

THE CUTTING EDGE

A periodic magazine that celebrates the activities of the Shed and its members

Volume 1 No. 17

Hornsby Woodworking Men's Shed

Spring 2018

Member Profile – Yuval Cohen

I was born in 1971 in a small town in Israel called Migdal Haemek (not far from Nazareth). I am the eldest child of Esther, a school teacher, and Victor, an electronics technician. I have one younger sister. My early childhood, though a bit vague now, is filled with “scientific experiments”, from building cardboard spaceships and aluminium foil rockets to casting lead figurines in the kitchen sink (it is a sheer miracle that the house still stands). Growing up, I embraced my inner geek, pursuing my interest in everything to do with science and engineering, including computers and electronics. When I realized that experiments are better conducted somewhere else, I started taking the bus to the Technion (the Israeli Institute of Technology) in Haifa for advanced engineering and science classes. Several years later (while in high school) I became an instructor in some of these classes.



My father had at the time a small repair shop for TV sets and electrical appliances and I spent my childhood years with him as my mentor. Before long I have started repairing appliances myself and became intimately familiar with the inner-working of VCRs, TVs and stereo system. My father and I shared a passion (perhaps an obsession) for music and fine sound reproduction. We designed and built several high-end loudspeakers, stereo amplifiers and home-theatre rooms. My father had access to a friend's carpenter's workshop. We spent many days there building loudspeaker cabinets from plywood and MDF.

Growing up in Israel was much safer and peaceful than it may seem from the outside. It is true that Israel has always been under threat from the surrounding Arab countries (literally from the day it became independent), but as a child, daily life felt rather safe. Having said that, the Jewish-Arab conflict within Israel did start to escalate in 1987. Suicide bombings and other terrorist attacks affected people's sense of wellbeing and safety. An Israeli coming to live in Australia can't help having a sense of unease when noticing that there are no guards or metal detectors at the mall, post office, bus stops etc.

Military service is a big part of daily life and culture, because it is compulsory. 18-year-old, men and women, are recruited for several years (it varies, but for a man it's a minimum of 3 years). Not only that, but many men remain reservists for 20-30 additional years, having to serve 2-6 weeks every year. From an economics point of view, the defence industry is one of the largest in the country, a huge driving engine for the outstanding high-tech culture of the country. Many start-up companies

were founded and staffed with graduates of technical units such as cyber warfare, intelligence and the air-force. From a social and personal perspective, the army creates tight bonds among people from all strata and geographical loci. Army buddies will always share a special connection, especially in combat units.

Some high school graduates are allowed to complete tertiary studies before enlisting. These students usually join the army as professional officers, engineers, doctors and scientists. That was the case for me. I studied for a BSc in physics at the Technion and joined the army in 1992. I spent the next 3 years developing advanced electro-optic systems at the headquarters of the ordnance corps.

While serving in the army I met Hannah, my future wife. Hannah is an accomplished musician and musicologist who was at the time an English teacher at the air force. We became soul mates and eventually got married in 1998. We have 3 wonderful kids – Nova (18), Peleg (14) and Almog (7). The birth of our children was an excellent excuse to temporarily convert our home into a workshop. I built cribs, beds and other furniture for our children.



Upon my release from service, I worked as a professional physicist for several years. In 1998 I founded software company called Be4. The company developed advanced sound processing algorithms for mobile phones, car stereos and home-theatre systems. I was granted three patents for various inventions in this space.

During these years I kept thinking of ways to tackle an issue that had challenged me for some time; that is ways to improve the performance of mobile-phone speakers. Their small size and limited power resulted in the sound quality of these speakers being very poor. I realised that I was at a significant disadvantage compared with the leading speaker manufacturers having spent decades and millions of dollars optimizing the analogue loudspeaker. In 2006 (while playing the board-game Othello), I had a breakthrough which led to founding a new company: Audio Pixels Ltd. My vision led me to a very different approach to sound reproduction, using an array of small membranes instead of the single large one used today. The speaker will also be controlled digitally, eliminating the last analogue component in the sound reproduction chain. It is based on MEMS (Micro-Electromechanical Systems) fabrication methods – it somewhat resembles an image sensor chip. The speaker features microscopic moving elements and sub-micron structures. It is manufactured using existing machines and processes that are used to fabricate electronic integrated circuits (chips). In 2009, the company completed a working prototype and managed to successfully demonstrate the principle concepts. It was later bought by an Australian public company in 2011. I am the Chief Technology Officer of Audio Pixels Ltd. I manage a small team of highly specialized engineers and hold over 130 patents related to the technology. My daily work involves physics, mechanical engineering, electronics, software, acoustics and process development.



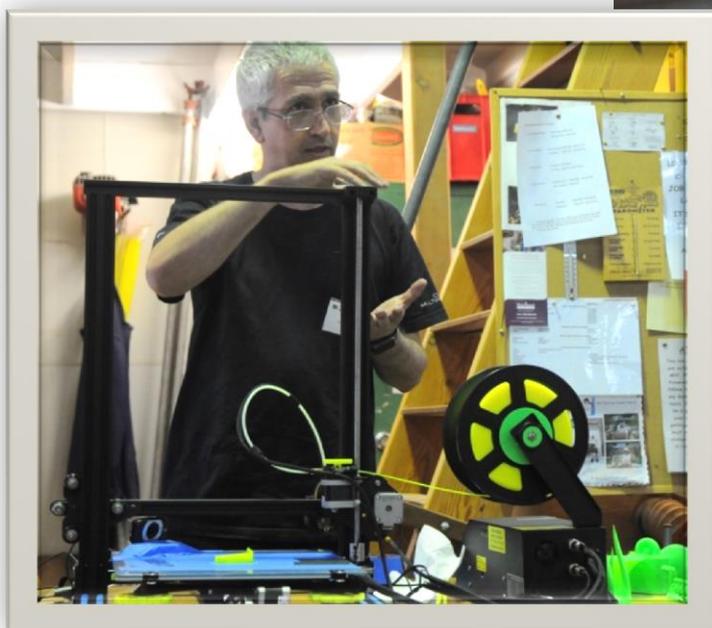
Israel is a beautiful country, very cultural and modern. It is rather similar to Australia in the sense that it is a melting pot, home to people from all conceivable countries. While common faith (and fate) bridge some of the gaps, others are more difficult to deal with, perhaps because of the prolonged state of stress shared by many. The political climate in Israel has shifted in recent years,

