H.A.R.S. Journal

Journal of the Hereford Amateur Radio Society

Issue No 21 • November 2019

Editorial

Dear Ladies and Gentlemen

As you will already know the ***Journal*** has been reduced to four issues a year starting with this Christmas issue. I have completed 20 regular (bi-monthly) issues nevertheless and it has been my pleasure so to do. The next issue will be at Easter.

I know we haven't arrived at the AGM but I continually marvel at the wonderful work our committee does; the time and effort they put into everything. So, if I may on your behalf, I will thank them, particularly the Hon Sec – Duncan; as the end of the year inevitably approaches.

Thank you all for your kind support for the ***Journal*** over the past 3 years. I must wish everyone a very, very happy Christmas and a Happy New Year.

Keep those articles coming in!

73. Mike G3LZM (& John)

Wanted...

From: <david@hobro.plus.com>

Not sure if I am too late for the next issue of HARS journal. I am in need of a Magnetic Devices 951 Co-axial change over relay with a 12v coil and the little end caps to cover the terminals. They were very popular in the 1970's but seem to be as rare as hens teeth nowadays. If any member has got one lurking in their junk box that they want to sell email me or 01905 351568

Best Regards,
Dave, G4IDF

Foundation Licence Course

Left to right: Paul Angela and Steve

Foundation Course was w/e of 10/11 August 19. All passed.

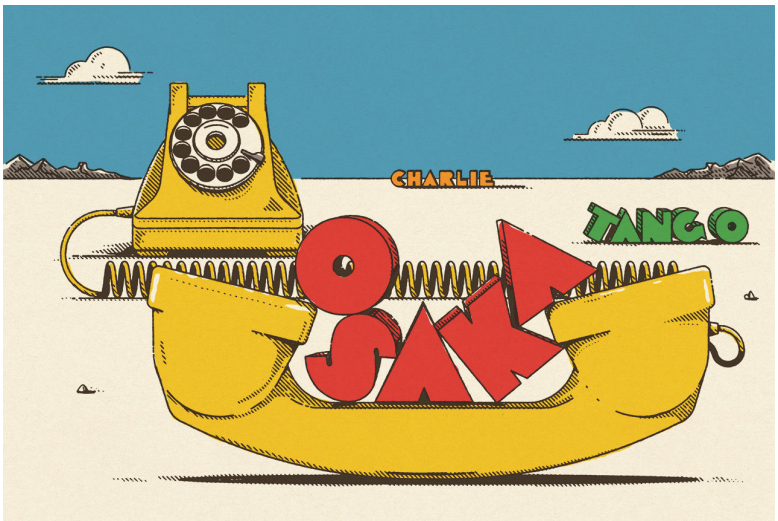
Pleased to report that all three candidates passed and all by a good margin. The lads, Steve and Paul dropped only one mark and Angela dropped four. All of them are looking forward to attending for an Intermediate Course.

This was of course the last ever FL Course with this old syllabus as all changes for FL, IL and Full at the beginning of September.

Ed.

It might be time to update the old 'Alfa-Bravo-Charlie' Spelling alphabet – but it's hard to break old habits

by Dan Nosowitz July 12, 2019



The telephone was a major driver of the development of spelling alphabets. All illustrations: Michael George Haddad

When someone on the phone—the doctor's office, the bank, the credit card company—asks for my name, I always offer to spell it out—it's a pretty uncommon surname. So far as I know, there are somewhere between 10 and 20 Nosowitzes in the world, and they're all closely related to me. Because it's uncommon, and because it would be a problem if my bank writes my name down as "Moskowitz," I err on the side of caution. "N as in Nancy, O, S as in Samuel, O, W, I, T as in Thomas, Z as in Zebra," I chant.

This uses what is what's called a "spelling alphabet," or, confusingly, a "phonetic alphabet." (The latter is confusing because it has little to do with phonemes, or a unit of sound in a language. Plus there's the International Phonetic Alphabet, which is something else entirely.) The history of spelling alphabets is fascinating and winding, but it's notable that there hasn't been an official update to the most commonly used English version in about half a century. We might be in need of one. As mobile phones have replaced landlines, call quality has, strangely, gone down. The general connectivity of the world—including the ease of international video calls and the use of foreign call centers—means that spelling out a name or word is an increasingly common practice. A modern, updated, globally friendly English spelling alphabet would be pretty useful right now, but getting people to use one might be harder than you'd think.

