

Issue 218

SUMMER 2022

# ISLE OF WIGHT PC USER GROUP



# HOT KEY

July 2022

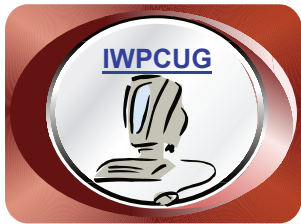


At our May meeting Mike Cox from the Rosetta Group talked about all the things he has used Raspberry Pi's for.

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# The Isle of Wight Personal Computer User Group

We welcome anyone who has an interest in computers and related technology and what you can do with them.

We are a group which seeks to exchange ideas and new information.

**Membership is £12 per annum**

Our meetings are normally held on the first Wednesday of each month from 7.00 to 9.00 pm. Until further notice these will be held online via Zoom.

*Visitors are always welcome.*

**If you would like to know more about us, you are most welcome to come along to one of our meetings, or you can contact one of our Committee Members listed on page 3.**

The Club web site address is [www.iwpcug.org](http://www.iwpcug.org)

We also have an e-group discussion area on

Groups.io: <https://groups.io/g/iwpcug>

Details of how to join are on page 9.



## FUTURE MEETINGS

<u>Date</u>	<u>Subject</u>	<u>Speaker</u>
6 July	Not just Helium	Jonathan Thornton
3 August	Summer BBQ (6:30pm start)	
7 September	TBA	Jonathan Burt
5 October	TBA	
2 November	TBA	

## ISLE OF WIGHT PC USER GROUP COMMITTEE

**Chairman :** David Groom

**Secretary :** Susanne Bone

**Treasurer :** Mike Hoar

**Membership and Database Secretary :** Roger Skidmore

**Committee Member :** Steve Sutters

**Treasury Supervisor :** Phil Rogers

**Note:**

Contact details removed prior to publishing on the internet

Suggestions for new events, topics or speakers for talks are always welcome.

Please contact Steve Sutters, or any committee member, with your ideas. If necessary we may be able to find a speaker for your subject.

## Chairman's Report

We have had some very interesting talks recently introducing us to subjects which we might usually not come across. I would encourage as many of you as possible to join us on Zoom so you don't miss out.

We currently don't have a planned speaker for either of the October or November meetings. If there is a topic you would like covered, or are able to present a talk yourself, then please do let me know. It doesn't have to be a long talk as we can have a number of short talks on the same evening.

Our Computabilty section (i.e. Roger) is currently being kept busy, see page 9 of this issue of HotKey.

**David Groom**

### The Club Summer BBQ on Wednesday 3 August

This will be held again at Bembridge Lodge, 114 High St, Bembridge, PO35 5SQ.

Starting at **6:30pm (note the earlier start than normal meetings)**

It would assist catering for the event if you could let me know if you are planning to come, no definite commitment needed, I just need some idea of the numbers expected. It would be appreciated if you could either call on 873853, or emailme before 31 July.

As usual the invite is extended to members' wives / husbands / etc.

As the event is weather dependant please do check the email list, or website, for any last minute updates.

**David Groom**

## Who's Nicked my Storage?

My main computer has an SSD showing 464 GB of usable space. It also has a 1 TB secondary conventional disk where I dump stuff I can tolerate a slight delay on when I call for it. I have been alarmed that the SSD space has been eaten up at an alarming rate recently, leaving me only about 14 GB left to work with! Where had it all gone???

I admit that my autobiography (yes) is mainly photos that have slid into 'Publisher 98' documents (also, yes). One page can take 50 MB. I am currently on page 1,046 – it's been a long life – but I'm intending to live a bit longer so I needed to DO SOMETHING about finding the missing space.

I also admit that I am a great waster of space, preferring to have copies of photos all over the computer in different folders to suit. I have thousands. It's my computer after all. So I had a look for free 'Diskfan' but found it appears to cost money now. So I thought, "How about Googling how to see what's hogging space?" Easy – go to Settings, System, Storage and have a nosy round. (It's Windows 10).

Under Temporary Files I found the culprit: The Recycle Bin! The hooligan was holding a staggering 210 GB of deleted items! So I emptied it.

Hooray! Now I have 224 GB of free space on my SSD. Phew!

