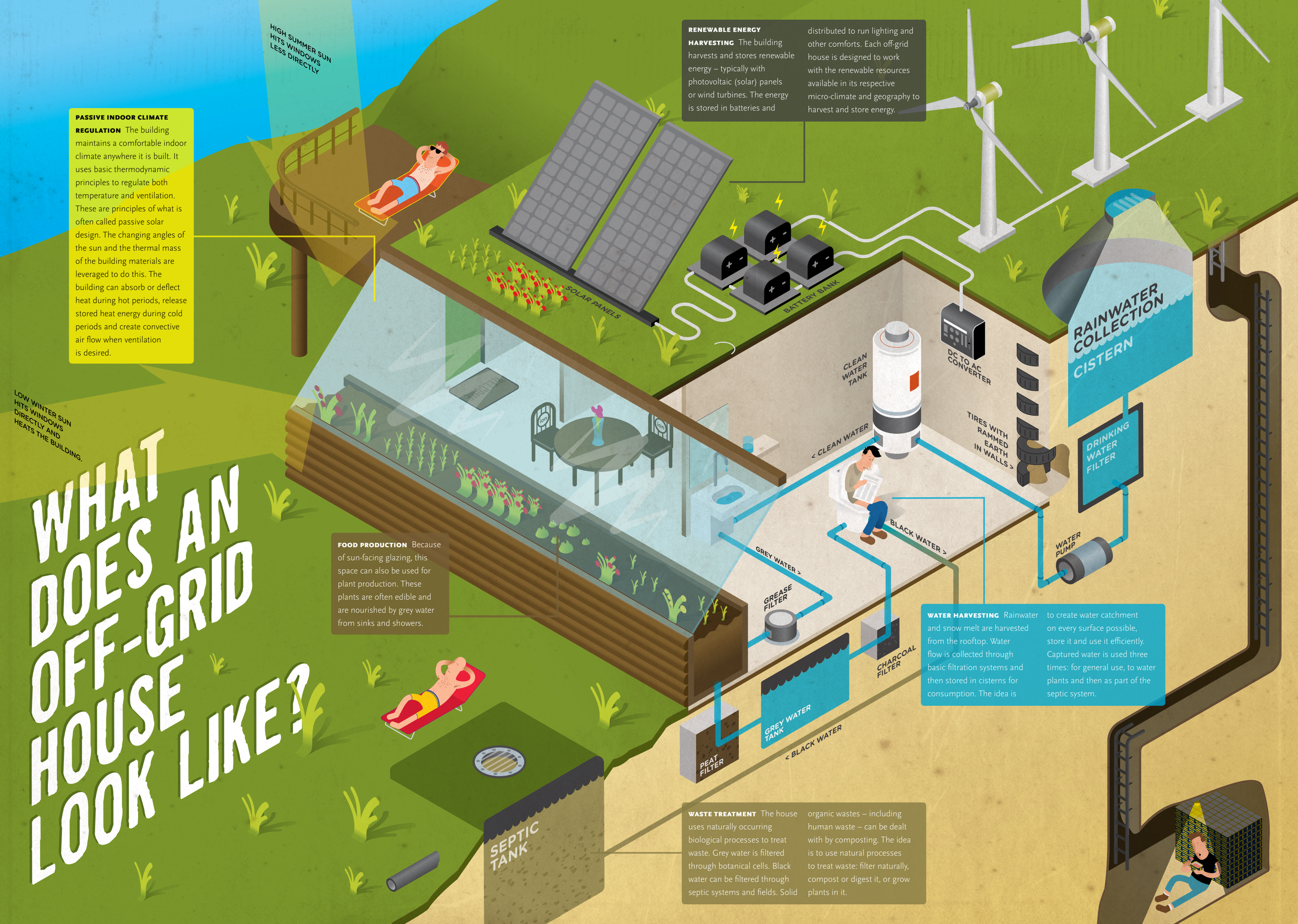
Their book: Off the Grid: Re-Assembling Domestic Life
Their film: Life Off Grid



Our encounters showed us that it always took a village to raise a barn, so to say. Despite ingenuity, creativity and resolve, off-gridders could only design and build their houses with the help of other people, such as friends willing to invest time and skills.

WHAT DOES AN OFF-GRID HOUSE LOOK LIKE?



PASSIVE INDOOR CLIMATE REGULATION The building maintains a comfortable indoor climate anywhere it is built. It uses basic thermodynamic principles to regulate both temperature and ventilation. These are principles of what is often called passive solar design. The changing angles of the sun and the thermal mass of the building materials are leveraged to do this. The building can absorb or deflect heat during hot periods, release stored heat energy during cold periods and create convective air flow when ventilation is desired.

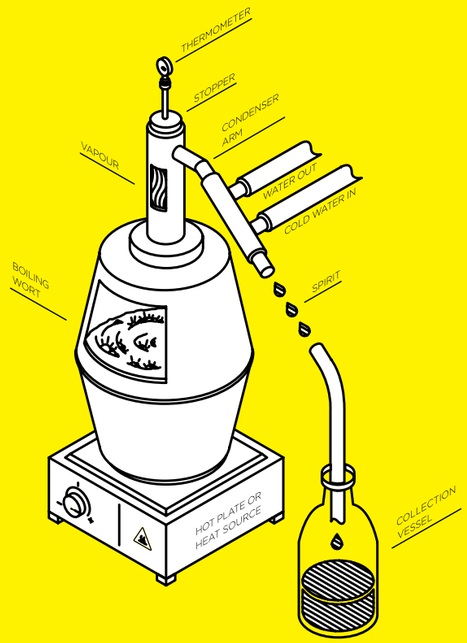
RENEWABLE ENERGY HARVESTING The building harvests and stores renewable energy – typically with photovoltaic (solar) panels or wind turbines. The energy is stored in batteries and distributed to run lighting and other comforts. Each off-grid house is designed to work with the renewable resources available in its respective micro-climate and geography to harvest and store energy.

FOOD PRODUCTION Because of sun-facing glazing, this space can also be used for plant production. These plants are often edible and are nourished by grey water from sinks and showers.

WATER HARVESTING Rainwater and snow melt are harvested from the rooftop. Water flow is collected through basic filtration systems and then stored in cisterns for consumption. The idea is to create water catchment on every surface possible, store it and use it efficiently. Captured water is used three times: for general use, to water plants and then as part of the septic system.

WASTE TREATMENT The house uses naturally occurring biological processes to treat waste. Grey water is filtered through botanical cells. Black water can be filtered through septic systems and fields. Solid organic wastes – including human waste – can be dealt with by composting. The idea is to use natural processes to treat waste: filter naturally, compost or digest it, or grow plants in it.

There's nothing like a good old-fashioned prohibition to motivate people off the grid.



How to make basic corn whisky

INGREDIENTS

- 23 L WATER
- 7.5 L CRACKED CORN
- 1.9 L CRUSHED MALTED BARLEY
- 1 PACKET WHISKY YEAST

1

MASHING

Heat water in 38 L stockpot. Boil and remove from heat.

Add cracked corn and stir. Cover the mash and let sit one hour, stirring every 15 minutes. Keep doing so to break down the cornstarch. Remove lid and cool mash to 68°C. Add the crushed barley. Stir and cover for 45 minutes. It will have converted to sugars and have a sweet taste. Stir mash again and cool to room temperature for 6–8 hours, but no more (otherwise a smelly white powdery film will indicate a lactobacillus infection, and the mash must be discarded). Successful mash will have a grassy popcorn odour. Next, add the yeast and aerate the mash by aggressively stirring it for a few minutes. Transfer the mash to a covered (not sealed) container and set aside in a spot that will not get cold.

2

FERMENTING

Let the mash sit for three to five days. When bubbling slows down you are nearly done. Do not let the mash sit too long or other bacterial infections may occur. The quality and yield depends almost entirely on the yeast.