All alphabets that use letters to represent sounds have names for their letters, to refer to them for things like spelling. English letters fall into rough groups for these purposes. Vowels are usually pronounced with their long sound. Stopped consonants—those that force you to halt the flow of air from your mouth, like B, D, and T—are named as if you wrote "ee" after the letter: "bee," "dee," and "tee." Nasals (sounds made through the nose, like M and N) and fricatives (sounds made by forcing air through a narrow space in your mouth, like S and F) are named by putting the letter "e" before them: "emm" and "ess." Then there are the weirdos with their own histories, like J, Y, and Q.

This is why the names of most letters sound an awful lot like some other letter. Taking the Nosowitz example, it's easy to confuse "zee" with "cee," or "ess" with "eff." This wasn't a huge problem for most of history, when humans who needed to spell things out were generally standing pretty close to one another. But when people began to gain the ability to communicate over long distances, problems arose.

Whether this makes more sense than "Edward, Tango, Zebra" is up to you.

“The story goes that it started with semaphore relay stations,” says Brian Kelk, a computer scientist who’s worked at Cambridge University and who maintains an exhaustive page about spelling alphabets. He’s not a linguist or anything; he just says he happens to be fascinated by this stuff. “Someone would be watching incoming signals and shouting out letters to someone sending outgoing. They invented phonetics for some troublesome letters,” he says. The British military came up with the first few examples, just for letters they found the most difficult: “P as in pip,” “B as in beer.” Those were set down in regulations in 1904. Between then and the end of World War II, the British, the Americans, and various telecommunications companies kept working on these alphabets, producing dozens of standards.

Just as the names of letters are in groups, spelling alphabets also might have some sense of thematic organization. “We remember better things which are linked in terms of their meaning,” says Valerie Hazan, a professor of speech sciences at University College London. (We’ll be hearing a lot more from her.) Geographic place names are one group. From the 1912 Western Union Spelling Alphabet, just for example, we have “B as in Boston,” “N as in Newark,” and “T as in Texas.”

First names are another group. From the 1917 Royal Navy telephonic alphabet: “G as in George,” “W as in Willie,” “E as in Edward.” And, bizarrely, dances show up as a group: “F as in Foxtrot,” “T as in Tango,” “J as in Jig.”

For about 80 years, governments and corporations futzed with these spelling alphabets, and learned that some stuff didn’t work—it turns out, for example, that “Lima” is also the Malay word for the number five. A tremendous amount of research, time, and money was invested into figuring out the optimal spelling alphabet—at least for the three languages that the International Civil Aviation Organization (ICAO, the United Nations agency that handles air transportation) felt significant enough to have one (English, French, and Spanish). The ICAO scrambled, using researchers across the globe on the problem, and by 1959 had finalized what is today probably the best-known spelling alphabet: Alfa, Bravo, Charlie, Delta, Echo, and so on. (As a side note: “Alfa” is not a typo. The whole “ph equals f” thing is confusing, and reasonably so, for non-English speakers. The same goes for the alphabet’s J—Juliett with a doubled final letter so the French won’t say “Juliay.”)

A tremendous amount of research, time, and money was invested into figuring out the optimal spelling alphabet.

That is the now the standard alphabet for organizations including NATO (which often lends its name to the alphabet), the Federal Aviation Administration of the United States, the International Amateur Radio Union, and pretty much any international group that wants or needs a standard. It’s certainly the most commonly used spelling alphabet in the world, but it is, as most of these alphabets are, exceedingly Anglocentric.

Other languages have come up with their own spelling alphabets. Some needed wholly new ones, such as Russian, which uses the Cyrillic alphabet. “Г as in Григо́рий” is the Russian version of “G as in Gregory.” Japanese and Mandarin Chinese both have their own letter-based alphabets (Kana and Pinyin, respectively) in addition to their traditional logographic alphabets (in which symbols stand in for whole words or phrases, rather than just sounds). Those letter-based alphabets, in turn, have their own spelling alphabets.

Some languages that use the Roman alphabet, as English does, have letters of their own. Take Æ in Danish and Norwegian, which is usually given “Æ as in Ægir,” a figure from Norse mythology. Spanish has the Ñ, though precious few words start with it. Despite that, most people go with “Ñ as in Ñoño,” which means “dull.”