So I right-clicked on the Recycle Bin, selected Properties and discovered it was indeed set to a maximum value of 5000 MB. I re-set it to 3000 MB, but have little confidence that it will this time do what it's been told.

Still, if you are having space troubles you might like to take a look. Your Recycle Bin may have similarly taken over your machine. See if you can wipe the smirk off its face.

**Ron Keeler**

## Tribute to Michael Hodge

Michael and Margaret Hodge always planned to retire to the Isle of Wight. As a clergyman, Michael lived in tied accommodation- Blackpool, Stalybridge (Manchester), Cobham and Bidborough (Kent) but holidays were usually taken on the island.



When the hotel they used in Ventnor became too expensive for their growing family, they bought a caravan and stayed at Niton-Under-Cliff Caravan Park. Sue, the youngest child slept in a carrycot above the hob, whilst the other three children had bunks & camp beds in caravan & awning. In the mid-seventies, they bought a tiny cottage in Arreton and the Isle of Wight was officially described as ‘home’. Of course, it was some distance from work!

Michael was an active vicar. He regularly took it upon himself to visit every home in his ever-expanding parishes so that he became familiar to all- church goers & not alike. Michael led loads of services, Sundays, Holy days, Weddings, funerals, Baptisms etc. but he considered his real work to be ‘being there’ for people when they needed support.

Michael was easy to talk with, non-judgemental, understanding, wise and with a keen sense of humour and he shared all these gifts as he felt appropriate. Testimonies to his care have peppered the cards & messages received by the family since his death. The distance that friends & former parishioners travelled for his funeral are a lasting to tribute to him.

Michael loved being with children and young people in particular. He ran numerous youth groups and Sunday Schools where he accompanied singing with a strange collection of instruments- the melodica, Piano accordion and possibly the ukulele he kept in his study. The bagpipes (Michael was a Scot by birth) he kept for the family’s entertainment.

When Michael retired and finally moved to Braxton Cottage, Yarmouth, he and Margaret took an active role in Yarmouth church and helped lead Messy Church for many years until it’s closure before lockdown. Michael continued



leading services until he was 85. At that point he was unable to stand for long and led the services from a walking stick-seat.

Michael was a passionate supporter of new innovations. He was an early adopter of the Bickerton folding bicycle, was one of the first to own an electronic watch and was thrilled to purchase his first ever computer. Not for Michael the world of social media & Google; he studied and learnt to write programmes, taking hours to create something that would save him a few minutes, and then checking it daily to see if it behaved correctly. This he adored. He kept details of the Red Squirrel sightings on the island until recently and expressed an interest in monitoring the

little red creatures when at Eden House, Totland in his final months.

Throughout most of his life, Michael was involved in Synod (Church government) at local, diocesan and national level. He served on General Synod for many years. Before taking holy orders, Michael studied mathematics at Cambridge & he put his skills to use, in General Synod, calculating the dates of Easter until mid-22<sup>nd</sup> century. His keen legal mind and eye for detail was highly valued as was his sense of humour and humbleness.

In later years Michael became ‘wobbly’ first of body & finally of mind. He retained throughout his deep personal relationship with Jesus, his deep and thoughtful prayer life, his sense of humour and true humbleness. His carers all loved him.

He died as he had hoped- by falling asleep and not waking up. He died on a palindromic date: 22.02.2022.

‘Well done, good and faithful servant. Enter into the joy of your Lord’.  
Matthew 25:21

***Rev. Canon Michael Robert Hodge 24.04.1934-22.02.2022***

**Rachel Fleetwood (Michael’s daughter)**

## **Security Tips From the National Cyber Security Centre**

The National Cyber Security Centre's aim is to help make the UK the safest place to live and work online.

One page on their web site which is definitely worth reading is their information for those wishing to stay safe from computer threats, it can be found at [www.ncsc.gov.uk/section/information-for/individuals-families](http://www.ncsc.gov.uk/section/information-for/individuals-families)

The topics covered on that page are:

1. What is cyber security?
2. Cyber Aware and staying secure online
3. Dealing with common cyber problems
4. Protecting your data and devices
5. How to report cyber crime

**David Groom**

### **Chrome OS Flex**

In the Summer 2017 edition of HotKey (page 15) Roger gave instructions on how to install Chrome OS onto your own hardware. Thanks to a recent (June 2022) article in PCPro magazine I was made aware there is now an easier way to achieve almost the same result.