one of the reasons being the electoral system, in which many parties participate. Currently, the 120 Knesset (parliament) seats are held by members of 11 different parties. Tangled coalition agreements, together with politically orientated economic and growing social trends have led to a split society, in which many born and bred Israelis find their sense of belonging weakened. They helplessly witness dramatic changes in values, feeling used or even betrayed.

In 2017, my company required a technical manager here in Australia. Hannah and I saw this as an excellent opportunity for a new and better life for our family, so we made the move. It was a big change for all of us, but we feel it was a welcome one. The teenagers are happier here, I think, and even though some of us are still in "survival mode", we can already appreciate many aspects of Aussie life.

I always enjoyed spending time at the lab and workshop, working with my hands rather than on the computer. Moving to Australia required something of an adjustment as I no longer had access to my workshop, tools and machines I had accumulated and built over the years. I actively looked for a practical substitute and, luckily, stumbled across the Hornsby Woodworking Men's Website. I joined the Shed a couple of months after arriving in Australia and found it to be a perfect fit. Not only am I now creating, making, learning new skills and practicing old ones, but I also find myself surrounded by some of the finest people I have ever met. I try to get to the Shed as often as I can. I find that it is a welcome respite from glaring screens, stressful conference calls and deadlines. I enjoy challenging myself with complex projects and I take great pride in contributing to all the good causes the Shed is involved in.

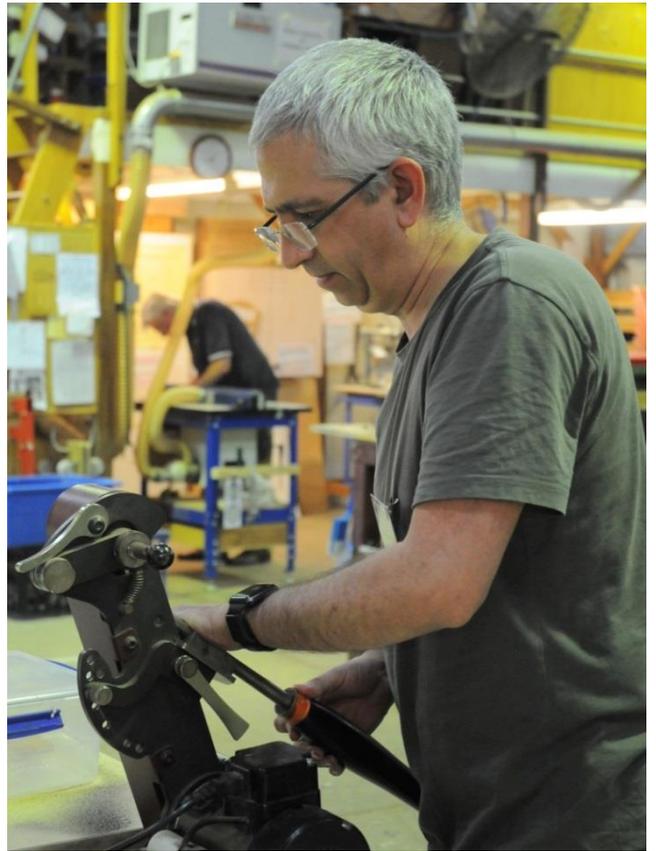
Since joining in September last year, Yuval has quickly established himself as a member who is in tune with the true spirit of the Shed. He readily volunteers for Shed projects and is happy to share his extensive knowledge of technology, such as the demonstrations that he has given to Shed members on the process and applications of 3D printing.



Yuval's 3D printing demonstration at the Shed Members' meeting held on 19 October



Some examples of his accomplished woodturning and woodwork skills are shown on the page below.



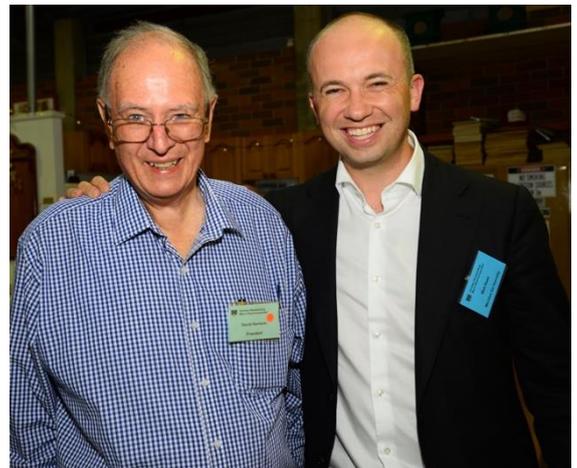
Our Christmas Party

There is a lot of planning and activity to make the party that we have on the 3rd Friday of November, the great success that makes it such an enjoyable way to wind down to the year end. Wives and guests are always impressed by the quality of the work that our members have produced and the volume of items produced by the Toy Group throughout the year for donation to our two charities; The Salvation Army Hornsby and Wesley Mission. In the week following the party, many hundreds of those are removed from storage, dusted off and listed so that each organisation gets one half.