3

STRAINING

When the fermentation has slowed, strain out the solids that are left in the mash. A wide-gauge laundry bag will suffice. Collect liquid in the stockpot or directly into your still kettle. Leftover corn should be spongy and moist but not goopy. Keep it separate and use as fertilizer, animal feed or bake mix (muffins, bread).

4

THE STRIPPING RUN

Run the still at this point to strip out all of the alcohol and reduce the liquid to about 1/3 of its original volume. Pour the yellow mash (wash) into the still. Assemble the still and turn heat to maximum. After an hour or two the temperature in the column will spike – if you have an alarmed thermometer, set it to 65°C. Or get creative with wax and a soda can: affix to the column so it falls off to get your attention. At 65°C turn on the condenser. Since alcohol boils at a lower temperature than water, do not miss gathering the very first liquid. Place a jug under the condenser to collect the liquid. The still drips at 77°C. Reduce heat by 50% to prevent burning and extend the run (smoother and more natural reflux in the column will soften it). Test the proof. Collect about 150 ml and sink in your hydrometer, which should float. Read the proof at the meniscus (remember to temperature-correct the measurement). The stripping run will start with a high alcohol percentage and quickly taper off as you approach the boiling point of water. Distill until the percentage of alcohol emerging from the still matches what you put into the still. The stripping run will take about 6–7 hours and yield 3.8–4.9 L of "low wines." Turn off heat and let condenser run for a few minutes to extract remaining vapour. When all is cool, take the still apart and clean thoroughly.

5

THE SPIRIT RUN

The spirit run is the most critical step in the process and can occur at any time after fermentation is complete. Start the spirit run the same way you started the stripping run, but instead of filling the still with wash, load the still with your low wines. Add a gallon of water to stretch out your run and extend the time you have to make cuts. Assemble the still and set heat to maximum. Set the alarm to 65°C so you can activate the condenser before you start to see vapour and collect the spirit under the spout with a graduated cylinder. At 75°C, the still will create a steady drip up until the temperature climbs to 100°C and only water is being distilled. Throughout the run you will determine what parts are consumed, what is recycled and what should be tossed. Whisky is a mix of pure ethanol, trace chemicals from lower temperature boiling, esters and fusel oils that boil at higher temperatures. The mix of these is called congeners and they give whisky its flavour. Ethanol is what we drink and boils at 78°C. Some of the congeners are toxic, such as methanol (just 10 ml can cause blindness and 30 ml can be fatal).

The amount of methanol in any batch will be much less than this (a fraction of a millilitre), but proper distillation is needed to regulate the amount and type of methanol and other congeners (making cuts from the front and back of the run). Getting the balance right takes experience. The four phases of whisky spirit distillation are known as foreshots, heads, hearts and tails. The "cut" is achieved by switching collection vessels. For your first batch, use 16 labelled mason jars in a row, gathering 150 ml in each. Test the proof in the graduated cylinder before emptying into each jar. Note the time and temperature at the top of the still column to reference for predicting the course of the run of future batches. Once all of the jars are filled, the spirit run will have reached the tails, and you can turn up the heat until you have filled 5.68 L of tails (less than 5% alcohol). Turn off the heat; let the condenser run to get all of the steam into the column; turn off the condenser; disassemble and clean the still. Now evaluate the lined-up jars: the first will be the foreshots and contains the majority of toxic congeners. Mark this jar with XXX for possible use as a cleaning agent, but do not consume. The next few jars will contain the heads. Everything after the foreshots and after 80% alcohol is considered heads. Jars three to 12 will likely contain the hearts, which is the whisky. The tails are not pure enough to drink, but unused heads and tails may be recycled into the next distillation, and if you dislike the results, simply discard the recycled tails and start again from scratch. As you gain experience, to become more efficient you should reduce the number of collection jars to three: for foreshots, for the "feints" (combined heads and tails) and for the hearts.

6

PROOFING

You will have a yield of about 1 to 2.5 litres of hearts at about 70% abv. This step involves diluting your whisky to drinking strength, bottled between 40% to 50% abv. Use bottled distilled water rather than tap water to avoid minerals and fluoride. To dilute, add water slowly to the jug of hearts until the hydrometer reads the desired proof (40% abv is 80 proof). Alcohol by volume (abbreviated as ABV, abv, or alc/vol) is a standard measure of how much alcohol (ethanol) is contained in a given volume of an alcoholic beverage (expressed as a volume percent). It is defined as the number of millilitres of pure ethanol present in 100 millilitres of solution at 20°C. The number of millilitres of pure ethanol is the mass of the ethanol divided by its density at 20°C, which is 0.78924 g/ml. As you dilute, you may notice it becomes cloudy (called a "louche"), but will mostly dissipate upon shaking and a little cloudiness is fine, as the home distiller generally prefers to not cold-filter these oils as do commercial distillers.

7

AGING

If you have made good cuts you will likely not need to age your whisky, but you may prefer the taste that emerges from aging and mellowing whisky in a charred wood barrel. Small barrels allow more of the whisky to contact the wood surface and require months versus years for aging. The optimal aging will have peaked when the taste will have notes of vanilla and caramel from the sugars, and depending on the methods, notes of cinnamon, nutmeg and black pepper. An over-aged barrel will taste like smoke with less of the desired spicy notes. The lower the proof when aging in barrels, the sweeter the taste, while the higher-proof barrels have spicier notes.

Moving past basic corn whisky, you can conjure bourbon, scotch-style malt whisky or other spirits. Blending in a small amount of rye-grain whisky leads to the distinctive Canadian whisky flavour.

Prohibition

in the United States lasted 14 years, but it certainly didn't stop everyone from having a drink. In fact, it produced a moonshine bootlegging empire, with the likes of Al Capone and his gang taking in $60 million a year. And if speakeasies (aka 'blind pigs') or doctors' prescriptions didn't quench your thirst for hooch, you could always find or make a still.

Canada had its own Prohibition, resulting from a perfect storm of 'righteous' lobbying, men away at war and a sense of patriotism during the First World War, when it was deemed necessary to step up efficiencies and conserve resources. Yet we pulled the cork in 1919 after only two years, just as the United States was warming up in its battle against the bottle.

Do-it-yourself alcohol distillation flourished during Prohibition, but its origins can be traced back to medieval Europe. Whisky (or whiskey) is a type of distilled alcoholic beverage made from fermented grain mash. Various grains (which may be malted) are used for different varieties, including barley, corn, rye and wheat. The simplest distillation is typically produced in a pot still, consisting of a single heated chamber and a vessel to collect purified alcohol.

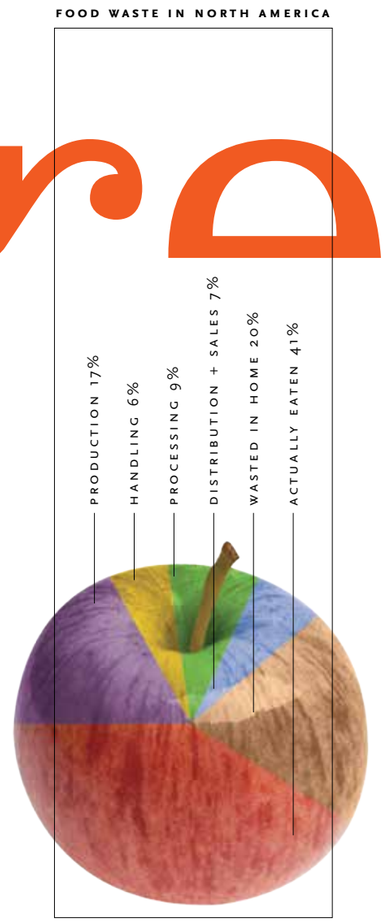
Distillation and whisky production may no longer be considered an essential skill by today's off-gridder. But for many, home-grown hooch will always be a potent symbol of independence – one with a long and illustrious history. Plus, you can't deny it makes for some good storytelling.