Google recently introduced Chrome OS Flex, a new version of Chrome OS that you can easily install and run on almost any computer – even one relegated to the back of your cupboard. The company presented Flex as an environmentally friendly way to recycle devices that are too old to properly run Windows or macOS.

However, Chrome OS Flex isn't 100% the same as Chrome OS, most notably Flex doesn't include native support for Android apps.

I have an old laptop lying around, so I'll give it a go and hopefully report back in the next issue of HotKey.

**David Groom**



## Laptops for Ukrainians

Computability ([www.cfd-iw.org.uk](http://www.cfd-iw.org.uk)) - part of the Isle of Wight PC User Group - has been going for over 20 years and helped (one way or another) over 400 clients who could be described as not doing so well. Over the last few years we have been fairly inactive but lately we have had a new tranche of not-doing-so-well with Ukrainian refugees.

Through Facebook and various media we have let ourselves be known as "Laptops for Ukrainians". Sponsors of Ukrainian guests, Ukrainian guests and local donors have been getting in touch. By HotKey publication time we expect to have had over 40 donations and 40 clients.

Typically we look on YouTube to see how our new laptop can be opened up, then replace the hard disk with a solid state drive and where possible add memory. Also clean the case and screen. Then mostly install Linux Mint, plus Russian and Ukrainian language packs (under "Language"). The keyboard languages are set as "Layouts" under "Keyboard". It's easy when you know how, but until then it is a big learning exercise. An engaging activity is sticking on stick-on Cyrillic keyboard letters.

This activity has nearly depleted the "Computability" accounts provision!

A few laptops are too old or unusable so they get taken up to Currys where they gratefully accept them for recycling.

We have a promotional website at <https://laptops-for-ukrainians.weebly.com> which contains all about what we do. Further information on Linux is here - [www.iwlug.org.uk](http://www.iwlug.org.uk) - which is the site of the Isle of Wight Linux User Group - which I hope everyone will join.

**Roger Skidmore**

### Joining the Email Discussion Group

Send an email to: [iwpcug+subscribe@groups.io](mailto:iwpcug+subscribe@groups.io), you will receive a confirmation email, follow the instructions in that email, and then wait for your approval request to be approved by one of the moderators.

All members are encouraged to join this group (it's free and private to club members) so you can keep in touch with events and join in with the discussions.

You can also keep in touch by regularly visiting [www.iwpcug.org](http://www.iwpcug.org)

## Trigger's PC

Trigger was a character in “Only Fools and Horses” and he had a broom. He once stated “I’ve had this broom for 20 years. But it has had 17 new heads and 14 new handles.” The phrase “Trigger’s Broom” is now used all over the place where a machine is still functioning but has had most or all of its components replaced. The idea, like many ideas, was first postulated by the ancient Greeks. Theseus considered a ship and whether or not it was the same ship after its masts, oars, decking, hull planking, etc had all been replaced.

I was given a fully functioning second hand desktop PC in September 2013. By that time it was already about 6 years old. It is a Dell Inspiron 530 with an Intel Core Duo CPU @ 2.53Ghz with 1 Gb RAM, running 32bit Windows Vista. This is the story about how I have kept it running and out of the scrapheap or Roger’s workshop for the last 8 ½ years.

The first issue was that there was no wireless connection to the internet. This was easily solved by the purchase of a suitable USB wireless connector for about £10 as I remember. Technically that is an addition, not a replacement. Not long after, the mechanical mouse (ball and socket) started playing up and was replaced by an optical one for another few pounds.

Before long I was becoming frustrated with the lack of RAM and decided to add some more. I seem to remember discussing the project with David as I had never attempted this before and so I removed the desktop cover for the first time. David had underlined that some mother boards will accept asymmetrical RAM chips but others demand a symmetrical layout. I decided to assume it was symmetrical and ordered 2 x 1Gb of RAM from a supplier that David recommended. I had already downloaded a picture of the motherboard with labels so that I could recognise the RAM slots. This might sound odd to those of you who tinker with hardware all the time, but I am a software man and rarely look under the bonnet. I carefully grounded myself and struggled with the rather tight slots and RAM levers. It was a success.

