WINTER 2018
new trail
UNIVERSITY OF ALBERTA ALUMNI MAGAZINE

The How-To Issue

18 practical things you can do right now to make your life better (and more fun!)*

MAKE INK THE Old-Fashioned Way

CLEAN your PHONE (SERIOUSLY, IT NEEDS IT.)

AVOID DEATH by SMALLTALK

So, what do you do for a living?

Ugh, not THAT question again.

SPOT PSEUDOSCIENCE

Snake Oil

SEE like an ARTIST

SPEAK IN FRONT OF AN AUDIENCE (AND DO IT WITH APLOMB)

Make this Tube AIRPLANE!

SKATE LIKE CONNOR MCDAVID

Fold the Best PAPER AIRPLANES

* Trust us. We have experts.

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ON THE COVER
Whether you want to make small talk or a paper airplane, our 22 experts have got you covered, starting on page 20.
Lettering by Angela Southern

Alexis Hillyard, '06 BEd, '11 MEd, shakes up stereotypes on her YouTube cooking series, *Stump Kitchen*. Page 42.
Photo by John Ulan

THE HOW-TO ISSUE

Better Living THROUGH Research

Photos by John Ulan

Illustrations by Ryan Garcia

Lettering by Angela Southern

Ted Bishop, '72 BA(Hons), crushes gallnuts, one of the ingredients used to make the kind of ink that will preserve your thoughts for 500 years. (Not included: How to come up with words that are worth preserving.)

Tap into the know-how of 22 experts as they distil decades of experience into easy-to-follow steps that make your life better. Or just a little bit more fun.

How to...

MAKE YOUR WORDS LAST

*By **Ted Bishop**, '72 BA(Hons)*

The ink of Jane Austen, of Shakespeare, of the Dead Sea Scrolls—this ink is not the quick-to-fade stuff of your pack of Bic pens. The old-fashioned kind should last, on acid-free paper, probably about 500 years, and it's dead easy to make in your home, as people have done for centuries. True, the proportions of home-made iron gall ink are never certain and your ink may start to eat holes in the paper after 50 years—but it still lasts longer than a tweet.

INGREDIENTS

For a 56-gram bottle of ink

- 2 gallnuts (see "supplies" below)
- 7 g (¼ oz.) gum arabic
- 14 g (½ oz.) ferrous sulphate
- 56 g (2 oz.) of water, wine, vinegar or flat beer

TOOLS

- hammer
- mortar and pestle
- measuring cup
- measuring spoons
- dip pen
- acid-free paper

SUPPLIES

I buy my gallnuts (also called oak apples), gum arabic and ferrous sulphate online from Kremer Pigments—although a colleague found gallnuts in the river valley. They are not actually nuts but are formed when wasps plant their larvae in an oak tree.

Speedball dip pens and calligraphy nibs (C-4 or C-6) can be bought at an art supply shop.

INSTRUCTIONS

1 Bash the gallnuts with a hammer in a section of newspaper or magazine. Newspaper works better than plastic bags, which rip. Pour the fragments into the mortar. The more work you do with the hammer, the less you have to do with the pestle, so break down the shards into large grains.

2 Grind the gallnuts. If you still have some big lumps, drop the pestle on them from a height of three to four centimetres. But don't smash them with the pestle in hand, as this can shatter the mortar. If you can, recruit family and friends to do the grinding while you ready the other ingredients. Try to grind the gallnuts until they are as fine as sugar.

3 Select the vehicle. Water and white wine produce a good ink. Vinegar produces a sheen and will deter insects from your manuscript. Beer works well, but make sure you let it go flat before you begin. (I didn't the first time, and it foamed up like a black milkshake.)

4 Next, take the gum arabic and grind it. This breaks up easily, and you can do it on top of the gallnuts in the pestle.

5 Pour the mixture of gallnuts and gum arabic into your liquid. Stir. The liquid will turn a dusty brown and your audience will be disappointed.

