Banishing the Hungry Ghosts

Paul R. Potts

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Wednesday

I'm at the office nervously juggling several unfamiliar things.

First, I'm attempting to get a Windows 10 driver signed by Microsoft, so that customers using recent versions of Windows 10 will be able to install the driver and use the product I've been working on for over a year, and the one I think of as "Product, Interrupted" (by COVID-19).

This product has really stretched our patience thin and presented many challenges, most of them not truly technical in nature, but managerial: working with a team in China which went through their own shutdown and disruption due to the pandemic last year, and trying to get assistance from within the company while many of the technical people are either still on furlough or part-time or adjusting themselves to working from home (and, perhaps, struggling a little, or even a lot, to be effective in the midst of the terrifyingly mis-managed pandemic here in America and in England).

Wow, that was a long sentence.

Due to the interrupted nature of this project, the two Patricks in our Ann Arbor office (electrical engineer Patrick and Mechanical Engineer Patrick, respectively) and I have also suffered a bit from several syndromes, including the "what the hell was I doing again?" syndrome and the "oops, I forgot to fix the thing I knew needed fixing six months ago, crap!" syndrome. See also: *déjà vu*, the lesser-known *jamais vu* and *presque vu*, and plain old *ennui*.

You probably are familiar with *déjà vu*, the sense that you've experienced something before, but in case you aren't familiar with the lesser-known terms: *jamais vu* is the sensation of knowing, intellectually, that you've seen or done a thing before, while still *feeling* that it is brand-new or very different this time, while *presque vu* is the sensation of being on the brink of an important recollection or insight, which, frustratingly, doesn't arrive.

I think of projects like this as consisting of three stages: the first 90%, the second 90%, and the third 90%. The second 90% is just because software projects inevitably expand and pieces that you thought would be easy turn out

to be hard. This is why I double all my original time estimates, and that's conservative; in reality, one should add another half, so that project estimates should be expanded to 250% of one's original estimate.

And then there's that third 90%, which means that the project really takes 270% of the original estimated time. It doesn't always happen, and it often isn't another 90%, but it *feels* like another 90%, because all the fun problems have been solved, and I am desperately trying to finish documentation, marketing information, any associated web content, assembly procedures, internal technical documentation, and all kinds of other less-interesting but necessary details.

In the case of this project, it feel like we're in the *fourth* 90%, because of the pandemic, and I'm exhausted. Those mental impressions I mentioned? They're all strongly associated with stress and fatigue. And so here I am.

But it's finally, *finally*, really, *really* almost done.

Thursday

Well, I was going to write more yesterday, but I didn't manage to do it, which brings me to the second "unfamiliar thing" I was juggling. I am trying to use my new [ErgoDox](https://ergodox-ez.com/] keyboard. I used it yesterday to write the text above, while waiting for Microsoft's development partner web site to process my uploaded driver. It was very slow-going, and I want to talk about why. I'll get to that in a bit.

First, I got a lot more done today, despite another night of insufficient sleep. I've been in the office all week when I'd prefer to be working from home, but it just isn't practical at the moment. Today I was working on four computers at two desks, along with two debuggers, a large prototye laser, and a number of circuit boards; also on my desks, not in use today but on deck ready to be called up at a moment's notice, were a mixed-signal oscilloscope, a logic analyzer, and a USB current meter. I just can't be dragging all of this, or even half of it, back and forth between my home office and work office. It's too much. Even if I wanted to carry all this home, I just don't have that much space in my home office. The laser alone would take up about a third of my desk. I'll start working from home again when I'm done, for now, with most of this gear and can get by with a laptop and a bag full of circuit boards and cables.

At some point I'd like to set up a real lab bench in my home office, which would give me more space for test equipment, but there's a lot of organizing and freeing up space that needs to happen first. If you're following along with the IKEA situation, they still haven't restocked the bookshelves and standing desks that I would like to buy to organize my home office properly.

If you are wondering why I am talking about mental fatigue, and not just physical fatigue — my job is *complicated*. Honestly, I love the challenge of the embedded software engineering that I do. I have quite a bit of leeway and discretion to

engineer things the right way, because I've proven myself in many successful projects over the years. But when I'm juggling one too many things, it can wear on me for too long, with nerve endings already frayed, it is fatiguing.