In April, 2017, Microsoft stopped supporting Vista. Roger had been talking up Linux and so I decided to create a dual boot machine. This would mean I could continue to use an out of date Windows OS (without connecting to the internet) or boot up in Linux when I needed to go online. I downloaded a lightweight Linux (Lubuntu) OS which has less functionality but works on a

lower specification machine more easily. This I copied to a DVD and then began the process which as I recall stalled a couple of times for unknown reasons before finally installing Linux. That process required a disk partition which was automated as there was plenty of spare room on the 320 Gb hard disk.

As time went by I would sometimes have to download Windows software via Linux and copy it over to the Windows OS, which was no big deal. More than once I had to contact Roger for advice about suitable Windows Vista drivers to run USB devices (such as portable hard disk drives and memory sticks).

The next hardware upgrade was from the onboard graphics card (on the motherboard) to an NVIDIA GeForce GT710 which is at the low end of NVIDIA cards and I paid about £35, although that was on offer. There was no problem with the existing graphics device but I wanted to learn CUDA parallel programming and needed it for that purpose. This new card has 192 GPU cores (as opposed to the 2 CPU cores on the motherboard). Fitting it was trivially easy as the graphics card slots are obvious in shape and the VGA socket protrudes out the back of the desktop casing ready to accept the monitor cable. Again, I was carefully grounded and wary of bending any pins, etc. It fired up to life with no problems using drivers already available, but I did download some more recent NVIDIA drivers via Linux. Booting up in Linux with the new card was fine as well. Phew.

Then I hit a real hardware problem. The machine failed to boot one morning. Not a peep. The lack of a beep was a clue that it could be the power supply as many component failures produce some sort of warning sound at boot up e.g. missing keyboard or mouse. A bit of internet research showed how to prove if the power unit has failed, by touching a certain internal cable to the fan unit, bypassing the power unit. If the fan then turns (assuming the fan is good!), then the power unit is certainly faulty. I do not recommend this to anyone unless you have researched exactly what to do as an electric shock is a real possibility. I sent out a message to our group asking for advice on new power units and Roger offered me one in exchange for a talk! Using David's search tool, I now know that talk was given in April 2019. The power unit worked fine and as for the talk (on CGI), I'm sure you all have your own views.

Earlier this year, I ended up with no less than 3 laptops to fiddle with for friends & relatives. One involved fitting a new hard disk and Roger suggested

some of his favourite software (CrystalDiskInfo [CDI]) which will analyse the quality of a disk. So I decided that it would be worth analysing the hard disk on my desktop as it was around 15 years old. Sure enough, CDI marked that disk with a “Caution” meaning not an imminent failure, but not to be complacent. So I ordered a new 320Gb drive (not SSD) for about £12. Now came the issue of how best to transfer the operating systems, programs and data from the old drive to the new. Roger again suggested some suitable software (from his HotKey article) for cloning disks. Cloning was preferable from simply copying as the old disk was partitioned and there are also many hidden files which are vital but not always transferred with a simply copy process.

Because of my ancient system setup, it proved not be that straightforward. Lubuntu (Linux) could offer no suitable software and much of the Windows software would not work in Vista or had to be directly installed to Vista from the Web (not feasible for me). I settled on “AOMEI backupper” and set it cloning the old disk to the new. This was made simpler by the fact that many desktops (including mine) have internal docks for 2 or more hard disk drives. It took about 1 ½ hours to clone, but the new disk would not boot. I became convinced that my dual boot system was causing the issue, but could not prove it. There is an MBR (master boot record) of only 512 bytes but it is crucial and mine proved to be incorrect. More research showed up a basic Linux (“dd”) command for bit by bit cloning. This can be very destructive if used incorrectly but I had a non-bootable drive and not much to lose. So I set “dd” running from the command line (no fancy software required at all) and it ran for over 6 hours. The result was a perfect clone that booted up immediately and I had an exact copy of the old but frail disk drive.

That brings me fully up to date with “Trigger’s PC”. So far I have been able to fix or upgrade all of its issues, but if the motherboard fails, then I will give up. A further challenge is that the processor is 32 bit, which will probably become obsolete in the near future. Much will depend on whether Linux continue to support 32 bit – Microsoft have given up such support with Windows 11.

**Richard Burkill**



There are some products that are so ubiquitous their brand name has become a verb. Think of “Hoover” and “hoovering” and in relation to the internet “Google” and “googling” - a verb now used to mean to use a search engine.