6 Add the bright turquoise ferrous sulphate.

7 Stir. Now the liquid turns a deep black and your audience will gasp in amazement.

8 Write. Your ink will have sediment, so don't use a fountain pen. A dip pen with a calligraphy nib works best. When you start to write, at first nothing may happen. The ink goes on like water. Then as it oxidizes, it starts to turn black or a warm toasty brown, like the Magna Carta or the original Treaty 6.

Ted Bishop is a Governor General's Award-nominated author and creative non-fiction instructor at the U of A. His new book, The Social Life of Ink, *took him to Budapest and Buenos Aires in search of the ballpoint pen, to China for traditional ink sticks, and to Uzbekistan, where he encountered the world's oldest Qur'an—the blood-soaked Samarkand Codex.*


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How to...

KEEP MOM AND DAD IN THEIR HOME LONGER

By the time they're 85, your parents have a one-in-three chance of living in a care facility. But seniors in Canada and around the world are moving into facilities and losing their autonomy too soon, says **Roger Wong**, '90 BMedSc, '92 MD, a geriatrics doctor and advocate for better seniors care.

With the help of new technology and our compassion, seniors can spend longer living at home in familiar surroundings, with familiar people. "Even seniors with early dementia can still live in the community," says Wong, who is also an executive associate dean and a clinical professor in the Department of Medicine at the University of British Columbia. He highlights some items in the home that play a role in your parents' safety—some for better and some for worse! –LISA COOK

THROW RUG
Sure, that throw rug looks nice but it's a major tripping hazard, and falls are the most common cause of injury in seniors. "A fall could result in a broken hip, leading to disability and loss of independence," says Wong. It's easier to get rid of the rug.

SIDE TABLE
While you're getting rid of those throw rugs, lose the decorative side tables. They're also tripping hazards.

CARPET AND SLIPPERS
An overly plush carpet can make it hard to move around using a walker, so consider changing to hardwood floors. It's not as cosy but you can buy Mom and Dad some nice, warm anti-slip footwear.

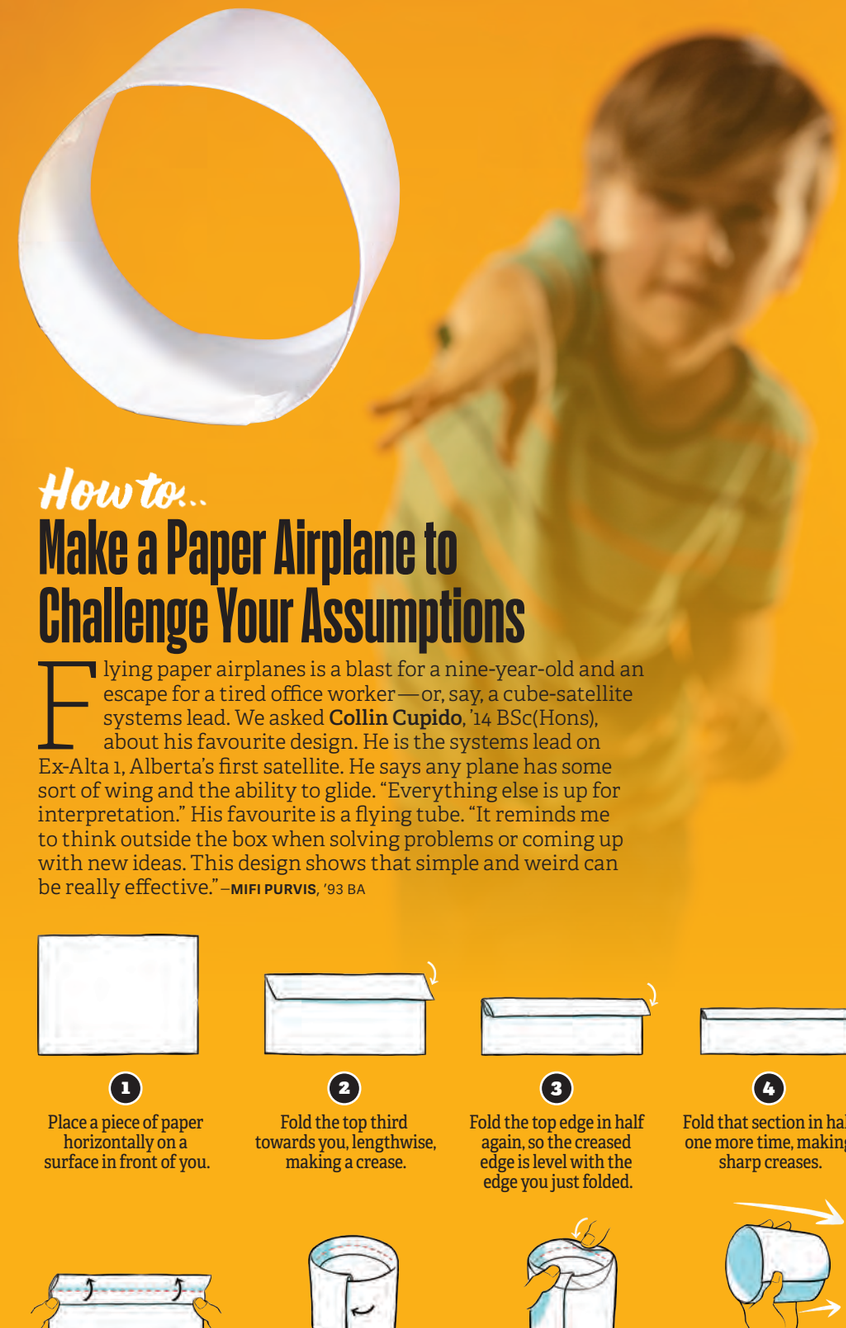
TOILET SEAT AND GRAB BARS
The bathroom shouldn't be a test of strength. Invest in a raised toilet seat and add grab bars for support.