The President's annual address, summarising the activities for the year, was well received, as were the speeches from Robert Browne and Matt Kean who were very supportive of the work that the Shed does in the community and the work of the Committee.



In addition, there was a special presentation to mark the imminent departure of Tony Blair to Woolgoolga. Tony has been a member since the beginning in 2001 and he was thanked for his great technical assistance to the Shed and its members. He will really be missed. But, for Tony, two of his great loves in life, the Men's shed and fishing, will be nearby.



Tony's immediate family was invited, to make his send-off a real occasion



Keith Peel was the lucky winner of the raffle – a hamper



As usual, Party invitations were sent out a couple of weeks prior to allow responses to be collated and offers of help to be considered by the Catering Committee, led very capably by Meesha Perera. We ended up with 89 acceptances. All those who came, agreed it was a very enjoyable evening, both the good company and the excellent variety of food. Meesha's help was really appreciated, said President David Harrison - see photo at left.

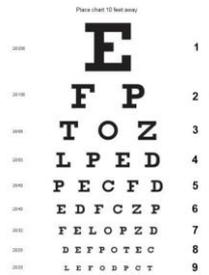
Did you know that Meesha is an extremely well qualified Optometrist? Many people that she spoke to at the party were interested in the services that her

practice, Granata Eyecare in Hornsby, provides and the discount that she can offer to Shed members.

These services include:

- Prescription safety glasses
- Ocular health examinations for Diabetes, Macular Degeneration, Glaucoma, cataracts and dry eyes
- Digital retinal photographs

All consultations are BULK BILLED to Medicare. All Shed members also receive a lifetime 15% discount on their purchase (please mention this to staff at time of purchase). She is located at 1/26 Florence Street in Hornsby (near the water fountain, in the Westpac building). The practice can be contacted on (02) 9477 1711.



Dr. Meesha Perera B.Optom/BSC (Hons) (UNSW)

Re-locating Our **Timber** Storage

With the re-development of National Can imminent, not only will we lose our parking, we have to move our store of timber and the racks that we built in May 2016.

Thanks to Ian Raper's negotiating skills, alternative storage has been provided in the Council Depot adjacent to the Shed, accessible via the back door.

The huge job of preparing the new space, unloading the timber, dismantling the racks and moving them to their new location commenced around mid-September.

21 September

Using a jackhammer to widen the drainage channel.

Picture at right



25 September

Laying concrete slabs over the drain to support the storage racks. *2 Pictures below*



28 September

All available members were asked to assist with the removal of timber from the racks located at National Can. *Pictures below and following pages*



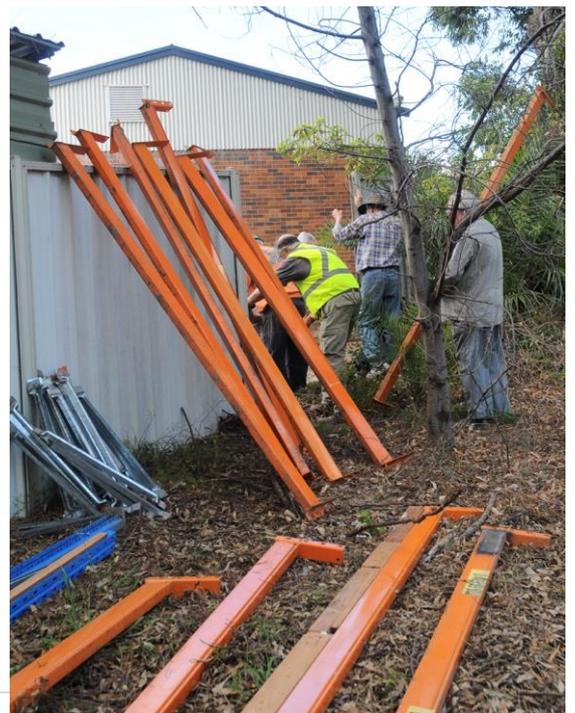


Some of the many members who volunteered to assist on the day

The next task, later that day, was to dismantle the racks.



Then, remove a panel of the fence adjoining National Can and the Council's property so that the rack components could be moved to their new location. *Pictures below*



2 October

Reconstructing the racks on their new site. *Pictures below*



The next step was to call upon a group of members to lift the rack remaining at National Can that could not be taken apart because it was welded, not bolted.



9 October



16 October



19 October

A massive effort by every available member who attended the Friday workshop, in near 30-degree temperatures, resulted in all the timber being moved from National Can and stored, in an orderly fashion, on the new racks in our own section of the Council Depot.





23 October

Main bays complete with roofs and blinds installed, to keep out the weather, loaded with timber neatly grouped into Oregon, hardwood, softwood etc.