My shoulder is gradually healing, but long work hours tend to aggravate it, and also aggravate my eyes, back, and wrists. And so I'm going to write some more about one of the things I'm trying to use in order to improve this situation — a new ergonomic keyboard design.

The ErgoDox EZ Keyboard

This keyboard takes a very interesting approach to ergonomics and usability. The people who developed it originally developed a minimalist keyboard, the Planck, which reduces the number of keys to a bare minimum necessary. I find this design very appealing in many ways — it is nicely portable, and takes up very little desk space — but it is clearly not very ergonomic. This ErgoDox EZ isn't quite that minimalist, but it does reduce the number of keys and corresponding desktop footprint considerably. Because of this, it is a *given* that there will be no one-size-fits-all key layout that will, or *can*, satisfy the widely varying wants of different users. Therefore, the user is not only encouraged, but *expected*, to customize it. Many aspects of this keyboard design seem strange unless you take this into account.

This keyboard began life as a Kickstarter project, a successful one, and spun off various DIY builds and software projects. This version is "EZ" in the sense that you don't have to assemble it yourself, and it comes with keyswitches, keycaps, and firmware, with a reasonably usable default layout.

But that default layout is almost guaranteed to start to bother you as soon as you start trying to use it, and that's where the free open-source configurator and programming tools come in. The designers *assume* that it will bother you. They didn't try to make the default layout work like keyboards you are accustomed to, because that isn't possible. Instead they put a great deal of effort into proviging you with tools to let you tailor the keyboard to match your own preferences.

The tailoring starts when you order it. There's no such thing as a "standard" ErgoDox EZ. Each keyboard is actually built to order, by a small team in Tokyo, which is one of the reasons it took a while to show up.

You specify the color, the kinds of key switches you want, whether you want glowing lighting, whether want the "tenting" adjustable legs, whether you want wrist rests, and whether you want blank keys or keys with legends on them. I ordered a basic black keyboard with adjustable legs, legends, and without any LED lighting (other than 3 little lights that show when special functions are active). I got the standard keyswitches, Cherry MX Brown, which are springy and a bit "clicky," but not as "clicky" as the original, and still champion, IBM Model M keyboard, long recognized as the archetypical professional, efficient keyboard for serious typing on a computer. That keyboard used keyswitches

that were designed around "buckling springs". You can still buy either old keyboards (note: you will need a PS/2 to USB adapter to use them with a modern computer), or new keyboards with buckling-spring keyswitches, but it doesn't seem like anyone sells the keyswitches by themselves, possibly due to patent issues, and so you can't get an ErgoDox EZ keyboard with that kind of keyswitch.

The most obvious problem with "splitting" an existing, ergonomic, typist-friendly keyboard design, like the Model M, and adding a wrist rest, is that these alterations make a large keyboard even larger. Back in the day, keyboard trays that fit under the desk helped reduce the footprint of the computers on desks, and make things a little more ergonomic for the user, but I very rarely see keyboard trays in use any more, and it wouldn't be possible to add one to the lab benches I use as desks at work, or to the plastic folding tables or doors on sawhorses I use as desks at home. Current arrangements of computers on desks tend to be centered around a place for a laptop, and thus tend to be smaller, especially in home offices. So people are perhaps reluctant to give up a huge chunk of their desk surface to a keyboard that looks ridiculously large compared to the laptop.

The Ergodox EZ avoids being a giant "you-sank-my-battleship!" keyboard by splitting the keyboard into two relatively small halves connected by a cable. Most of the area occupied by these two half-keyboards is taken up by the keys themselves, not by plastic around the keys or between sections. The optional wrist rests are not connected to the keyboard and so can be left off the desk if you like. This design lets you separate the halves. They can be several feet apart, so that my forearms don't need to be angled inward at all. That itself is a bit of a game-changer, allowing my arms to hang at my sides in a more neutral position than usual as I type.

Speaking of neutral positions, this keyboard arranges the bulk of the keys in straight columns, which is very different than most keyboards. If I look at the laptop keyboard I'm typing on right now, the 7 key isn't horizontally aligned with the Y key or the U key; it's centered in between the two. When a typist's forearms are angled inward, reaching "straight" from the home row to the rows above and below actually sends the fingertips across the keys at a slight angle. Staggered layouts accommodate this angle. But with widely separated hands, the fingers really can extend at right angles from the home row, and so it make sense for the keys to be laid out in columns. This is a bit hard to get used to, though. My fingers expect to come at the keys from a slight angle, and so they feel like they are in the wrong places.