SMARTPHONE
Make sure your parents have a smartphone with GPS function, so you can find them if they wander or get lost. And make sure you introduce Mom and Dad to phones—and other technology—as early as possible to get them used to using the devices.

SMART DOOR LOCK AND APPLIANCES
The internet of things—that is to say, technology that allows you to control everyday objects from a distance—can help people with memory issues stay safe. In the evening, for example, you can use a smartphone or computer to make sure Mom and Dad's front door is locked. Or check remotely to be sure the appliances are turned off.

HOME DELIVERY
Grocery shopping can be daunting. Many grocers now offer online orders, and fresh food can be delivered to the doorstep or even kitchen. Also, many places offer meal delivery services. For more in-home care, check with your parents' family doctor to ask about home-care services available in your area.

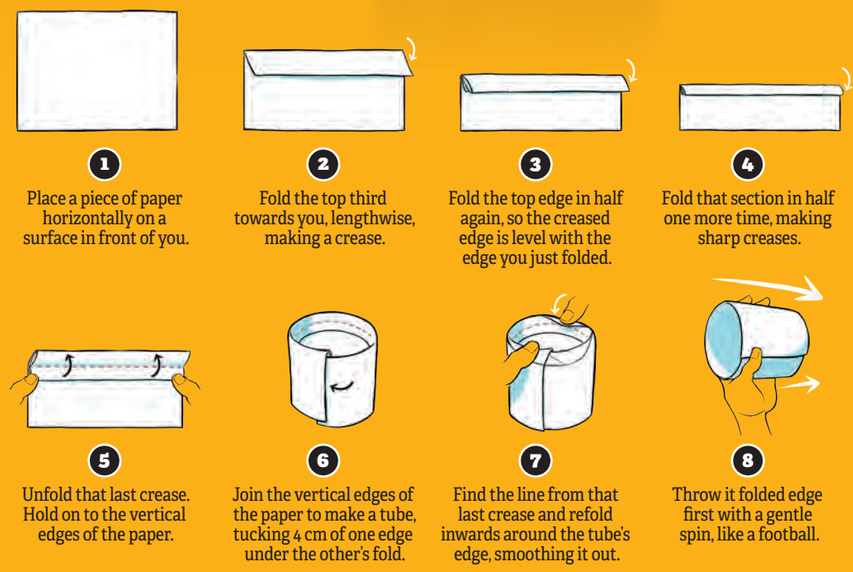
A DEVICE WITH A SOCIAL MEDIA ACCOUNT
Loneliness is the new smoking. It can be as harmful as smoking 15 cigarettes per day, shaving eight years from our lives, Wong says. Social media allows seniors to still socialize even if they can't always leave their homes. And don't think you will be the only one giving them likes and shares, either. "The number of seniors over 75 on social media has doubled in the last year," Wong says. Of course, "technology can't replace a real hug."