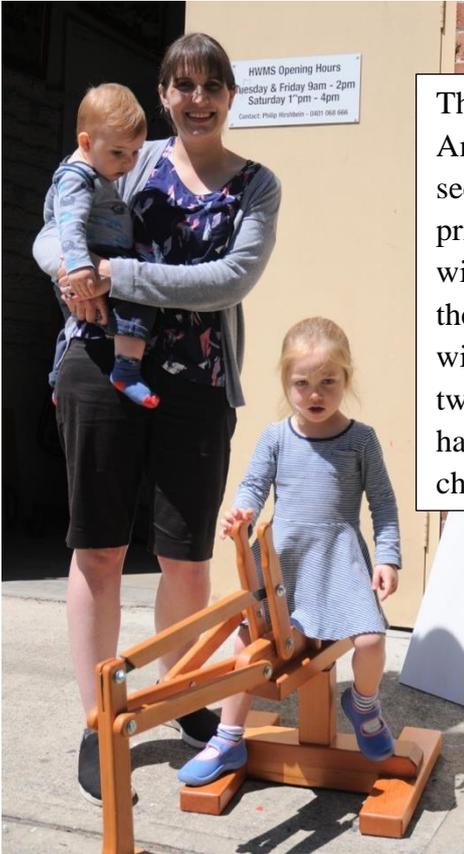
Cumberland Forest Fair 2018

The photo at right shows Fred, Les and David sorting and pricing the items to be sold at the Fair.

The Fair is held every two years. It is usually a bright sunny day and well attended. Unfortunately, that was not the case this year.

On Sunday 28 October, our rostered members were on site early, ready to set up the tables in the marquee provided. It was a heavy overcast morning with a chill wind. That set the scene for the day despite the sun breaking through, from time to time. Attendance was poor, by previous years' standards but there was some interest in our wooden "traditional" children's toys. The raffle display also was a big attraction. See photos below.





This is Amy, second prize winner of the raffle, with her two very happy children.



The Treasurer reported the (disappointing) financial outcome for the day.

The results of yesterday's Fair are as follows:

Sales, including PayPal, \$287

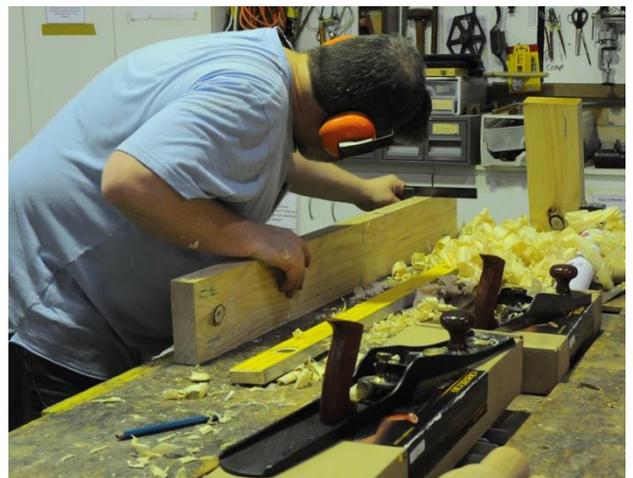
Raffle proceeds \$168. A total of \$455

The last Fair in 2016 raised \$1,526.

Mark

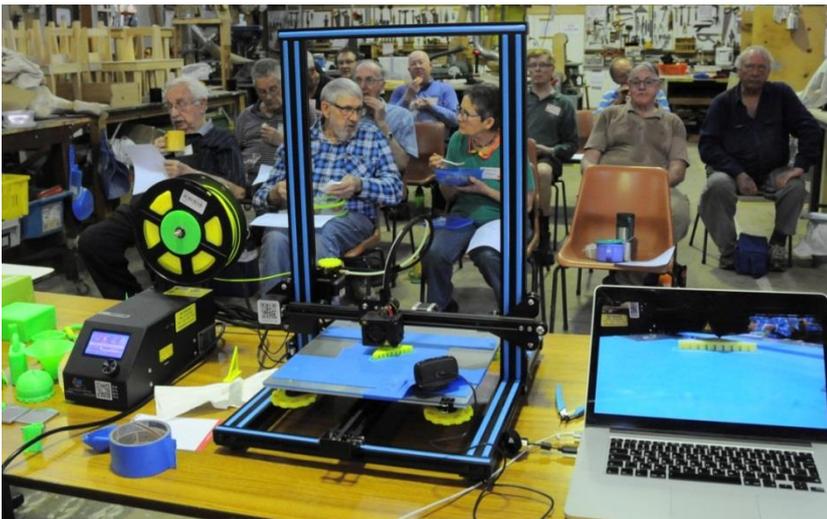
In and Around the Shed

Kevin Wallace has taken on the project of restoring this donated, 100-year-old rocking horse. We will follow that process in this and future editions of the magazine. Bill Hart is making a horse from scratch. The picture at bottom left shows him with Kevin, drawing the outline of a head on a block of wood.





Above, our new Makita 260 mm compound mitre slide saw and Peter Whitton's demonstration to members



Yuval Cohen's follow-up demonstration to members of how a 3D printer works.

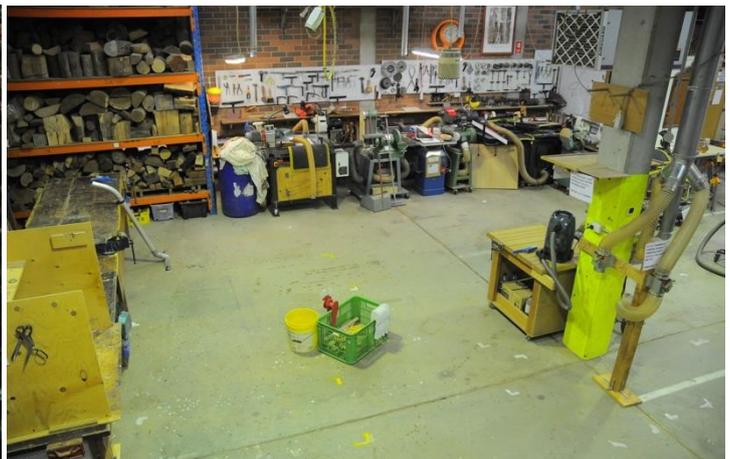




Joe Fletcher's Shed Mates all signed a card to celebrate his and Myra's 60th wedding anniversary



Kevin's making great progress with the rocking horse restoration



Cleaning up the Shed in preparation for the Christmas party



Mark makes a great barman

Canadian “Men’s Sheds”: Where guys tinker and ‘improve health by stealth’



Bill Heron, right, gives a helping hand at the Woodhaven Men's Shed in Winnipeg, Sept. 19, 2018

After wrapping up a 54-year career, David Steventon didn't know what to do with himself. He renovated his kitchen. He and his wife, Margaret, travelled across the country. But by last Christmas, only a year after retiring from the Canadian Automobile Association, he felt restless.