I've got decades of muscle memory to overcome. I'm used to reaching for the 6 with my left index finger and reaching for the 7 with my right index finger. But on the Ergodox EZ keyboard, the 5 is directly over the R key, on the left side, and the 6 is over the U key, on the right side. This takes some getting used to. Initially, I was constantly trying to reach for the 6 with my left hand, when it was actually about 18 inches away.

And so my first customization was to reassign a couple of keys, so that the row of numbers on the left hand runs from 1 to 6 instead of 1 to 5, and the row of numbers on the right hand runs from 5 to 0 instead of 6 to 0. So my customized keyboard has two 5 keys and two 6 keys; the number row is laid out as if the two halves of it actually overlapped.

I might change that when I grow more accustomed to the new number positions, or I might not.

The biggest reason that the designers didn't attempt to make the default layout work like most other keyboards is a number of keys found on modern desktop and laptop keyboards just aren't there. All the usual letter and number keys are there, and they have legends, but a a number of the keys found on a typical keyboard, such as function keys, just aren't there. If you want to see what I'm talking about, here is the default configuration.

The keys on the home row are deeply ingrained in my muscle memory. On the right hand, there's J, K, L, and the semicolon. I'm accustomed to reaching out just a bit with my right little finger to hit the quotation mark key. Just to the right of that is the good old enter key, also known as "return" or "carriage return" to those who once used typewriters.

On the right-hand side of the Ergodox EZ keyboard, there's only one key to the right of the semicolon. It's blank, and it's a wider key, like an enter key. In the default layout, it's a quotation mark key, but you can change it to be the enter key, if you want, and if you're willing to put the quotation mark key somewhere else.

So, you're going to have to decide, immediately, which ingrained habit you want to keep, and which one you want to break. Are you more attached to having the quotation mark key reachable with your right little finger, or the enter key?

The same thing is true of the tab key, the backspace key, and the escape key. So you'll have to be prepared to do a little triage of your habits: which ones can you let go?

At this point, I started thinking that maybe this keyboard just wasn't for me, because despite the fact that really like the separated design, and think it probably really does have ergonomic advantages, I also have long-ingrained habits and a busy life, and I wasn't sure I wanted to spend a lot of time both learning a new keyboard layout, and also *designing* the layout that works for me. So I looked up the return policy. The company will take the keyboard back, no problem. But there's a minor issue: shipping. It costs about ninety dollars to ship a keyboard to Tokyo via USPS. That's a very significant chunk of the purchase price. So they say that if you want to get rid of one, you actually might be better off trying to resell it than paying for return shipping.

This is due to various strange and inequitable circumstances around international shipping. I can buy a dozen custom circuit boards from a company in Shenzen

and pay just a few dollars in shipping, and they will arrive in my mailbox in just a few days. But Tokyo is different, as is Australia.

So, I decided to tough it out and really give this thing a fair shake, and so far I'm glad I did. After heavily customizing the layout, trying out decisions and changing them, I'm reasonably happy with my layout, although I still type quite slowly, and have to refer to a printed copy of the layout. Fortunately, the web configurator makes it easy to save many versions of your configuration as you like, and print them out.

I mentioned a few things that made this keyboard hard to get used to, but these are not *gripes*. They are just the fundamental aspects of the keyboard's design. I don't have very many gripes about this design because I like a lot of things about it. Not only that, but I like a lot of those things a *lot*. But I do have a couple of actual gripes.

First, I miss having legends on all the keys. If you order the version of the keyboard with legends on the keys, instead of the version with all-blank keys, you will find that it only has legends on the "core" keys. All the extra keys around the periphery are blank. I wish it was possible to easily buy individual key caps with legends on them. The keyboard comes with a little keycap-puller tool, so it is easily possible to rearrange the keycaps. This doesn't help when you want to do things like give yourself two 5 keys and two 6 keys, though, or put the functionality of a small key onto one of the large keys — you'll then have a small key with the wrong legend.

The keys come in two sizes, small square keys and larger rectangular keys. All the ones with legends are small. It is easy to move square key's functionality to one of the larger blank rectangular key, but then the legend on the small key will be wrong.