moonshine

"never trust a man that doesn't drink"

JAMES CRUMLEY

freegan



Dumpster diving as a lifestyle choice? For some, saying 'no' to th[illegible] the dominant culture of food waste means 'yes to seeking out al[illegible] alternative food choices. Half of all food is wasted after production. In the case of produce, it is thrown out if it doesn't meet consumers aesthetic standards (although a misshapen cucumber still tastes the same). Food is thrown out in supermarkets according to the whims of best before dates, which often have a tenuous connection to safety dates. And it's thrown out by consumers because we buy more than we can eat, tossing 30 percent of the food we purchase in the trash. Ready for change? We can think more carefully about our food — where it comes from, how it was produced, how much we really need. For the more adventurous, freegans advocate waste reclamation and foraging, often known as dumpster diving. A recent documentary, "Just Eat It," followed one Vancouver couple as they spent six months eating only discarded food — discovering dumpsters filled with edible goods and negotiating with supermarket employees to take home less than perfect produce destined for landfill. They gained weight. Urban freegans have many opportunities to scavenge food, but they can also go back to the land, even in the city. Foraging for edible plants in parks, gleaning from fruit trees, growing food in community gardens and setting up a guerilla garden in abandoned lots all provide opportunities to shift away from the mainstream food system. If you want it, it's out there. Free.

A recipe for

Moth Damper

USE A MORTAR & PESTLE

POUND A GENEROUS HANDFUL OF BOGONG MOTHS

MIX WITH

1 CUP of plain flour
of self-raising flour
of powdered milk

{ and ¼ tsp baking powder }

ADD JUST ENOUGH WATER TO MAKE A STIFF DOUGH AND SHAPE INTO A BALL

FLATTEN BALL TO HEIGHT OF 2.5CM

COOK IN ASH OR CAMP OVEN

nomnomnomnomnomnomnom **SERVE HOT** nomnomnomnomnomnomnom

WHY

Advocated by the UN as the untapped food source that can boost nutrition and reduce pollution

HIGH IN VITAMINS + PROTEIN + MINERALS

COMPARED TO CATTLE/PIG/POULTRY

less land | 10-100X less greenhouse gases | 2-6X less feed

Recipe source: Vic Cherikoff, abc.net.au

In 1967

– the year that Canada turned 100 – I was seven. In the spring, my brother and I were asked to sing on Bobby Gimby's *CA-NA-DA* – a song that was heard everywhere that year to celebrate Expo '67 and Canada's centennial. That summer, my family and I piled into our Monza station wagon and drove from Toronto to Montreal to see Expo '67 – Man and His World, arguably the greatest world's fair to date.

Of course at the time, I was most interested in the log flume ride and the buttons on the interactive exhibits. But I remember the amazing buildings – structures I'd never seen before, like the upside-down pyramid of the Canada pavilion. I didn't know who these incredible architects were – Safdie with Habitat, or Buckminster Fuller with the US pavilion. But I was caught up in the energy of the event and my parents' enthusiasm and I knew this was a significant moment in Canada's history.

It was a time when people were thinking about design and the impact it could have on society. Fuller and others weren't simply architects, they were visionaries. They were environmentalists. They were thinking about the planet and how to use our natural resources in a sustainable manner.

My dad was also an environmentalist. A psychiatrist, humanitarian and intellectual, but essentially an environmentalist. I remember a year after Expo when he brought home the *1968 First Whole Earth Catalog*. We all pored over the pages and explored this self-proclaimed "access to tools." It was a revelation – a resource for those who loved the planet. It was then, reading those pages with the manifesto from Buckminster Fuller that I began to put some of the pieces together and started to understand who he was and what the environmentalist movement was about.

Fuller was best known for his geodesic dome design – the ideal structure for off-gridders. The dome was the culmination of his work and the star of Expo '67. I still remember how massive it was – like a big bubble, a huge honeycomb. His revolutionary use of materials not only had a view to sustainability but elegantly reflected nature's beauty.

And yet his architecture was just one aspect of his genius. Fuller's concept of whole systems encompassed science, engineering, architecture, environmentalism and humanism. I came across his Fuller projection – the only map of the earth to show it as one island in one ocean without distortion, and the only projection ever to receive a patent. Fuller's idea was that if we can visualize the whole planet with greater accuracy, we humans will be better equipped to address challenges as we face our common future aboard *Spaceship Earth*. Now, years later, when I look at the iconic Canada centennial logo designed by *Stuart Ash* of *Gottschalk + Ash*, I see the triangles of Fuller's *Dymaxion Map* as its inspiration.

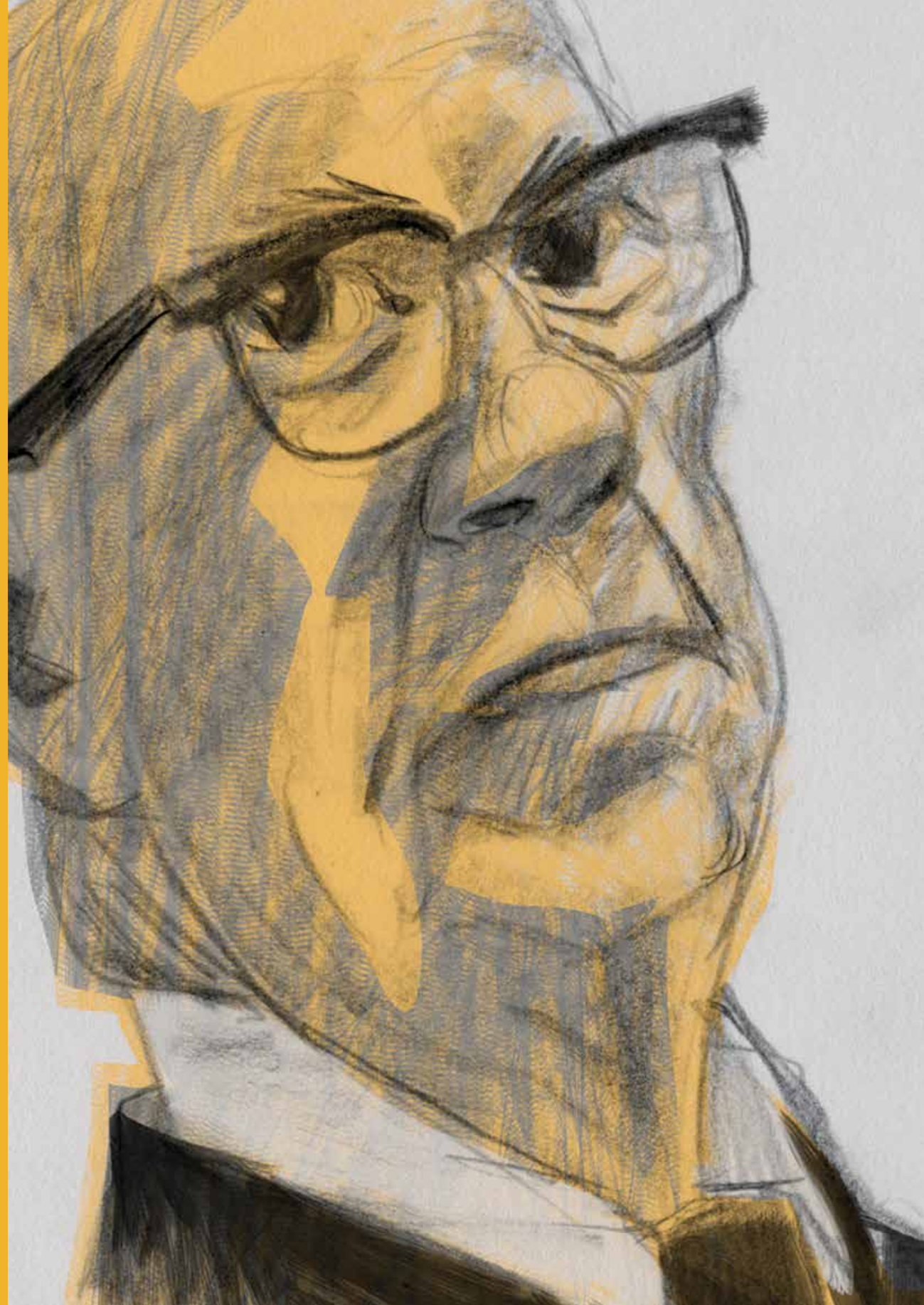
I respect Fuller for his architecture, certainly. But even more so for how he viewed the world, so far ahead of his time in terms of whole-system thinking and his articulation of the need for a design-science revolution. In his own words, this would be the "application of the principles of science to the conscious design of our total environment in order to help make the Earth's finite resources meet the needs of all humanity without disrupting the ecological processes of the planet."