English was the first language to have these spelling alphabets, so perhaps that’s why other languages follow its general outline and themes. Most spelling alphabets around the world are still based on place names and given names: (the equivalent of) “□ as in Tokyo,” “Δ as in Demetrios,” or “И as in Ivan.”

But by around the late 1960s, things had calcified. The official or widely accepted spelling alphabets were set. Yet here we are, in 2019, with an actual need for a new one.

Voice call quality has gone down over the past two decades. Mobile phones have added convenience and a million other things, but they have done away with a wired network dedicated solely to voice communication, as well as the large microphones and speakers of old landlines, which featured decades of refinements to improve call quality. Cell phones, on the other hand, rely on tiny, awful microphones, and tiny, awful speakers for calls, and tiny, awful allocations of bandwidth. Mobile networks can be compromised by everything from streaming video, to the presence of a tree or wall, to the weather. Most importantly, they've dropped the emphasis on voice quality. Nobody seems to care any more whether they can hear a pin drop.

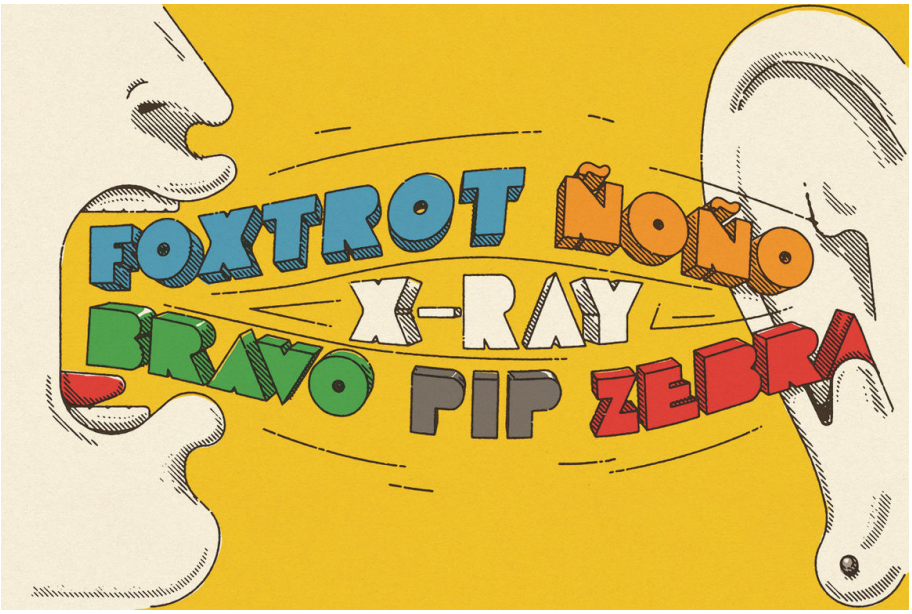
Sure, much communication has moved over to text, email, and social platforms, but everyone still needs to talk on the phone sometimes. English is such a widely spoken language that it comes in many different flavors, dialects, and accents, which further complicates understanding people clearly over a shoddy mobile connection. Independent of their use in military and aviation capacities, we sort of need spelling alphabets now more than ever. The problem is that what we've been given by the 50-year-old standard is deeply flawed for modern use.

"We know in speech perception that frequent words are much more easily heard in noise than infrequent words," says Hazan. That why it is a pretty poor choice to use, say, "S as in Sierra" (the standard) instead of "S as in sugar." And many of these alphabets were designed for international use. So why do some of them use hyper-local words like "Newark," or strangely outdated, unfamiliar names like "Ida," "Bertha," or "Nelly"?

The options for certain letters—Q and X, we're looking at you—are not great, but come on. "Q as in Québec" is a truly awful choice, with multiple pronunciations ("keh-beck," "kweh-beck," and I even heard a Brit in a radio interview say "kyoo-beck"). And the emphasis is on the second syllable, not even on the syllable with the most important letter! Early common choices for X included "Xanthippe" (the wife of Socrates or some figure in Greek mythology?), "Xaintrie" (a town of 300 in central France), and "Xerxes" (a couple of Persian kings). Eventually everyone settled on "X-ray," which is fine, but basically the equivalent of saying "X as in X."