How to...

Make a Paper Airplane to Challenge Your Assumptions

Flying paper airplanes is a blast for a nine-year-old and an escape for a tired office worker—or, say, a cube-satellite systems lead. We asked **Collin Cupido**, '14 BSc(Hons), about his favourite design. He is the systems lead on Ex-Alta 1, Alberta's first satellite. He says any plane has some sort of wing and the ability to glide. "Everything else is up for interpretation." His favourite is a flying tube. "It reminds me to think outside the box when solving problems or coming up with new ideas. This design shows that simple and weird can be really effective." –**MIFI PURVIS**, '93 BA



TROUBLESHOOT ANY PAPER AIRPLANE
How any plane flies, whether it's metal or paper, has to do with where its centre of gravity and centre of lift are in relation to each other. **Logan Jones**, '06 BSc(MechEng), a runway safety specialist for Airbus in Miami, knows how to adjust a paper flyer when it's just not flying right. With a typical, pointy-nosed craft, he says, you can accomplish this with a few tweaks—no need to start from scratch.

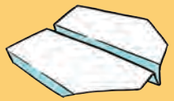
Nosediving Into the Ground?
The centre of lift is too far behind your centre of gravity, causing the airplane to pitch downward. The fix: Move the centre of gravity back a little. Add a paper-clip to the back centre, adjusting it forward and back until your plane flies right. Or give the back of the wings a little up-curl to bring the nose up.