Google is now the dominant search engine on the internet, accounting for over 90% of searches, but it was not always so. The first search engine that many of us may remember is Yahoo which appeared in 1995. It wasn't until 1998 that Yahoo, and Microsoft's own search engine appeared.

However it's now almost impossible to believe that Google's dominance will be shaken, but one company is aiming to do just that. Earlier this year I became aware of Neeva ([www.neeva.com](http://www.neeva.com)), although it had been released in the USA in June of last year. This is a relatively new search engine which aims to free you of the privacy concerns that you may have using Google, and also to ensure that the search results you see are ads free. When you search on Google the first few results that are shown are always paid-for ads, and this takes up most, if not all of the screen, particularly when viewing it on a mobile phone or tablet. You have to scroll further down to find generic search results. With no paid for ads on Neeva they aim to show more relevant results right at the top of your search results.

Neeva have a browser extension compatible with all major browsers which block trackers from following you, furthermore they never share any of your data with anyone else and there is an ability to search.

On their home page is a message "We'll get in touch as soon as Neeva is available in your region" and a button marked “join the waitlist”. It's not entirely clear why it needs to be made available, but maybe it hasn't yet crawled through UK and European websites and added them to its search database.

Currently users in the USA have the choice between a “Free Basic” version and a “Premium” version. Is not entirely clear whether the free version is time limited after which you have to upgrade to premium or whether the limitation is in the number of searches you can perform. The premium version costs \$4.95 a month and gives unlimited access to all of Neeva's search and browsing features, exclusive benefits like membership in a Neeva-hosted community, access to Neeva founders monthly Q&As, best-in-class privacy tools such as a VPN and password manager.

Personally I am sceptical whether they can challenge the dominance of

Google but competition is always a good thing and who knows maybe in a few years time we'll get used to saying "I'll just Neeva it".

**David Groom**

## **Laptop Batteries**

This article follows on from one on laptop batteries in April's HotKey.

I used an adjustable spanner and vice to wrench open laptop battery packs and bench grinder to smooth off the spot welds. After months of collecting 18650 cells that were usable I ended up with hundreds of tested cells. Dangerous if miss treated. One of the chaps I was given cells from gave up eBike battery building after one exploded. Another chap I heard about was building one which was said to 'bounce around like a Catherine Wheel' in his workshop after what I suspect was a 'short'. Because of the danger it is sensible to do lots of research about Lithium Ion batteries. I wear safety specs at all times even when charging for the first time. Had a fire bucket with sand in. Also a fire extinguisher (a powder one for electrical fires NOT water based). Stored batteries in an outdoor shed and keep and charge my eBike in a hallway.

Did get a puff of smoke when just inserted a battery in a charger that had lost its insulating washer. Being careful at all times is important. When I was wiring up battery holders the wire I was using accidentally touched some contacts and became very hot. I quickly pulled it away and no harm was done. Lesson learned. What I realised is they were safe to use as long as they were not charged too much (no more than 4.2 volts) discharged too much (ideally not below 3.4 volts) and ESPECIALLY not discharged too fast. Worst case would be if the positive and negative terminals were connected

There are 3 important considerations with rechargeable batteries.

Their capacity. For this I used an Xtar Dragon charger / tester

Their ability to store charge. Cells with a large voltage drop after a few days were discarded. Used a Miboxer 8 to charge cells as this did 8 at once!

Internal resistance. This is the gatekeeper of the battery and the lower it is the more easily current can flow out. I favoured cells with the lowest IR. It is the trickiest one to measure because it varies according to the state of charge, current draw and temperature. To try and get a 'level playing field' of matched cells I measured each cell with the same voltage (state of charge) using the Xtar Dragon which is the most accurate IR tester I have. Because eBikes need high power I sorted cells by internal resistance rather than capacity (as long as they had a capacity of at least 1200mAh). Then lined up cells in order of IR and used cells of matching IR in each parallel group.

Battery packs need to be balanced for safety and efficiency. This is normally

done by the battery management system or BMS but I did not consider I needed one for testing as I charged all the cells to the same voltage and the ebike controller cut off the power when the voltage dropped to about 46 volts so each cell went down to about 3.6 volts.