“I was getting under Margaret’s feet a little bit,” he says. “I was thinking to myself sometimes, ‘You’re thinking as if you’re a depressed person, for crying out loud.’”

That’s when Steventon found a cure for his malaise in a (metaphorical) shed.

Hungry for camaraderie and for something to do, Steventon, now 72, volunteered to lead a social group, called the Naismith Men’s Shed, an informal club of mostly retired men from around the Mississippi Mills, Ont., area, after learning about the initiative on social media. Every Thursday, they hold gatherings, alternating between evening meetings at a local museum boardroom and breakfasts at a restaurant called Mamma’s Place. And in between, they work together on community projects, such as making raised flower beds or bee condos, or simply call on one another to go for coffee.

The Naismith group is one of the newest men’s sheds in Canada, and part of a growing international movement to help combat loneliness and social isolation. While some groups gather at workshops or garages that really are no bigger than backyard sheds, the term “shed” is used more in spirit – a casual place where members can hang out, tinker and feel at ease. The grassroots movement began in Australia in 2007, and has since spread across New Zealand, the United Kingdom and Ireland.



Doug Mackie, right, talks to some of the men gathered at the Woodhaven Men's Shed

In Canada, there are 21 men’s sheds, according to Doug Mackie, chair of the Canadian Men’s Shed Association and founder of the first Canadian shed in Winnipeg. Their proliferation reflects a demand, particularly for retired men, for some structure in their lives, as well as for a relatively effortless way to connect with others, Mackie says.

Upon retirement, many men experience their sense of self-worth diminishing as they no longer bring home a paycheque, and they can find themselves in conflict with their spouses when they’re suddenly constantly in each other’s space, he says. Yet traditional social groups and seniors’ centres may not appeal to them, since many such gatherings have a predominantly female membership, Mackie says. Plus, many men feel anxious about meeting new people and communicating face-to-face.

“You want to talk to a man? Sit him down beside you and give him something to play with in his hands,” Mackie says, noting that each shed comes up with its own activities, whether it’s playing cribbage, repairing bicycles, cooking or woodworking.

“What happens is they start chatting,” he says.



Bill Heron works on his latest project

Since starting the Woodhaven Men’s Shed nearly a decade ago, Mackie, now 78, says he has seen multiple benefits of the men’s sheds model. Not only does it coax members out of social isolation and foster friendships, their projects are often aimed at contributing to the community, such as carving wooden canes for stroke-recovery patients or building gardens. Participation in the sheds tends to improve members' emotional well-being, he says. Plus,

activities, such as collaborative cooking sessions, and guest speakers invited to discuss issues including diabetes or seniors' transportation help improve their lifestyles as well.

He calls this “health by stealth.”

Encouraging social participation, particularly among older people, has become a major concern for policy and health experts, as a growing body of research points to the serious health risks associated with loneliness, ranging from cardiovascular disease and cancer to depression and dementia. According to recent data from the Canadian Longitudinal Study on Aging, a large, national, long-term study, one in three Canadian women and one in five men over the age of 75 are socially isolated.



Doug Mackie works on his new walking stick project

But since there are few community programs that specifically target men, this effort tackles a real need, says Corey Mackenzie, professor at psychology at the University of Manitoba, who has been studying men’s sheds.

These meetings can help those suffering from mental or physical health issues, for instance, by providing a sense of belonging to individuals with depression or allowing those with prostate cancer to share experiences and advice. But one of the reasons they’re effective is they don’t promote themselves as mental or physical health programs, Mackenzie says.

“I think if it did that, there would be a problem; it would drive people away,” Mackenzie says, explaining older adults, and men, in particular, tend to be less likely to access mental health services, in part, because of traditional notions of masculinity and gender roles. “It’s much more acceptable for women to look for help and to seek help than it is for men.”



David Friesen, left, and Bill Heron discuss a project

As the name suggests, men's sheds are for and run by men, Mackie says, but women are welcome and encouraged to come. Often, he says, women are the ones urging their husbands to join a shed and are happy for the respite.

The focus on men can be an obstacle when seeking funding and charitable status, Mackie says. In other parts of the world, men's sheds receive government funding, but he says the Canadian government tends to be cautious about supporting anything that may be perceived as sexist. So, Mackie says, members come up with their own way of raising money, such as cleaning and repairing donated tools to hold tool garage sales.

But while funding can be an issue, it doesn't take a special clubhouse to start a men's shed, Mackie says. Some sheds simply meet up in a local park or cafe. The most difficult part is to get a group together regularly, and to get the men to open up.

"Go to any Starbucks. Go to any Tim Horton's at 10 o'clock in the morning. There's a men's shed right there," Mackie says. "There's the same guys sitting in the same chairs." All they're missing, he says, is a project.

BY WENCY LEUNGHEALTH

THE GLOBE AND MAIL, TORONTO

This article was provided by member Peter Fowler who lives most of the year in Canada but visits his son in Dartford Road Thornleigh for several months, so he maintains his Shed membership.