You can actually order a completely blank set of key caps, and I could do that, and replace a key or two with blank keys so those keys' legends were not wrong, but what I'd really like is to be able to get keys with the right legends. It seems like that ought to be possible, but only feasible if the market grows to the point where it is profitable for a vendor to stock a large assortment of key caps. There are third-party companies that sell alternate sets of keys that will fit on this keyboard, but they were created for people to buy back when the Ergodox was more of a DIY project, and so don't match the color. So I could buy a set of blank blue keys, but then I'd have two blank blue keys on a black keyboard and an unused bag of blue keys, and that seems silly as well. It is even possible to use a 3-D printer to make your own key caps, although it does seem like the feel and durability will match the originals.

There is no traditional space bar, and there is no cross-shaped arrangement of arrow keys. You can put the space function anywhere you want; putting it on one of the two clusters of keys that sit under the thumbs is a reasonable choice. My space bar is a key under my right thumb and that's actually pretty easy to get used to. I think that's because I type a lot of spaces, and so I am forced to

learn the new spacebar position very quickly, while I might go for some time bedore I have to type a backtick. It is possible to program more than one key to act as a space bar, and I had two for a while, one under each thumb, but that seemed more confusing rather than left, so I put the enter key under my left thumb instead.

There are arrow keys exist in the default configuration, but they are two rows below the home row, and curling my fingers up to reach those keys feels awkward, and I'm always hitting the wrong key when I try to reach that way. So I put the arrow keys under my right thumb, and moved some of they key caps around so that they would have the right legends. But they are in an L shape now, not a cross shape. That's my second and last actual gripe: I use the arrow keys a *lot* for editing text and working on spreadsheets. When I do this, I take my right hand off the home row and place my fingers on the cross-shaped set of arrow keys. I would have liked it much more if the designers had included a small set of arrow keys in the usual cross arrangement, possibly on another optional plug-in module. I think some hard-core number-crunchers would also probably appreciate a separate numeric keypad, although I can live without this. I have programmed my layout to include a grid of arrow keys accessed by going into an alternate mode (a so-called "layer"), and that's cool, and maybe I'll be able to get used to using those keys to move around, but it's not the same.

The Programmable Keyboard

How programmable is this thing? Very. The configurator comes with dozens of special functions. You can switch to a special mode or "layer" when you hold down a key, or to toggle on and off when you tap the key. You can even make it so when you tap a key, it activates another layer in "one-shot" mode, applying only to the next key you type and then reverting to the normal mode.

I used this one-shot layer change behavior to create a special control-alt-delete sequence: my control and alt keys are next to each other, and next to them is a one-shot layer change key. So I hold down control and alt and tap the one-shot layer change key, and I'm now in my function layer (a red light comes on to indicate that I'm in a special mode). Still holding down the control and alt keys, I tap the one-shot layer change key again, but in my function layer, that key now has a different meaning — it's the delete key. So, it has taken a long time to describe, but in practice it's easy: hold down two keys and tap a third key twice and I've sent the special control-alt-delete sequence without having to use both hands, or stretch my fingers across the keyboard, or even look at the keys. If I want to use the delete key, which I use sometimes, but not as often as the backspace key, I can just tap the one shot layer change key twice, or I can tap the layer toggle with my left hand, which leaves my function layer active until I'm done with it.

You can do a *lot* with this. I've really only scratched the surface because I'm only putting as much time into it as I feel that I need to. You can assign macros

to keys. You can make a single key that behaves as if you were holding down multiple keys at once. There's even a standard key definition to reboot the keyboard, which is necessary when you update the firmware to try out a new keyboard layout. You can also do this by sticking an unfolded paper clip into a little hole in the top, of the keyboard, but if you want to try a number of alternate layouts, you're going to want to assign a key to this function.

If you do this, I learned the hard way that it is best to make the reset function something you are unlikely to access by accident. So, here's an example of how you can design your layers to give you access to lesser-used functions. On my function layer, there is a one-shot layer change key that will let me press a single key on my special third layer. This lights up a green light to tell me the keyboard is in special mode that is different than my usual function mode. My third layer has only a single key, the reset key. So to perform that reset, I switch to my function layer, using either my one-shot layer change key or layer toggle key, then tap the one-shot layer change key to get to layer 3. This key is the one I usually use to decrease the screen brightness. This gives me access to the reset key on layer 3, which is the key I usually use to increase the screen brightness. And so I have a three-key sequence that I can type quickly and easily, but which I'm very unlikely to type by accident.