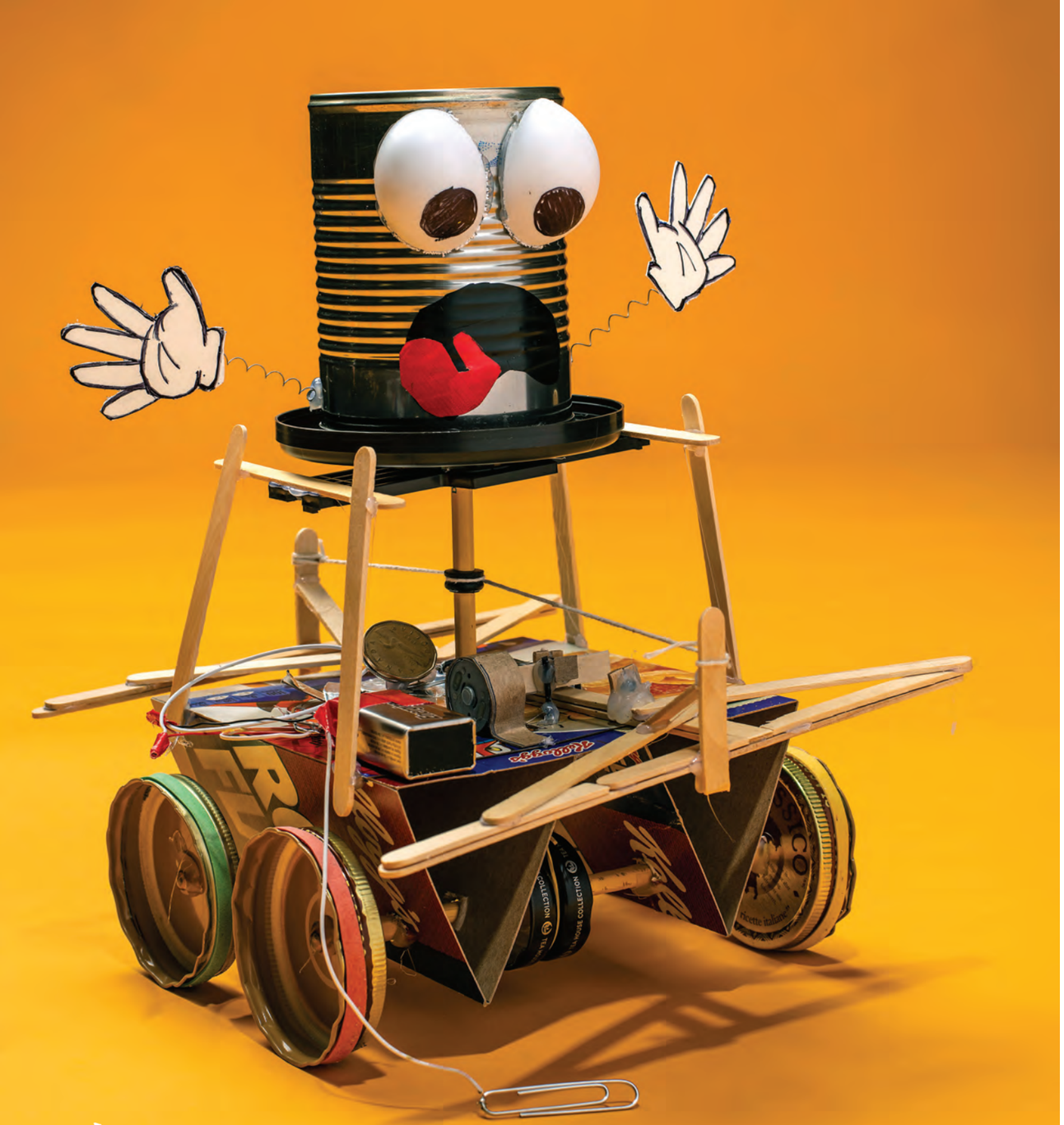
Pitching Up and Stalling?
The centre of lift is forward of your centre of gravity. The fix: Add some weight to the front of the plane with a paper-clip, adjusting it until your plane flies right. Or curl the back of the wings downward to correct the problem.

Best Practices
A good plane is symmetrical and has its centre of lift close to, but slightly behind, the centre of gravity.

Favourite Designs
Jones really likes the elegance of the Harrier.

For speed and stunts, he recommends the more complicated Squirrel.





How to...

BUILD A ROBOT FROM JUNK AT HOME

(Find out what separates it from a dumb machine)

Dylan Brenneis, '16 BSc(MechEng), has unfinished robot business. Years ago, he started building an automatic breakfast-maker, so his morning alarm would trigger a robot to make toast and serve it with peanut butter. But then he moved and had to dismantle it. Bye-bye, robot.

So when *New Trail* asked the master's student to show us how to make one using household junk, he was not only game, he was enthusiastic. He says a robot, as opposed to a machine, has a brain—it makes decisions based on input. Unlike artificial intelligence, however, it's not a complex brain. "The robot is kind of your middle point between machine and intelligence," says Brenneis.

The principles behind building a robot, he says, boil down to having a small motor, a big idea and a lot of glue. (For a detailed, step-by-step guide on how to make this robot, visit our website. And we'd love to hear how yours works.)–THERESE KEHLER

WHAT HE USED

From an old DVD player (or similar)

- Disc support
- Motor with pulley
- Wires
- 3 screws
- 2 magnets
- AV port

22 Popsicle sticks (roughly)

Empty cereal box

Wire coat hanger

3 large paper-clips

Aluminum foil

2 tacks

3 wooden pencils, unsharpened, eraser ends cut off

1 drinking straw (8-mm diameter)