A lot has changed since 1967. But the sense of optimism and excitement I felt that summer is, in many ways, still with me. In the current swell of off-grid thinking, I think we're finally seeing the results of Fuller's revolutionary vision.

DAVID F COATES

I have often I've found where I should be going only by getting out for somewhere else.

• R BUCKMINSTER FULLER



winnie the poo monster

It's inevitable. You wake up in your off-grid home, after a night of feasting on dumpster-diving delights and drinking homemade whisky, and realize, "...shit." Everybody poops. And living off grid means having to deal with the good, the bad and the messy.

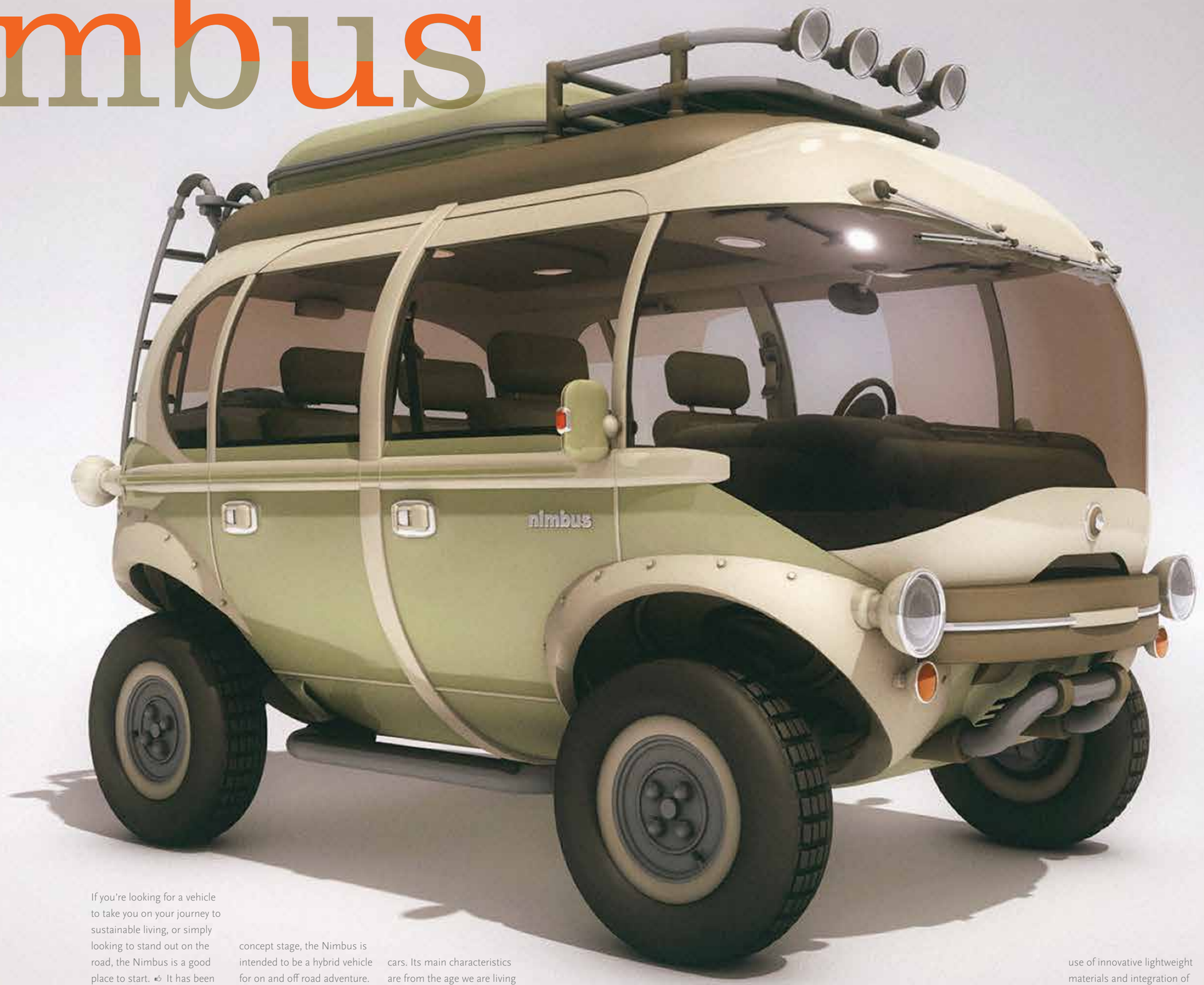
Cheap and readily available, dry animal dung has been used as fuel for cooking and heating since prehistoric times. These days, we can use a domestic biogas digester to do the same thing without all the toxic fumes. Think of it as a friendly monster that lives in your backyard, eats your waste and spews back out steam, heat and electricity.

This bio-digesting waste-zilla uses poop, kitchen food scraps and grass clippings to create methane, a clean-burning 'green' fuel that can be used for cooking, heating, transportation and power generation. One pound of cow poop can produce 28 litres of gas! And you can use the residual sludge from the digestion process as part of your compost.

Not only is this a solution to getting rid of unsightly waste, it's also carbon-neutral. Unlike petro-diesel, the CO_2 released by burning bio-diesel is part of the current natural cycle and does not act as a greenhouse gas.

Let's not be afraid of our waste – it's energy waiting to be converted.