There's a lot more you can do with the configurator. It's *very* flexible, and you can create *many* layers, if you care to.

Despite all this flexibility, there are a few things the configuration tool won't do. Some of my laptop keyboards have a "function shift" key that lets me access the function keys, F1, F2, etc. There's a row of keys above the number keys that includes volume up and down keys, brightness up and down keys, etc. On the laptop I'm using now, this row is configurable in the BIOS — do you want the function keys to be the default, requiring the use of a special function-shift key to access the special functions, or do you want it the other way around? I usually don't use the function keys that often, so I have this computer configured so that I have to hold down the "Fn" key to access F1, F2, etc. The ErgoDox EZ configurator doesn't seem to have the ability to put this function-shfit behavior onto a key, because from what I've been able to determine, the firmware doesn't support it.

The firmware is an open source project, though, available on GitHub, and I'm an experienced embedded software engineer, and so I could probably create my own… NO! BAD PAUL! STOP! That way lies madness!

The Frustration Curve, and How a Steep Learning Curve is Good, Actually

Personally, I have had a long, long journey with computer keyboards, going back to the late 1970s. Back then I became a two-fingered typist. In the early 1980s I took a typing class, where I learned to touch type quite well on an IBM Selectric typewriter. the mid-1980s I learned how to use Apple's early Macintosh

keyboards, which were very nice, sculpted and "clicky" but smaller than the behemoth PC keyboards. Both were ergonomic and tailored to efficiency in their own ways. I used early Macintosh computers constantly in college, and became an expert at using all the keyboard shortcuts, not just the common command keys for printing and saving and opening and closing windows, but the obscure application-specific funtions. I could type a lot of the special accented characters from memory using the various option and shift key combinations. I could make Word and Photoshop dance using elaborate combinations of keyboarding and mousing. I became a very fast and accurate typist. I would occasionally earn a little pizza money in college by typing papers for people on short notice, usually very late at night the night before they were due, because I was so fast.

In the early 1990s I needed to branch out and become an expert developer on a number of other platforms — PCs running Windows, PCs running Linux, Sun servers, and other, more obscure systems. I was disgusted by Microsoft's lack of consistent use of special key functions between applications. And over they years they have continued to take over more and more of the keyboard real estate, with special branded Windows keys. Meanwhile, Emacs nerds used UNIX workstation keyboards that sprouted more and more elaborate shift keys, including the special "meta" keys, key sequences, and chords; some would even add foot pedals.

To make a long story short, I decided decades ago that I was no longer going to go down rabbit holes learning highly specialized keyboard layouts, and I've stuck by that. So my actual keyboard needs are not very specialized. I could no doubt be much more efficient, driving Vim or Emacs or Visual Studio or Keil MDK or Atmel Studio or Apple Logic or *whatever* application (and I use a *lot* of different applications) almost entirely from the keyboard, but other than the occasional use of special keys for rectangular selection in BBEdit and Notepad++, I actually do very little of that. I use control (or command, on Mac) keys for undo, redo, cut, copy, paste, and save, and that's about it. And I like it that way.

Therefore, my learning curve should be steep, and the number of iterations I need to do, to customize my keyboard, ought to taper off. Steep is hard, but fast. So I'm spending part of each work day forcing myself to use only the ErgoDox EZ. After just a couple of days with it, I'm able to achieve *bursts* of speed — I'm not up to full speed yet, but I expect to get there, and it appears that my normal speed on the ErgoDox EZ will likely be faster than it is on a conventional keyboard. If it is less fatiguing on my back, shoulders, forearms, and wrists, that'll be even better.

If you're curious, here's the layout I'm using today, although it is subject to change.

I know I'm starting to get used to this thing, because now when I switch back to my regular laptop keyboard, the laptop keyboard feels slow and awkward.

The Actual Review Part of the Review

This keyboard, while expensive, is a low-volume, high-quality product designed to improve your ergonomic experience. It is designed for nerds and tinkerers and the reduced number of keys means that it will not really satsify any existing users out of the box. For American purchasers, it is difficult and expensive to return it, so I recommend thinking hard about whether you really want one before buying one; they aren't cheap. The keyboard as I ordered it, with the adjustable legs and wrist rests, cost me $325, which included shipping.