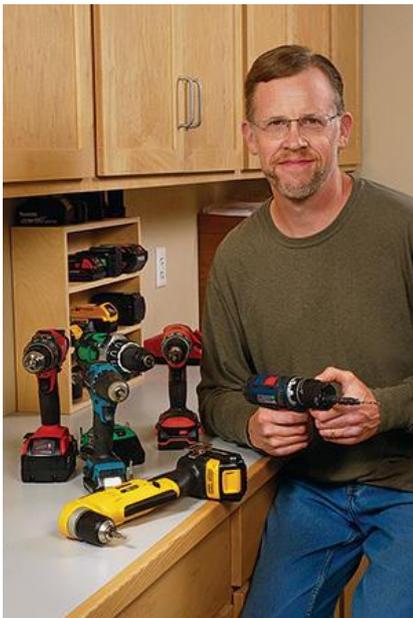
He comments: "I realize that this article in the Canadian newspaper "The Globe & Mail", is rather like 'bringing coal to Newcastle', but I see that Canada is finally getting onto something that Australia has been developing for years. Unfortunately, our legal system and liability issues here in North America make a fully-fledged "Shed" with a "bricks & mortar" establishment unlikely for the foreseeable future."

CORDLESS DRILL/DRIVER 101

We typically credit the table saw as being the centerpiece power tool of the workshop, but here's a challenger to that claim. When you think about virtually any woodworking or DIY effort that involves building something — indoor or outdoor furniture, cabinetry, jigs, shop fixtures and home improvement tasks — nearly every single project involves drilling at least one hole. And for that, most of us reach for a cordless drill/driver.



But “drilling” is just part of its versatility. It also drives screws, cuts countersinks or counterbores, makes wood plugs and even saws holes. Then, with the right attachment, it can drum-sand, grind, rasp, abrade and buff. Heck, it can even stir paint or mix drywall mud! That's asking a lot from a tool that basically holds a bit and spins. But, drill/drivers are up to it all and can deliver on their value over and over again.



Back to Basics

Drilling holes and driving screws are regular activities for the lion's share of woodworking and DIY projects. While a corded drill still does the job, most of us turn to battery power these days, for many good reasons.

Regardless of brand, cordless drill/drivers share a number of common features. A tool-free chuck grips the drill bit or attachment



inside of three jaws, and you use one or sometimes two hands to tighten it. Squeezing the trigger spins the chuck through a range of speeds — every drill/driver worth its salt these days

is variable speed. Better models offer high- and low-speed transmissions that you control with a selector switch. Low speed provides maximum torque for drilling large holes or driving fasteners. Flipping to the high-speed range steps things up when drilling with smaller diameter bits or when higher speeds benefit the task — like sanding or cleaning rust off of metal with a wire wheel.



Aside from drilling and driving, don't forget that this tool countersinks, cuts wood plugs and holes, sands, grinds, rasps, abrades, buffs and mixes. At any price, a drill/driver pays dividends in terms of its overall versatility.

Once holes are drilled, the next step is often driving screws into them. For that job, drill/drivers have an adjustable clutch to help prevent the tool's torque from either overdriving the screw too deeply or breaking it. A collar behind the chuck enables you to adjust this clutch through numbered settings; the higher the number, the greater

torque the tool will apply to the fastener before the clutch engages and stops the chuck from spinning. Most clutch collars also offer a “drilling” setting so the drill/driver can operate at full torque, unimpeded by the clutch.

Lithium-ion Revolution



Amp/hour ratings on current Li-ion batteries typically range from 1.5 to 9.0, and a few manufacturers now have 12 Ah batteries, too. Practically speaking, the higher the amp/hour rating, the more runtime the battery delivers.

To power these activities, a battery either plugs into the grip or slides onto the tool's base. Almost without exception these days, that battery's chemistry is Lithium-ion. It offers dense energy capacity, long life, quick recharges and smaller, lighter pack sizes. Lithium-ion cells are a "smarter" power source, too: sophisticated electronics can help to maximize their efficiency during use as well as their charging cycles. While NiCad ruled the roost for many years prior to Li-ion coming on the scene, Li-ion has become the industry standard for cordless tools of all sorts. And, for the foreseeable future, it's here to stay.

Three Main Voltages



These days, drill/drivers can be categorized generally as "small" (10.8-12 volt), "medium" (18-20 volt) and "large" (28 or 36 volt). Many manufacturers offer the trio, but nearly all support the middle 18-20 volt platform.

During the "NiCad" period of the 1990s and early 2000s, drill/drivers came in a dizzying number of voltage options: 9.6, 12, 14.4, 15.6, 18, 19.2, 24 and 36. NiCad cell sizes dictated those thresholds, and the tool model options verged on being overwhelming. Now, however, Li-ion batteries have made our drill/driver choices considerably easier. There are three primary voltage categories these days: 10.8-12 volt, 18-20 volt or 28 volt. A few departures from these standards are still out there, including 14.4 and 19.2 and, there are some 36 volt giants in the market, too.



A 10.8 or 12-volt drill/driver combines compact sizing and easy handling with sufficient power to tackle many drilling and driving needs. The author prefers these mighty mites for precision work.

You might wonder why "10.8" seems to equal 12 volts or why 18 and 20 volt tools are essentially the same thing. Well, it all comes down to how manufacturers choose to label their tools. At peak voltage, fresh off the charger, the higher of the two voltages is accurate. A 12 volt battery charges to 12 volts. But, as soon as you begin to discharge the battery, it will operate at its working or nominal voltage which is the lower of the two numbers — 10.8 volts. Eighteen- and 20 volt batteries, same deal: 20 optimal, 18 nominal.