nimbus

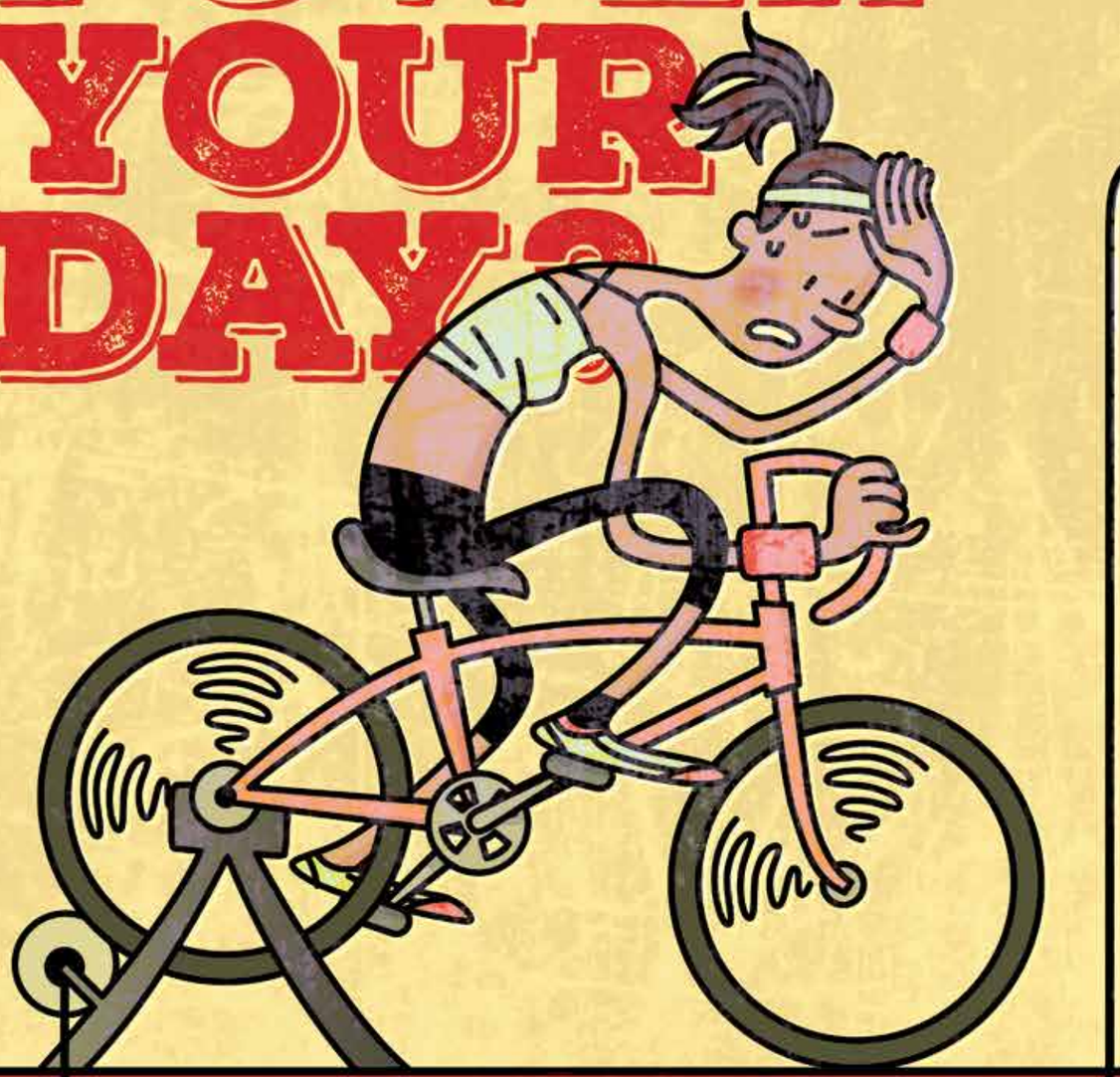


If you're looking for a vehicle to take you on your journey to sustainable living, or simply looking to stand out on the road, the Nimbus is a good place to start. It has been described as a mash-up of an Oscar Mayer Wienermobile, the classic VW microbus, a submarine and a Baja Bug. And while it's still in the concept stage, the Nimbus is intended to be a hybrid vehicle for on and off road adventure. It was designed by Brazilian artist Eduardo Galvani, who says, "The inspiration for the lines and shapes are from some references of classical cars. Its main characteristics are from the age we are living now, a clear global transition between the old and the new economy, between the old and the new ways of ecological thinking and practices."

The 180-horsepower electric motor is complemented by a micro combustion generator to extend the driving range, with fuel consumption predicted to be around 1.3L/100km. The regenerative braking system and rooftop photovoltaic cells keep the energy flowing, and the drivetrain offers four modes – from energy saver to 4WD. With its panoramic windows and elevated seating height, use of innovative lightweight materials and integration of state-of-the-art technology, the Nimbus is a retro-futuristic vision of where vehicles just may be headed.

Thank you Oscar Mayer!

COULD YOU POWER YOUR DAY?



When most of us think of what it takes to power our life, we think of it in terms of an energy bill. Left the lights on and the fridge open? That costs money!

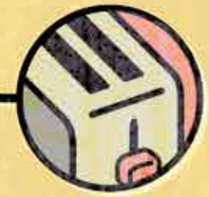
But what about a more human conversion? What would it take if you tried to power your day with a bicycle-powered generator?

According to our friends at Green Power Events (*See Here Comes the Sun*, ahead), the average cyclist generates approximately 50 watts per hour. Sounds pretty good, right? Well, we tried a few simple conversions to get an idea of just how much work that is.

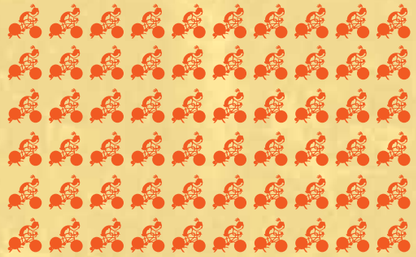
An iPhone uses 6 watts per hour. So, you only need to spend 7 minutes per hour (about 3 hours per day) on your bike to keep your phone running!

A Nintendo Wii uses 21 watts per hour. So, to play Wii for 1 hour, you would need to pedal for about 25 minutes.

A washing machine uses about 500 watts per hour. To run it in real time, you'd need 10 people pedalling at once.



A toaster uses 2000 watts per hour. To make toast (assuming a toasting time of 4 minutes), you would need 50 people pedalling.



An electric stove element uses up to 3000 watts per hour on high. Assuming it takes 15 minutes on high, you would have to pedal for 9 hours to make a box of Kraft Dinner. Or just have a team of 60 people to power it in real time.

TIRED YET?

ESCAPE from the GRID

A PREPPER'S GUIDE TO SURVIVING THE APOCALYPSE

HEY FRED, WHAT YOU UP TO?

WHAT'S THAT?

JUST TRIPLE CHECKING MY BUG-OUT BAG

IT'S FOR WHEN THE SHIT HITS THE FAN, MAN...

...LIKE, YOU KNOW, WHEN THE TSUNAMI HITS AFTER THE 9.5 QUAKE AND EVERYTHING IS DESTROYED WITHIN 1,000 FEET OF SEA LEVEL. BRIDGES AND AIRPORT RUNWAYS ARE DESTROYED. GLASS SHARDS, BOATS, FISH AND FLOTSAM SHOOTING DOWN THE STREETS, IMPALING EVERYTHING IN THEIR PATH. IT'LL BE THE BOMB AND IT'S COMING SOON. IT MAY TAKE MONTHS BEFORE SUPPLIES CAN GET ANYWHERE NEAR THE CITY.

GEE, I NEVER THOUGHT OF THAT...

WELL, YOU'D BETTER START, DUDE.

MARS

MERCURY

EARTH

VENUS

YOU KNOW, THE SUN

EVER CONSIDER THE IMPENDING ELECTROMAGNETIC PULSE? THAT MASSIVE EMP IS GOING TO BLOW OUT OF THE SUN LIKE NOTHING YOU'VE EVER SEEN. WHEN THAT BABY HITS – AND I REPEAT, WHEN – ALL ELECTRICITY AND DEVICES ON THE PLANET WILL BE RENDERED DEFUNCT. THAT INCLUDES YOUR PRIUS, DUDE. IT MAY TAKE YEARS – EVEN DECADES TO GET THINGS BACK TO "NORMAL."