I'm pretty happy with the Cherry MX Brown keyswitches, although if I order a second one, I might try keyswitches that give a little more tactile feedback, such as the Cherry MX Blue or White or the Kailh Thick Gold. You can read more about the availale keyswiches here.

The design is highly adjustable and does seem to be a big ergonomic improvement over garden-variety desktop and laptop keyboards, but time will tell. Keep in mind that to make your setup more ergonomic with this keyboard, you may need to rearrange the height of your chair relative to your desk, and possibly the height of your screen as well. If you use a keyboard tray, this keyboard may not fit in it if you separate the two halves widely, as intended.

The keyboard is very well-built and is designed to be repairable and customizable. It ought to last quite a long time. I'm not going to write anything silly like "it's the last keyboard you'll ever need to buy" because that seems unlikely, but the high price might go down a little bit easier if you think of it as a medical device.

I would have preferred a traditional cross-shaped arrangement of arrow keys. If I could, I would alter the design of the clusters of keys that fit under the left and right thumbs to make this possible, adding just three or four keys.

The USB connector and TRRS connector feel slightly flimsy to me, as does the hole for poking in a paper clip to hit the reset button. Those parts don't quite feel as well-engineered as the adjustable legs. Fortunately if they do break, it ought to be quite easy to replace them.

Don't buy it if you are impatient or don't want to put some time in to learn (and, actually, design) a new keyboard layout.

You should know that I had trouble with the keyboard and the online tools for learning how to use it when attempting to run them on Windows 7. Windows 7 didn't seem to properly identify the keyboard and fully start the standard Microsoft HID device driver instances, resulting in error messages, although I was still able to use it to type. I think this might be because the keyboard acts as two HID devices; it can emulate a mouse, allowing you to move the mouse cursor around the screen using keys. It might also have something to do with the keyboard's USB ID numbers conflicting with other drivers already on my computer, although I did not dig very far into it.

Tech support was very responsive by e-mail and bounced my note up to the

company CEO, who told me that because they are a small operation, they weren't going to be able to put any effort into trying to maintain full compatibility with Windows 7.

I found this understandable but a bit aggravating. It's true that Windows 7 is obsolete and no longer supported by Microsoft. But it's also true that a lot of people still use it, either by choice or because their workplaces have not switched to Windows 10. Because all the software involved is fully open-source, I could dig into the issues myself. But having paid a significant amount for it, I had the feeling I shouldn't have to. I say this as someone who has just had to put considerable effort into getting a device driver to work well with Windows 10, jumping through the flaming hoops that Microsoft sets up, and keeps rearranging.

It's not really going to be an issue for me long-term, as my workplace is gradually migrating all computers to Windows 10, but I mention it in case you still use Windows 7.

The keyboard works flawlessly for me on Linux and Windows 10. I have not yet tested it on a Mac. It is possible to set up keys to match the Mac keyboard command and option keys.

Because I want to take it back and forth between my home office and my work office, it would be nice if there was a padded fabric carry bag available. I've been throwing the two halves plus the cables loose into a bag but I'm not really happy because they rattle around and bang against each other in there.

This is a really nitpicky point, but given that they include a little bag of tools including replacement key caps if you don't want bumps on your F and J keys, and rubber gaskets if you want to change the way the adjustable legs work, they also ought to include a little wire tool to poke the reset button, which you will need to do in order to reprogram the keyboard. In 2020, I think a lot of folks don't actually use paper clips and may not have one on hand. I had plenty of binder clips at home, but no traditional paper clips.

The verdict? I recommend it, and quite highly, but only for nerds who are willing to do things a little bit differently for reasons of ergonomics and efficiency and aren't afraid of looking (and sounding, if you choose "clicky" keyswitches) even nerdier in the process. You probably know who you are!

Sunday

Well. The rest of the week sort of flew by, and not entirely in a good way. I have so much I want to write about, but looking back, I think I put far more time and words into reviewing my keyboard than I planned to. And I even edited it several times!