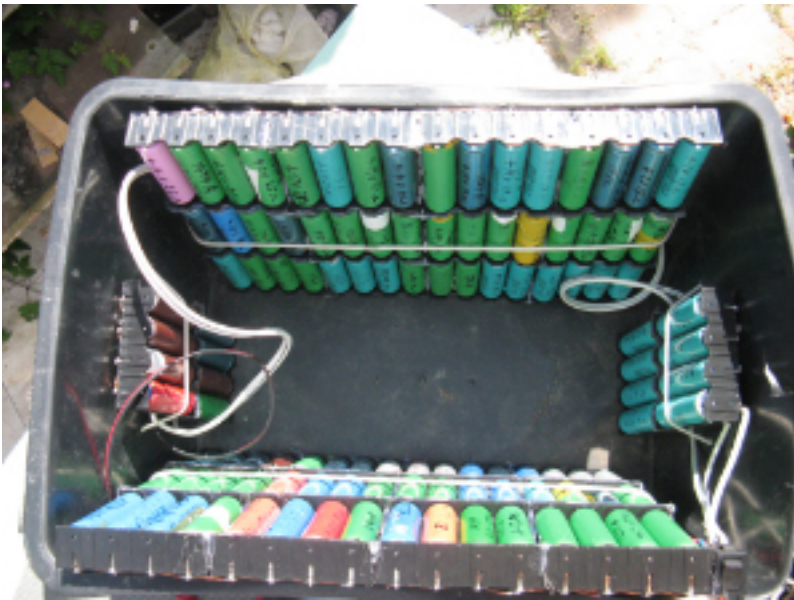
Decided to use 4 cell battery holders and soldered these together rather than soldering or spot welding directly to the cells so I could easily swap cells in and out. The mark 1 battery had 12 x 4 cell battery holders wired up giving about 50 volts when fully charged. Had a bit of a shock when I connected the battery to the controller as there were some sparks from the wires but this was merely the voltage equalising in the controller and after I added an on off switch I had a 'cleaner' connection and the sparks stopped.

Now for the fun part of testing the battery on the eBike (done off road so as not to break the law). The first test run was very short as I went about 2 feet when the 3 amp fuse blew. Then soldered a 13 amp fuse in and the bike got to 18 mph then the voltage dropped too low and the controller cut off the power. Only went about ½ mile. More cells were obviously needed so I added 2 more battery holders which raised the voltage to 57.4 volts with a full charge. The bike now got up to 27 mph and managed to climb a mild hill. Still not much range of about a mile though (distance it could go). More batteries were needed so with the mark 3 battery I used many more cells from power tools and those lively Dyson battery packs, doubled up on the number of cells (112) added an extra 0.71mm copper wire joining the cell holders to give twice the current carrying capacity and used thicker loudspeaker cable to join the battery holders (kindly given by Roger Skidmore years ago after an electrical clear out).

What a difference! The bike got up to 39 mph on the flat (does about 35mph with the shop bought one which is about 53.5 volts fully charged) and went twice as far. No cells became hot or developed problems. Delighted with the performance of my home made battery but I did spend many days salvaging, testing and charging the cells. Over all I spent about £200 on chargers, battery holders, copper wire, solder etc and leaned a great deal. Can't see me ever buying an eBike battery again. Next charged the cells 'en mass' with a balance charger so I could leave the cells in their holders and again the battery worked great. I like the concept of balance charging each time as the state of health of each Parallel group can be monitored and bad cells weeded out. In contrast 'dumb' passive BMS balancers waste electricity by discharging through resistors to balance cells and give no indication of the state of health of individual cells.

There is so much more I could have written and would be happy to chat with computer club members about battery projects.

**Stephen Sutters**



A completed battery box used to power Steve's eBike - see pages 14-15



User instructions can be found [here](#), or downloaded as a PDF [here](#).

Edges off  Turnout  Alive Rules = 248  Dead Rules = 68

Element = 0  Counter = 723

Clear buttons on page

Initiate Run Stop Edges Clear

Dir: FFD00 | Edges | Run | Stop | And | Edges | Search

Rules

RANDOM CLEAR RANDOM SEARCH

A screenshot from the game of life web page ([www.iwpcug.org/other/gameoflife.html](http://www.iwpcug.org/other/gameoflife.html)) programmed by Richard Burkhill and demonstrated at our May 2022 meeting.

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