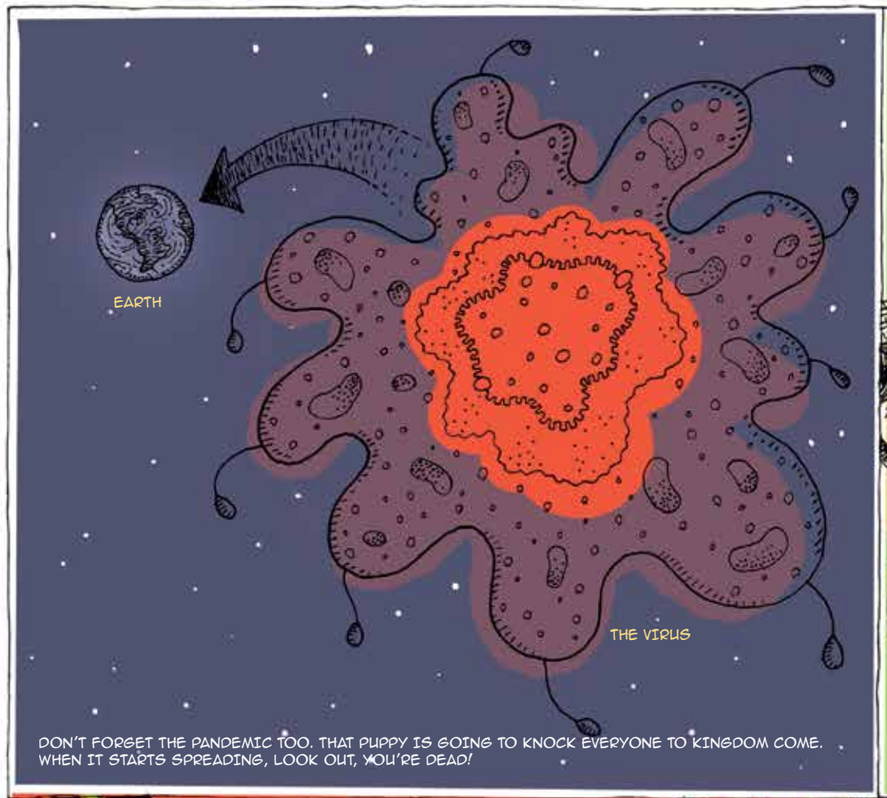
THERE WILL BE MAYHEM...

MAYHEM

FIGHTING IN THE STREETS...

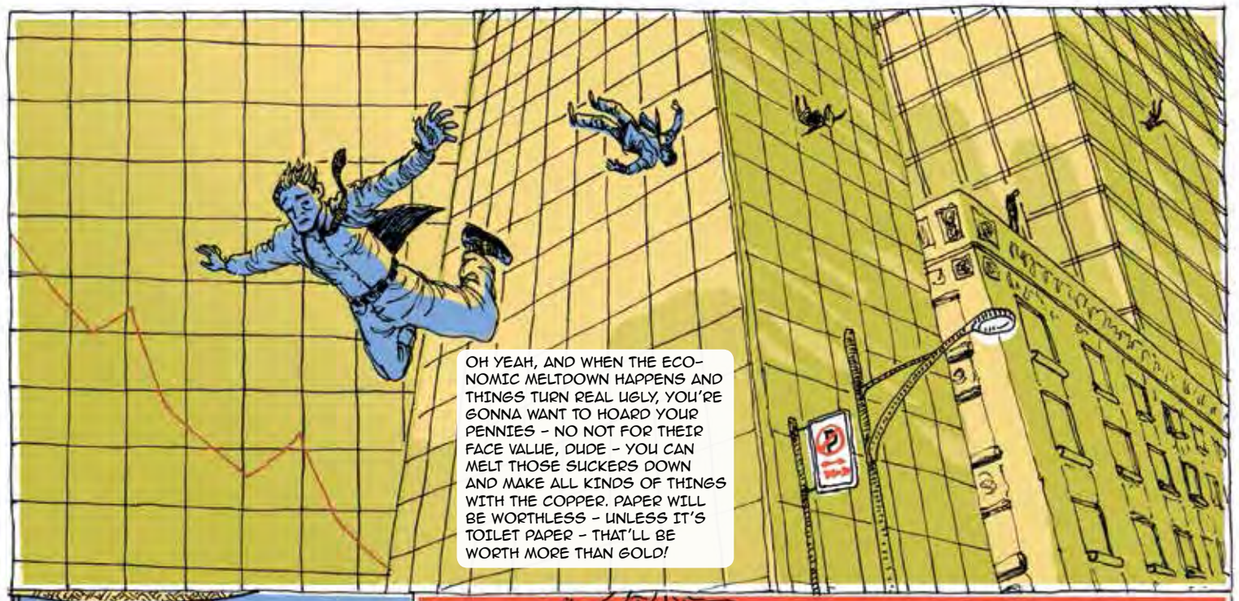
SHELVES WILL BE BARE...

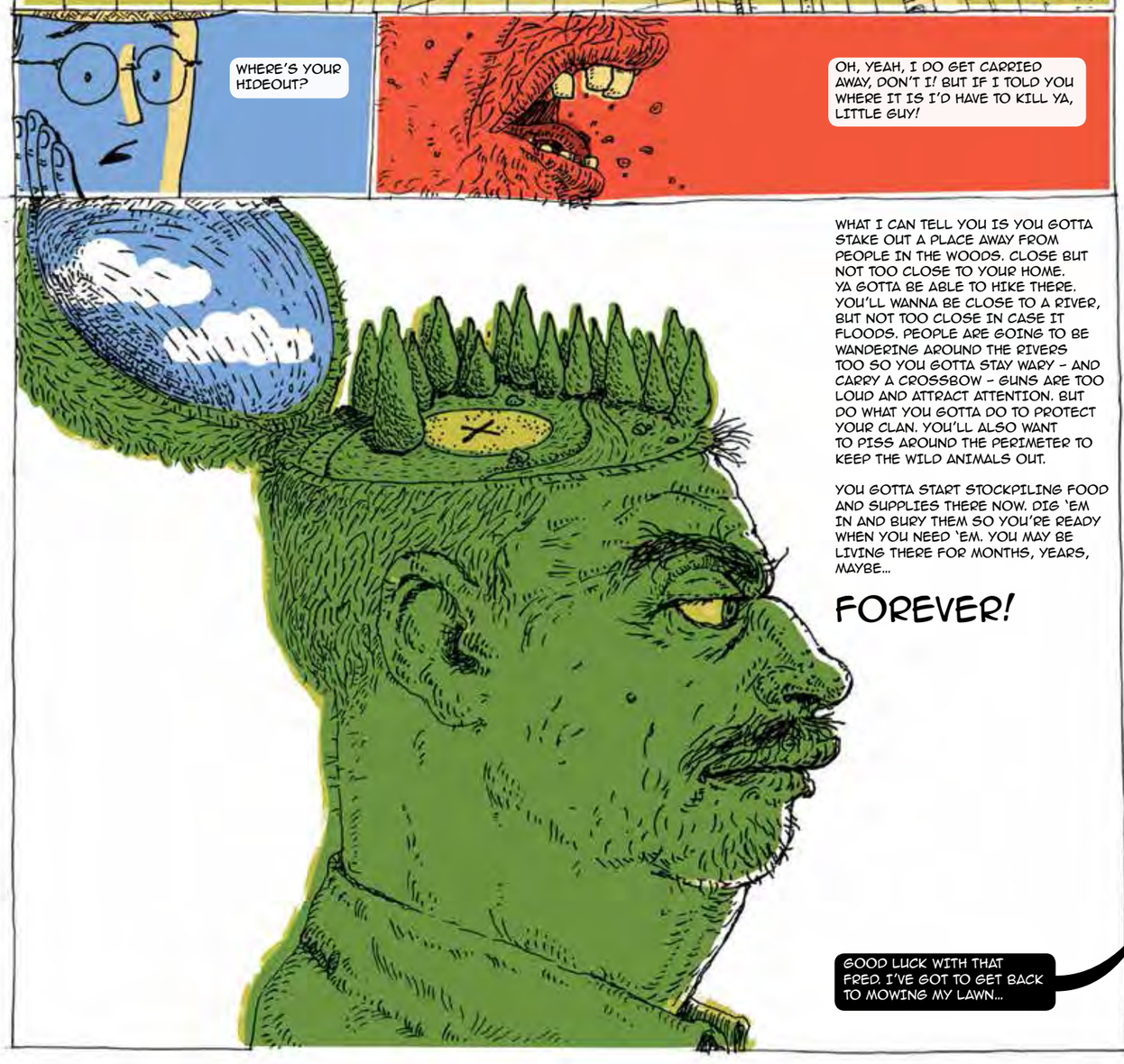
GAS WILL RUN OUT...