I have a hell of a lot to say about politics this week, but I might articulate things

better after thinking them through for a while longer, or recording a podcast with Grace. So I will hold off on that a big longer. At the moment I'd prefer to write the…

Gardening Update

We had heavy thunderstorms a while back. The giant sunflowers took some damage, although several of them are still standing — Joy tied them together so they could give each other a little bit of mutual aid to weather the next storm. The ones that were knocked down seem to have set seed, so we will have at least some sunflower edible seeds.

All of the tomato cages were flattened yet again, except for one in a pot. So, I decided to give the knocked-over tomato plants very drastic prunings, so that there was no chance they would be able to pull the cages over again, either with or without heavy weather. The "indeterminate" tomatoes just keep growing and growing, and inevitably seem to become both very top-heavy and very lopsided, as one or two branches will become very heavily laden with fruit and others won't.

So, I did what had to be done — I hacked off most of the plants. As a resulted we harvested a lot of tomatoes that were still entirely green — about 30 pounds of tomatoes. They are gradually ripening in plastic dish tubs in our kitchen. I'm going to have to take a whole bunch of tomatoes into the office. We will roast and freeze the Amish Paste tomatoes.

The Black Crim tomatoes are really best eaten fresh — and personally, I like to eat them a bit before they are fully ripe, so that they are just a touch sour, presenting a mix of sweet ripe red and sour unripe green flavors to my tongue. But one *can* cook Black Crim tomatoes. Because we had a huge influx of green tomatoes, I needed to make space for them by using up the tomatoes were already ripening in those bins. So, I made a large batch of pasta sauce out of about fifty percent Amish Paste and fifty percent Black Crim, even though many of them weren't quite ripe.

My method was crude, but the resulting sauce was delicious. I chopped up all the ripe or mostly-ripe tomatoes, cutting them into quarters, and throwing them into a big pot. Then I put that pot in the oven and set it to "broil." Because many of these tomatoes weren't fully ripe, I wanted to roast them in order to concentrate what flavors they did have. So the tops charred, and they began to cook down. Every twenty minutes or so I pulled out the pot and mixed everything with a sharp knife, helping them to break down into a sauce. The skins were still in there. Then I turned the oven down to 300 and let them cook down for several hours.

While these were cooking down I harvested a number of herbs from the garden including large handfuls of fresh oregano leaves, with the stems removed. I love fresh oregano, although I recognize that not everyone loves it as much as I do. I

also threw in some basil leaves, although because we had so much lemon basil, I used that instead of the more conventional basil. I also added some sprigs of stevia. While this was cooking down, I fired up the large cast-iron pan and cooked up two pounds of ground bison in bacon fat, along with garlic, onions, and some of our leeks. Then I dumped the cooked-down tomato mixture into the pan and cooked it down further, picking through it with tongs to remove most of the stringy tomato skins. When it was thickened and smelled ready to eat, we served this over a mountain of pasta. I thought the kids might be put off by the strong oregano and basil flavors, but in fact they hoovered up every drop of sauce.

Mint, Herbs, and Peppers, Oh My

I've been drying big paper bags of mint in the garage — orange mint, lime mint, spearmint, and two kinds of peppermint. Yesterday I just the strawberry mint way back and threw all the sprigs in a bag as well. The strawberry mint was out of control. Amusingly, its bed has been invaded with wild strawberry plants. These came from Saginaw — when we moved, Benjamin brought some of the wild strawberries he harvested from our yard there, and put them in the bed in the driveway, which later became the mint bed. I'm not quite sure what to do with the strawberry mint — I might try to make a syrup, and see how it tastes. I'm also drying a lot of stevia.

I've had to compete with the bees to harvest the flowering mint plants, but fortunately there is a lot to go around, and I haven't yet been stung. I've been harvesting chives, parsley, and sage, and freezing them, although I am also drying some sage. These three herbs are growing back rapidly — the sage and parsley in particular seem, like the mints, to thrive on abuse. The thyme and rosemary plants grow much more slowly, but I still expect to be able to harvest a bit more this year. I plan to make a few more rolls of herb butter to see us through until next spring.

Next spring I want to put in a few more thyme and rosemary and sage plants. The rabbits seem to keep their distance from these plants. They also don't seem to like the parsley; maybe the flavor is too strong for them. We won't put pineapple sage in a concrete block — it grows too big.