What is true about the three voltage sizes, regardless of the "numbers" game, is that the larger the voltage, the bigger and more powerful the motor will be inside the drill/driver — but that's not to say that bigger is always better. While a plumber might need the gorilla torque of a 36 volt drill to cut 4" holes for waste pipe all day, does a woodworker need a heavy-duty drill/driver for setting tiny hinge screws or drilling #8 pilot holes? Nope. In fact, I've found 10.8-12 volt drill/drivers to be compact, powerful and pleasantly lightweight for many project

tasks. The more delicate the drilling or driving situation is, the more inclined I am to reach for the smallest drill/driver I can find.



Mid-sized Sweetheart

Mid-size 18-20-volt drill/drivers dominate the model options these days. They'll handle all but the most demanding torque needs, and their battery platforms are a major R&D focus for pro tool manufacturers.

Scroll the drill/driver web pages of any major power tool brand, and you'll quickly see a trend: 18-20 volt models outnumber the other sizes, and this voltage category continues to grow every year. Truth be told, professional tool manufacturers like Bosch, DeWalt, Hitachi, Makita and Milwaukee are designing tools to suit their biggest market: contractors. Jobsite users love the power, runtime and moderate size of 18-20 volt drill/drivers. It's also a voltage that's able to support a broad platform of other tool types, like saws, grinders, nailers, impact wrenches and numerous specialty tools. Soon, every power tool a contractor could possibly need will have a cordless 18-20 volt solution. The manufacturers are determined to see it happen.

Still, we hobbyists and DIYers also appreciate the performance and price points of this voltage size. You can buy a quality drill/driver with a charger, two battery packs and a carry case for around \$125. My most used and abused drill/driver in the shop is a 20V MAX* PORTER- CABLE that I bought for about that price, and many comparable models are out there from other brands, too. I rarely need more capacity or features than it offers for general woodworking and home improvement. The pro users have helped us all land on a winning voltage here.

Amp/hour Considerations



While overkill for woodworking or typical DIY, there are some 28 and 36 volt drill/drivers on the market, too, aimed at contractors who demand maximum power for high-torque drilling and driving applications.

So, what's important to know about that other number on your drill/driver battery — namely, its amp/hour (Ah) rating? Well, to borrow from an overused analogy, amp/hours are a measure of how much "fuel" the battery "tank" will hold. While amp/hours actually are part of the equation for determining watt/hours (the total power capacity a battery can deliver: voltage x

amp/hours = watt/hours), what's most practical to know is this: the higher the amp/hour rating, the longer your battery will run before it needs to be recharged. So, an 18 volt 2.0 Ah battery will deplete faster than an 18 volt 4.0 Ah battery. In fact, doubling the amp/hours can more than double the runtime, depending on the battery. The downside to more amp/hours — in years past, anyway — is that more "fuel" has required a proportionally larger, heavier "tank." That bigger battery drawback is withering as the energy density of battery cells continues to improve.

Drill/drivers Are Gateway Tools



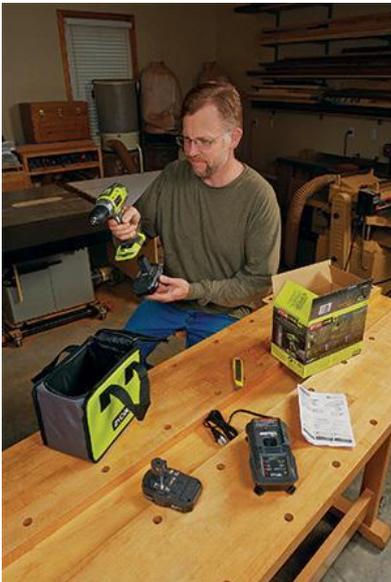
Purchasing a cordless drill/driver often opens the door to a vast number of other tools that will run off of the same batteries, and those options continue to expand. This trend is especially true for 18-20 volt tools.

So, before you plunk down your hard-earned cash on a drill/driver, take a careful look at the other “bare” tools the manufacture offers within the same voltage category. Then buy a

drill/driver from a brand that best suits your broader cordless tool interests. It’s a way to save money over having to buy dedicated chargers and batteries from multiple manufacturers or voltage platforms.



Features to Watch For

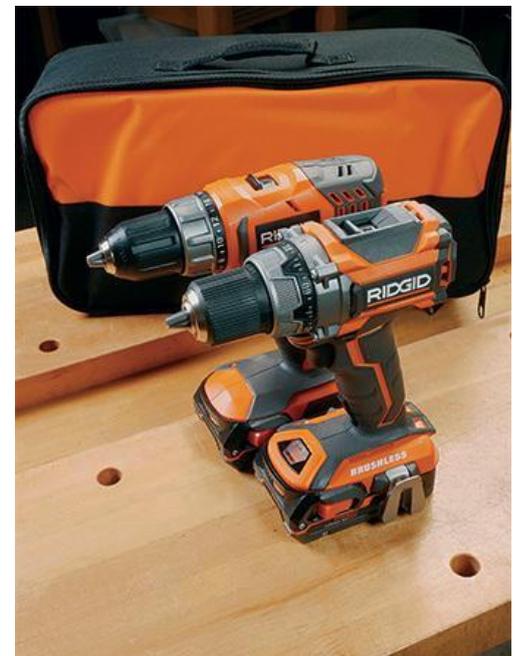


Drill/drivers are a fiercely competitive market — after all, almost all of us need one! So, if you’re willing to spend a bit more on a “pro” quality tool, you’ll get most or all of the following features. If you’re shopping for your first cordless drill/driver, here are some of the better features to keep in mind.