DON'T FORGET THE PANDEMIC TOO. THAT PUPPY IS GOING TO KNOCK EVERYONE TO KINGDOM COME. WHEN IT STARTS SPREADING, LOOK OUT, YOU'RE DEAD!

...YOU'RE GONNA NEED ALL THE ESSENTIALS. THAT MEANS ENOUGH TO LIVE FOR AT LEAST THREE DAYS. WARM CLOTHES, SHELTER, SLEEPING BAG, WATER, DRIED AND CANNED FOOD, DUCT TAPE – AND PLENTY OF IT! WEAPONS – PLENTY OF 'EM! YOU'RE GOING TO WANT TO PROTECT YOURSELF, UNDERSTAND? KNIVES ARE BETTER THAN GUNS 'CAUSE THEY'RE SILENT SEE? THEY DON'T ATTRACT A LOT OF ATTENTION. YOU'RE GONNA WANT A SHOVEL, HATCHET AND GLOVES, GAS MASK AND MATCHES, SOLAR LANTERN AND CANDLES SEE? AND THAT'S JUST TO GET YOU TO YOUR HIDEOUT!





Top Ten

must-have off grid gadgets*

HAND CRANK & SOLAR RADIO

Putting music back in your hands.

This radio is recharged using solar power or human kinetic energy. It features USB and other ports to charge devices, as well as an LED flashlight. On a clear day, just set it in the window to absorb the sun's rays while the AM radio plays 'Here Comes the Sun'. Or if you live in Vancouver, wind the crank.

BEESWAX SURVIVOR CANDLE

Organic and handmade in Canada for the discerning off-gridster.

The Life Lite Survivor Candle can light and heat a small space for up to 200 hours non-stop and converts to a mini-stove using the included cooking brackets. Acceptable for even the most discerning off-gridster, these beeswax candles burn non-toxic, non-allergenic and non-carcinogenic. They also produce negative ions, which cleanse the air of dust, odours, toxins and pollens. And they probably work wonders with a moustache.

LEATHERMAN MULTI-TOOL

For the person who has everything, but can't fit it in his pocket.

This premier multi-tool has a large bit driver, which allows you to switch bits to customize the tool to the task. The scissors are strong enough to cut cloth, plastic and paper. It has smooth, rounded handles that are comfortable to hold, and the external tools feature big thumbholes so they can be opened with one hand. Because you'll be cranking the radio with the other one.

SOLAR HYBRID LAMP

Going off the grid doesn't have to mean going to bed early

The HybridLight Solar Hybrid Lantern offers up 220 lumens of light, powered in three different ways: AC adapter, batteries and, best of all, solar. Simply leave the lamp out in direct sunlight to charge during the day, and you'll have 6 hours of light to get you through the night.

BOOK OF NATIVE, EDIBLE PLANTS

Dig it!

Did you know dandelions are edible? And acorns were a staple of the Native American diet? *Edible Wild Plants* takes you on a journey of wild foods from dirt to plate, including wild spinach, chickweed, mallow, purslane, curly dock, sheep sorrel, wood sorrel, field mustard, wintercress and garlic. Note: wild Brussels sprouts are still gross, and wild chocolate mousse remains undiscovered.

LIFESTRAW

Where was this when we were in college?

This incredible device can turn any puddle into a refreshing thirst-quencher. Just stick it into any water source and start drinking. It "removes minimum 99.9999% of waterborne bacteria and surpasses EPA standards for water filters." You could literally drink Red Bull through this thing.

COMPASS

Due North strong and free.

It's hard to know where you're going if you don't know where you've been. However, in both cases it's good to know which direction you're currently pointing.

EMERGENCY THERMAL BLANKETS

Bow chikka bow bow.

Bad news: your binkie isn't an effective tool in an emergency. This disposable rescue blanket keeps in body heat, preserves body temperature and is small enough to fit in most first aid kits. And you can name it anything you want.

BIOLITE CAMPSTOVE/USB CHARGER

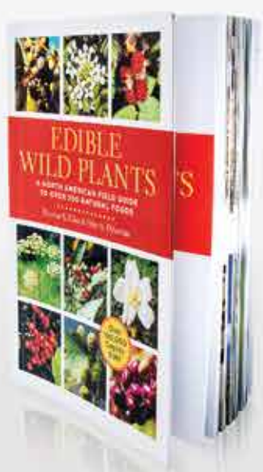
Cookin' with Twitter

BioLite's patented technology converts heat from a wood fire into usable electricity via a thermoelectric generator. This powers an internal fan for improved combustion, sending surplus electricity to the USB port for charging devices. Because living off grid shouldn't mean your friends can't see your dinner on Instagram.

MOLESKINE NOTEBOOK

A must-have for designers.

These nine products are all amazing, but we have better ideas for every one of their logos. Hand me a pencil.



*According to a bunch of graphic designers

here comes the sun

Off-gridders need music festivals too. Thanks to Green Power Events, you can have the full-on festival experience, all powered by solar panels, wind turbines and bikes. With a passion for music and a love of all things sustainable, Ash Bigdeli and Erin Sage unite production management expertise with a low-consumption sound system and LED lighting to create memorable experiences for audiences of 50 to 500.

Q: Where did you get the idea for Green Power Events?

ASH: I've been into renewable energy for more than 10 years and I'm also very interested in music. I was thinking about music festivals, which traditionally just grab power off the grid. People don't pay any attention to how this power is produced, they just plug in the amp and go. I wanted to challenge this idea, and I spent a few years looking at how I could integrate various sources of renewable energy and put them together for an off-grid music festival.

ERIN: In 2010, Ash moved into my building and we connected over our love of music and our interest in sustainability. One day he asked what I thought of creating a music festival in the woods, powered entirely by renewable energy so you wouldn't hear or smell a diesel generator. It took me only a second to say 'I'm in.'

Q: What events have you produced?

ERIN: In 2011, we put on a full weekend festival, *Towards Eden*, which was 100% powered by renewable energy. In addition to music, we had 25 workshops on everything from bike maintenance to organic gardening. We held it again in the summer of 2014 as a small retreat at a biodynamic farm near Squamish, with the goal of showcasing sustainability in action. It was a beautiful weekend, which was very low key with a small crowd of local friends and performers.

Along with producing our own celebrations of music and sustainability, we also hire ourselves out through our company. We have two trailers for power and a couple of PA systems, and we work for organizations that want to run off-grid events without using fossil fuels.

For the past two years, we've run the stage at the Country Celebration in south Langley, which used to be powered by a 6-kilowatt diesel generator. And we've worked at other events like the Burrard Inlet FishFest, Langley Rivers Day, the One Love Festival in Pemberton and Tiny Lights – an amazing grassroots community festival in the Kootenays.

Q: How do you generate enough power for what is traditionally very power-hungry equipment?

ERIN: You have to find that balance – which is the other half of the equation. You need to be aware of what you are consuming, because if it overtakes what you can generate, you cannot sustain your system over time.

Traditional PAs have large power output requirements, so we've been developing an innovative small system that consumes little power and can run off a smaller battery bank. We had the first run of this at the Tiny Lights Festival, where the weather changed every 10 minutes. We had hail, thunderstorms and straight-down sheets of rain. And we still powered the festival – this system can actually run off the energy generated from just one or two of our bikes. It was a worst-case scenario and we pulled it off.

Q: One bike can run a stage event? How many bikes do you have?

ASH: We have four bikes, and it's hard to keep people off them. Each bike, pedalled at moderate speed can produce an average of 50-60 watts per hour. This is why the golden equation of balancing generation and consumption is so important. The bikes can produce enough power for a low-consumption system, but the minute you put a 500-watt light in there, all your generated power will go to that.