The four green fennel plants and the single bronze fennel plant are setting seed, at least the ones that weren't nearly devoured by anise swallowtail caterpillars. So I'm harvesting seed heads to dry in bags. We should have quite a bit of fennel seed. I might try candying some of it! The fennel gives off one of my favorite aromas — a gorgeous scent. I'm also saving the stems, and will dry them, and if we can manage it, we may try to roast some fish over fennel stems.

I'm also drying arugula and coriander seed heads. I've sown some of the argulua seeds right in the garden bed, too. Grace tells me we might get some more arugula before the season ends, although that depends a lot on the weather.

There are still lots of tomatoes ripening in the hügelkultur bed. We're harvesting lots of groundcherries, both from a pot where Joy planted them in the front yard and from one of the raised beds in the back. Groundcherries are actually a type of tomatillo, and form very small yellow fruits, each wrapped up in an angular, papery sack, so that they look like tiny paper lanterns. The toddlers love them. They are sweet, but with a distinct tomato note. I think of them like the little power pills in the orignal Pac-man gave. When I eat one, my soul is recharged, and all the hungry ghosts trying to eat me flee, if only for a little while.

The pepper plants seem confused, unfortunately. The Scotch Bonnet and paprika pepper plants are growing taller and producing an abundance of leaves and flowers and setting fruit. They don't seem to know the date. The paprika peppers in particular take *months* of sun to fully ripen. So these brand-new, pale, pale green peppers aren't going to make it to the paprika stage. They are sweet peppers, so we can harvest them and eat them fresh, or cook with them, but that doesn't really put them to their best and highest use. And there are a number of green Scotch Bonnet peppers coming along, but the sun is low in the sky these days, and it is cooler; there may just not be enough sun left to ripen them. Much will depend on the weather. Should I let them continue to live in blissful ignorance, or tell them that winter is coming?

Star Trek: Lower Decks

I broke down and started paying for a streaming service — the first one we've ever used. My tipping point came with the new *Star Trek* series. It is actually produced by a Roddenberry, Rod Roddenberry, Gene's son, and *not* produced by Rick Berman. Both of those things are major selling points for me.

Lower Decks is animated, and in a far more modern style than the stiff and lifeless animated series that ran for two seasons starting in 1973. This new show is fast and energetic and silly, satirizing many, many aspects of the *Star Trek* universe, which frankly needs satirizing, as it had been taking itself awfully seriously in recent years. I am not sure if this show is going to develop much in the say of serious character arcs, but most of the five episodes we've seen to date have been quite funny, often taking surprising turns. The screenwriting is generally of very high quality, only occasionally falling into conventional tropes without upending them.

There are many, many inside jokes for long-time *Star Trek* fans, spanning multiple shows across the long history of the franchise, and some of them come directly from fan culture.

Speaking of screenwriting, I've also finally managed to watch a bit of *Star Trek: Picard*, and it is impressive. The screenwriting is dense and allusive, filled with subtlety. However, this show probably can't maintain the kids' interest, so we have not yet continued with it.

CBS All Access has access to all of the *Star Trek* shows, so we've also shown the

kids the pilots of *Deep Space Nine* and *Voyager*. Unfortunately the video quality of these shows is not very high, as they have not been restored and remastered for high definition, but at least they are there. Looking back on these shows after so many years is interesting. When I watch both pilots now, it seems to me that they both suffer from the same problem. There's a lot going on, and a lot to introduce, but they are both highly padded to fill out their two-hour time slots, and so getting to the end of them feels very tedious.

Grace wanted to relive a bit of her own childhood, so we watched the pilot of the original *McGyver* series starring Richard Dean Anderson. I never really watched the original show, because when it started in 1985, I was away at college, while Grace was still in high school and living at home. I didn't have a television in my room — some students did, but it was unusual. When *Star Trek: The Next Generation* launched in 1987, I watched the pilot down in my dorm basement with other students, but that was a special occasion; while I did see quite a few movies, both on-campus and off-campus, I saw very few broadcast television shows at all during my college years.

I think I'm going to wind things up for this week. If we have the opportunity, tomorrow Grace and I will record a podcast, and we'll talk politics then.

In a week, our new custom bookcases for the family room should be delivered. There are fourteen boxes of children's books lined up in the family room, waiting to fill them. I'll be so happy to get these books shelved and accessible to the kids. It's been far too long! I'll also be happy to go through them and purge the ones that no one cares about. We've needed to do that for a long time, too.

Have a great week!

About This Newsletter