2 small metal lids (such as from Snapple)

4 metal jar lids (such as from pasta sauce)

5 elastics (1 small, 4 large)

9V battery

Ping-Pong ball

2 springs from clickable ballpoint pens

Plastic lid from a large yogurt container (or similar)

30 cm of string

HOW HE DID IT

1 STRIP A DVD PLAYER FOR PARTS

Inside the DVD, you'll find a disc support, motors, magnets and more. "This," Brenneis says, preparing to cut the motor wires, "is when you decide this DVD player is no longer going to work." Also, keep the screws, a hunk of plastic ribbon cable and an AV port. Sure, it's easy to buy these parts at a hobby supply shop but cannibalizing outdated electronics is fun.

2 BUILD A BUMPER

A robot needs a mechanism—a brain—to trigger an action based on input. This robot's mechanism is a bumper that slides to close a switch. The action it triggers is to reverse direction based on the input: striking a wall. To make this happen, Brenneis devised a sliding bumper of Popsicle sticks and lots of glue. His doubled layer of sticks looked a bit like the letter H, with braces for support.

3 GIVE IT A BASE

Time for the chassis. "With frame material, you're trading off between something that's lightweight and something that's strong," says Brenneis. Corrugated cardboard is ideal; unrolled pop cans are also strong and malleable. Our robot used a 16 x 48 cm rectangle of cereal box cardboard, its ends folded into isosceles triangles to create struts.

4 MAKE THE MECHANICS

It's just a few screws, tiny magnets, bits of wire and a paper-clip, but the bumper mechanics were the trickiest element to execute.

Wire-hanger guides secured the bumper to the chassis, while allowing the bumper to slide horizontally. Screws and magnets limited how far it could slide. And a heavy-duty paper-clip, twisted into a series of loops and whorls, became a switch that controlled the electric current.

5 INSTALL THE ELECTRICAL

For the electrical infrastructure, we soldered wires to two paper-clips and two metal tacks. The real genius, though, was the trio of foil contact surfaces. One surface would be electrically charged, the others would be grounded. Why genius? Because the combination of foil surfaces and metal tacks (which became part of the electrical switch) were what reversed the motor's direction.

6 REV UP THE MOTOR

A robot without a motor isn't a robot. But motors are easy to cannibalize, says Brenneis. "Take apart just about any electronic thing with moving parts and there's a motor in there." The challenge is the linkage—the mechanism that translates the motor's spin into robot action. Brenneis used an elastic band that connected the motor to a drivetrain made of a pair of glued-together bottle lids.

7 GET READY TO ROLL

R2-D2 was a wheeled robot and so is ours. Luckily, jar lids are plentiful and the mechanics are easy. "Translating rotational motion to another rotational motion is the simplest thing you can do with a motor," Brenneis says. Our robot's undercarriage used pieces of a drinking straw for bearings, pencils for axles, elastics for tread and glue all over.

8 ADD THE POWER SOURCE

With a twist of wires and a bit of duct tape, it was time to see if we had hooked things up correctly. We connected thumbtack wires to the motor, and paper-clip wires to the battery terminals. When we attached the paper-clips to the foil surfaces, the motor ran. And when we moved the bumper, it slid the electrical switch, which reversed the motor's direction.

9 INJECT SOME PERSONALITY

Now to make it lovable. We built in some character with a tin can body, Ping-Pong eyeballs and sproingy arms. The body sits atop an elevated platform made from a plastic lid and the disc support. But there was one more twist—a piece of string stretching between bumpers that turned the platform, ensuring our robot was always facing forward in its travels.

10 GO-GO ROBOT!

Brenneis steadied the robot for its first voyage. He carefully connected the paper-clips to the tin foil … and it worked! Wheels spinning, arms waving, the robot took off, hit the wall—then, just as the engineer had planned, it reversed direction and came back, facing forward. "This," said our clearly pumped mechanic, "is the first time that I've planned something out completely on paper and it worked. It actually worked!" And that unfinished robot business? Mission accomplished.