Q: What do you think of traditional festivals?

ASH: My experience is that as festivals get bigger, they try to show off, which is not healthy for ears or the environment. They put way more than is necessary into their sound systems, to the point where it's just too loud when you get close to the stage. The true costs of setting up a 10-kilowatt diesel generator for a day, burning fossil fuels and powering all sorts of lights and the huge bass of the subwoofers are not always considered.

We also need to ask 'what is sustainable'? In the ancient world, performers travelled from town to town to play their music; today, we have huge festivals where thousands and thousands of people expend so much energy, travelling long distances by plane or car, to get themselves there. When a festival is held in your own local community, there is much less waste.

ERIN: And a better experience, too, with more intimate performances.

Q: What's next?

ERIN: We'll continue to investigate partners and allies to produce our own events. We'd love to develop our mobile stage, a trailer with a pop-up stage and a trailer with the power system, so that we can go to the beautiful park spaces in this province or to schools and put on high-quality pop-up concerts with a powered sound system.

Q: What does off-grid living mean to you?

ERIN: It means people who want to live more in balance with nature and what it provides. It's one little thing at a time, there's not one big solution.

ASH: For me, off-grid living is getting rid of the addiction to consumption. That's off-grid.

Q: Norees, what are the top 10 things you think of growing up off grid?

Earliest memory

My first memories were of living in a tent while our house was being built. Even my toys had a tent. I never considered it was different, but people thought so.

Earliest habit formed

I learned early on that turning off lights is critical. Turning off the Internet can be as well. I tend to turn off lights even when not at home.

Power up

I love never experiencing power outages at home. The natural environment and coastal weather can make for frequent power outages. Ironically, we sometimes get too much power with the wind turbine, and then need to drain off power, otherwise our Internet goes down.

Always have a plan

Having patience isn't my strong suit, but I learned to deal with it. We found alternatives by hand washing clothes, getting innovative and doing what needs to be done.

Three's company

I did not like the Eco House tours as a kid. The house was popular and at one time we had more than 400 people come through in one day, so it was a bit disruptive.

Have not, want some

I loved growing up in the outdoors, and didn't watch TV much. I don't miss having a toaster, microwave, clothes drier or dishwasher. Originally we had a car stereo and lousy TV in the home, but happily upgraded with new technology recently.

Best experience

I never enjoyed electricity more than when our house was the only one in the neighbourhood to have it. It is immensely satisfying to sit in your well-lit home watching a movie while every other house around you has been plunged into darkness!

Good vibrations

It's good to live in this community where so many people are concerned about the environment. The school is environmentally conscious and the cafeteria has a garden. Our town of Ganges has three free electric car charging stations. Our house is inspiring with its calm and quiet environment – serene.

Bring on the heat

It can get cold in the house, so having a wood stove is awesome. It needs to get circulated with a fan sometimes, but that's OK. I love the coloured rammed earth walls that radiate the heat from the stove.

Sometimes it blows

Sometimes it doesn't. With no sun or wind for a number of days, we can't use the Internet or the dryer – usually when we really need it. The challenges made growing up an adventure and I have an appreciation for the environment and being conscientious of how we live in it.

"I didn't always understand the weight and importance of what my parents were trying to achieve, but it has left a lasting impression on me nonetheless."

Growing Up Off Grid

The Sun Catcher

Daybreak on Saturday morning, Salt Spring Island challenges us with a classic winter drenching. The cold spray drifts into every fissure, flattening the light. Not necessarily ideal conditions for a photo shoot; yet honest. The surreal landscape becomes more defined as we drive higher up the mountain to the Gasper residence. The cliff face sharply contrasts with the moss while gnarly arbutus trees grip and twist. The road also turns and steadily climbs.

Upon arrival a small Buddha sculpture smirks at the deer-proof front gate. Photographer Paul Joseph and I unload our gear and make our way to the house at the end of a short gravel driveway. Through the mist we see activity in large windows at a dining area, and Marcus Gasper gives us a wave to meet us outside the front entry while Eva and their daughter Norees finish up inside.

As the mist subsides, the remarkable setting gradually unfolds and we get a better view of a home tucked into the rock embankment and surrounded by gardens. Inspired by ideas rooted in organic farming and permaculture design, Baubiologie and Buddhist philosophy, the home is evidence of the family's journey to establish a sustainable, integrated living environment.

Marcus's light German accent is charming and precise. His passion for the off-grid home and the process of its sustainable construction is evident in his detail of description. His is a lifelong obsession that began as a child fascinated by solar panel technology (described by Marcus as "sun catchers") and its capacity to generate power. Marcus explains that the home was built with a strong sense of social and environmental consciousness – bringing together the expertise of people including rammed earth builder Meror Krayenhoff and energy consultant Kevin Pegg, who helped with the off-grid power system design and installation.

Among the art and artifacts throughout the home, character is expressed through Marcus's hand-built doors, furniture and remarkable lighting fixtures that seem more steam punk than green sustainable technology. The home is remarkable in its functional detail and visual design, from the massive wall form and stratified colourings (inspired by sand brought back from a trip to Spain) to the structural beams and woodwork. Marcus confesses, "At the time, few builders had experience with building such a house, so it was a learning experience."

The balance of practicality and social consciousness manifesting itself in the extra-wide doors are not only appealing visually, but are built with wheelchair accessibility in mind. Never only about the off-grid sustainable technology that we can see and touch, the quiet serenity, thoughtfulness and co-existence of this family with their environment deserves equal admiration.

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What if constructing a house was as easy as putting together knock-down furniture? What if you could rock a concert with human power? How about the ultimate in waste management: cooking with your own dung to make a scrumptious artisan meal of bugs? This may seem like science fiction to many, but is a new off-grid counterculture evolving into a mainstream socially conscious Zeitgeist?

Counterculture: like drivel rolling down the wagging chin of a hipster, it has been ruminated, regurgitated and commercialized for decades.

Rather than engaging in a polemical stalemate on what constitutes legitimate counterculture, we decided to take our conversation off grid. After all, what could be more counterculture than avoiding it?

We sought out the eccentric, fantastical and unheralded off-grid examples. From the practical and simple to the complex and scientific – all were fair game.

This ain't the *Whole Earth Catalog*, nor is it a post-consumerist rant or anarchist dogma. Instead, we simply wanted to share inspiring off-grid stories, visuals and how-to's. Of course the ironic twist is that the vast amount of information we found was on the most pervasive grid of our generation: the web. But we did tread off the beaten path, waded creeks and crossed oceans to share personal experiences as well.

These pages hopefully provide some insight on what drives off-grid thinking and why it is relevant in today's connected world. It may even tell us what can be done to make the world a better place. Most of all, we hope it will nudge us towards living a little more humanely.

We think that you will agree, when you have read this musing, that off grid is in many ways the more socially responsible and connected way to go. You may even find some answers to the question: how much do you really need?

LEFT: SKETCH BY VANCOUVER ARCHITECT **IAN KENT**, WHO WORKED IN THE REAL ESTATE INDUSTRY FOR 35 YEARS, AND WHO WAS INSPIRED TO CREATE THE NOMAD MICRO HOME. ACHIEVING MAXIMUM EFFICIENCY, ROT-RESISTANT LIGHTWEIGHT PANELS CAN BE ASSEMBLED WITH A FEW SIMPLE TOOLS, AND THE HOUSE IS SUITABLE FOR A VARIETY OF CLIMATES, FROM NORTH OF THE ARCTIC CIRCLE TO THE TROPICS. IT USES SO LITTLE ENERGY IT CAN RUN ON ROOFTOP SOLAR PANELS. **NOMADMICROHOMES.COM**

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Ask yourself

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