Brushless models (below) have internal technological advantages over their conventional carbon brush cousins. One outward difference is their compact motor size — that’s handy for tight-squeeze situations.

Brushless motors are all the rage these days. Without carbon brushes that contribute friction and heat, brushless motors are more compact, run cooler and

communicate better with their batteries than typical DC drill/driver motors, thanks to monitoring electronics inside the tool. End users will notice that “brushless” drill/drivers will have a shorter motor housing, which can be a big help in tight quarters. Will you realize a tremendous difference in power or a dramatically longer tool life? For a hobbyist, probably not. But brushless is the next big step forward in efficiency, and it doesn’t cost an arm and a leg more than models with conventional brushed motors.





Single-sleeve, ratcheting chucks (left) come standard on mid-priced and better drill/drivers. Their one-handed convenience and improved leverage make them superior to split-sleeve chucks (right) that require two hands.

Single-sleeve chucks: The ability to tighten or loosen the chuck with one hand is a convenience you'll appreciate the first time you're forced to grab a split-sleeve chuck with two hands, instead. A single-sleeve chuck is faster and easier to tighten, and the ratcheting advantage ensures a slip-free grip on smooth-shank drill bits. The best single-sleeve

chucks even have carbide jaws.

All-metal transmissions are a feature pro users look for. Budget priced drill/drivers may have plastic gears or a mix of both plastic and metal. Common sense will tell you that an all-metal transmission will win out for durability in the long run — whether your drill/driver is a constant companion or only used occasionally.



You'll never have to guess how much charge is left in your drill/driver batteries if they have a fuel gauge feature. One button push will display an LED array that tells you whether you can skip the charger or not this time.

– *Fuel gauges:* Here's a detail I thought was a cute extra when it first came to market, but now I wouldn't want to be without it! It's darn handy to be able to check the amount of charge that remains in a battery before you climb the ladder, head out to the yard or get set up in

your unwired attic for a DIY repair. Some manufacturers locate the fuel gauge on the tool body, but most provide it on the battery. Either way, I'll bet you'll be surprised by how quickly you get used to checking that little glowing array of LEDs that give you confidence your battery is ready to go.



Little conveniences, like a thoughtfully placed, bright LED task light, can make a big difference when using your drill/driver in low light situations. Check how well the feature works, if possible, before you buy.

LED task lights: one or several white task lights on your drill/driver can really brighten up a dark corner of a cabinet interior when you need the illumination most. They also make it easier to sight your pencil crosshairs when positioning a pilot hole or snaking a small screw down inside a piece of hardware when installing it. And if your overhead shop lighting leaves something to be desired, is it really ever possible to have too much light? I don't think so. For all of these situations, thankfully, most quality drill/drivers now have task lights that are powered by the tool battery to help make jobs easier to see. Just be sure the beam of light actually targets the area immediately in front of the chuck. Some tools are designed more effectively in this regard than others. You can't adjust where the light beam projects, so

be sure to check the LED feature on the drill/driver you have in mind before you buy it.



Festool and Bosch offer a couple of drill/driver models with interchangeable chucks that include right-angle, offset, three-jaw and hex-bit options.

– Interchangeable chucks: Festool and Bosch offer drill/drivers that can help save the day when a project requires drilling or driving in an awkward location. These models come with right-angle and offset chucks, plus a conventional three-jawed chuck and a hex-bit quick connect chuck. They all pop on and off the drill/driver body in a snap and without tools. Are

multiple chucks essential? No. But, will you be happy you have them when that special need comes up — and eventually, it will!



Right-angle drills can surely help in those hard-to-reach situations.

Alternately, most manufacturers make right-angle drill/drivers that can be bought as “bare” tools to run off of your drill/driver batteries.

Hammer drills make concrete and masonry drilling manageable, but it’s a driving mode you’ll only use for these specialized purposes. There’s also a conventional drilling mode for all-around use.

Hammering function: Hammer drills are designed with a percussive feature that spins the chuck while also driving it forward, multiple times a second.



It’s a must have function when drilling into masonry and concrete. Aside from these materials, you won’t use the hammer setting for anything else. Wood, sheet goods, metal and other drilling surfaces can all be

tackled with a conventional drill. Hammer drills can be switched between hammering mode and “normal” mode, too, so hammer feature is no hindrance for all-around use, but you will pay a bit more for the added convenience. If you don’t plan to bore holes into concrete or install masonry screws anytime soon, a hammer drill probably isn’t worth it. I can count on one hand the number of times I’ve really needed it in the past 30 years.

Hard cases or a soft-sided duffel bag for your drill/driver, charger and spare batteries are helpful to have and stepping up to a mid-priced or pro quality model will surely get you one of these options. Hard plastic cases are easy to stack or stand on end, and they’ll help keep your investment dry if you carry it in the open bed of a pickup truck. A tool bag is handy, too: I often use it to carry all the other tools I need to a project site when I’m not storing the drill/driver and its accessories in it.



A drill/driver satisfies both of its primary functions but using only one tool can be tedious when you need to switch between drilling and driving bits. By contrast, a drill/driver and impact driver kit is a real timesaver: it dedicates a tool to each operation.

Drill/driver-impact driver kits: Here's one last consideration that will boost your drilling and driving efficiency. A drill/driver will drive screws, of course, but an impact driver does it even better because it's designed exclusively for that job. The larger the fastener, the better it works — it won't twist your wrist like a drill/driver will. If you can afford it, buy a kit that comes with both tools. Then you can drill and drive with two tools instead of one.

ARTICLE BY CHRIS MARSHALL • SEP 28, 2018

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