PHOTO BY JOHN ULAN

The brothers Anderson aren't triplets but they did end up graduating from the same faculty in the same year. (From left) **Njaal Anderson**, '57 BSc(CivEng), **Anders Anderson**, '57 BSc(ElecEng), and **Inge Anderson**, '57 BSc(CivEng), reunited at Alumni Weekend 2018, which took place in September.

Alexis Hillyard's personality is on full display as she films an episode of her YouTube cooking series, *Stump Kitchen*, in her home kitchen.

PHOTO BY JOHN ULAN

By ***Kate Black****, '16 BA*

Five Things I've Learned About...

ABILITY

Alexis Hillyard*, '06 BEd, '11 MEd, cooking show host and activist*

ALEXIS HILLYARD ISN'T YOUR AVERAGE COOKING show host. For starters, she drops f-bombs and fart jokes, swaps kitchen pretension for messiness and laughs — and she has one hand. On her YouTube cooking series, *Stump Kitchen*, Hillyard takes on vegan and gluten-free variations of otherwise omnivorous eats, while joyfully shooting down stereotypes about people with disabilities.

Hillyard created *Stump Kitchen* in 2016 after struggling with food allergies and depression. Cooking helped her heal. "It ignited something in me," she says. Now, as guests with disabilities come to cook on the show, *Stump Kitchen* has become a form of activism, bringing diverse bodies into the mainstream, Hillyard says. "The show kind of turns disability norms on their head."

Here are some lessons Hillyard offers about living, laughing and cooking with one hand.

CONFIDENCE STARTS AT HOME

1 Hillyard grew up with a deep love for her handless left arm, which she affectionately calls her "stump." Her sister nicknamed the stump Bebe, and Hillyard used to put on puppet shows in which Bebe was the good guy and her right hand, Biggie, was the bad guy. Before Hillyard started kindergarten, her mom and sister would practise asking her questions about her arm in case she was asked at school. "Those things helped me appreciate my arm and find my own language around it," Hillyard says.

NEVER UNDERESTIMATE SOMEONE'S ABILITIES

2 Hillyard's stump hardly holds her back in the kitchen. In fact, it's a multi-purpose culinary tool: a potato masher, bowl-scooping spatula, mixer, avocado scooper and juicer. As a society, she says, we're quick to make assumptions about what someone can or cannot do based on their appearance. "I'm not a typical able-bodied person and even I've fallen into that trap," she says. Hillyard hopes *Stump Kitchen* challenges the belief that people with disabilities want — or need — an able-bodied person's pity or help.

HUMOUR HELPS

3 Stump humour is a big part of *Stump Kitchen* (think one-handed juggling). Hillyard has always had a lighthearted relationship with her stump. She'll draw eyes and a mouth on it, and she once dressed up as Captain Hook for Halloween. She's learned that having a sense of humour about things that make us different opens a door to connect with others. "When you let people laugh with you, their guard is down and they're more comfortable asking questions."

DON'T ASSUME IT'S YOUR BUSINESS

4 People with a visible disability face nosy questions and gawky stares every day — from strangers in grocery stores telling them to be proud of themselves, to others asking how they "got" their disability in the first place, says Hillyard. "If someone's in a wheelchair, you don't need to know why — and they might not want to talk about it. It's a really personal thing that people need to be able to tell when they're ready."

THERE'S MORE THAN ONE WAY TO MEASURE VANILLA

5 Hillyard learned to use her stump in the kitchen by adapting over time to be better and safer. Through *Stump Kitchen*, she has learned there's more than one way to do something — a solid life lesson both in and out of the kitchen. For example, while she measures vanilla by holding the measuring spoon under her armpit, her friend Callie balances the spoon on the table and her friend Natalee holds the spoon using her foot. "It's neat to see and celebrate all the different ways we can do something." ■

More on our website, including a recipe and an episode of Stump Kitchen.

TOP RIGHT PHOTO MICHAEL FLIPPO / ALAMY