Despite the alphabet needing to have global use, some of the words are incredibly difficult to pronounce for some people. Think about the word "foxtrot." "That's virtually impossible to say," says Hazan. Right in the middle is a traffic pileup of consonant sounds: K, S, T, and R, with no vowel break. For speakers of Spanish, which does not allow so many consonants to be grouped together without a vowel, it is an insanely difficult word to say, not to mention about as outdated as the name "Bertha."

Hazan, in 2006, was asked for a BBC Radio story to see if she could come up with a better spelling alphabet. "We chose 12 words to be replaced, the ones we felt the most problematic," she says. "Alfa" became



Different languages have their own techniques for conveying accurate spelling.

"apple," "Québec" became "queen," and "Zulu" became "zebra," to name a few. These selections were informed by common, easy-to-pronounce words that can carry through noisy connections. (Soft sounds, such as the "th" in "thought," are much lower in volume and harder to hear than, say, a vowel.)

To test her plan, Hazan set up noisy phone calls, and tried to convey four-letter nonsense combinations (like, say, "Apple Zebra Queen Lemon") to both native and non-native speakers of English, in both her new alphabet and the old ICAO standard. "We put quite a lot of work into this, and were quite certain that our new words were going to be the ones to win out," she says.

So, these words corrected for all of these problems of localization and soft sounds and outdated terminology. They must have been much more effective, right?

"No, they were not," says Hazan, with some dry amusement.

People tend to make up their own spelling alphabets and pass them down.

Turns out there was effectively no difference between the new, improved spelling alphabet and the old standard. If certain letters were in certain places in the nonsense combination, the new version might be more effective; in other places, the old version was. No difference! After all that!

This can be partly explained because people have just grown familiar with the whole "alfa-bravo-charlie" thing. It's in books and movies, it's just one of those things we absorb without thinking about it. The other possible explanation is that these are equally effective or ineffective because people tend to make up their own spelling alphabets and pass them down. Anything beyond what you're used to is the same as anything else, more or less.

The way I spell my name is one of these personal versions. "N as in Nancy" appears in a 1947 ICAO attempt (though today it is "November"), but "S as in Samuel" is nowhere. My version is cobbled together. "Nancy" comes from my dad, I think. I have a vague recollection of coming up with Samuel on my own—though I'm sure I must have heard it somewhere. It seems to work, so I've stuck with it.

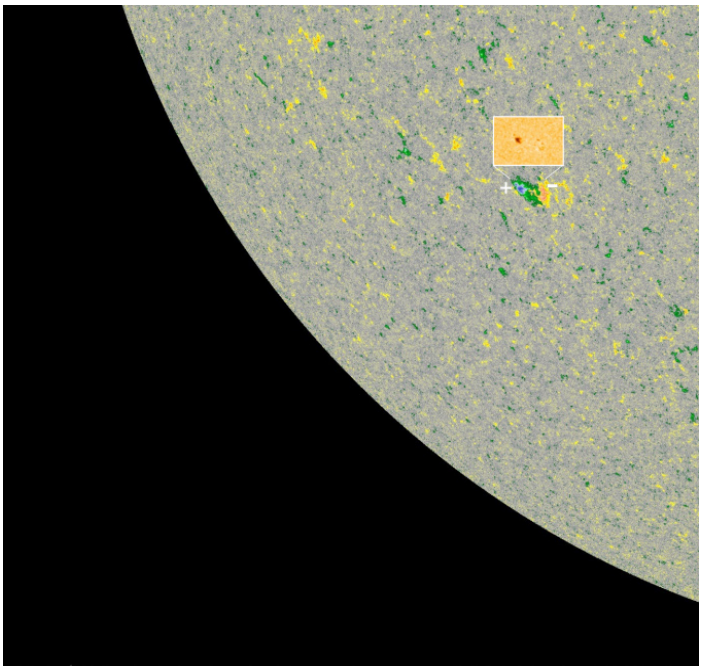
The ICAO or NATO spelling alphabet might be by far the most common one of its type, but I'd bet it's nowhere near as popular as the millions of individual spelling alphabets we all devise and pretty unknowingly pass to our children. And here's the real problem of coming up with a new standard: Everyone who needs one already has one, and it's whichever of the millions of variations is most comfortable. It's absolutely possible that "Sierra" or "Susan" or "Susquehanna" would be a better choice than "Samuel," on the scientific basis of difference from other words or frequency of phonemes best suited to a noisy cell phone connection. But I'm sticking with "Samuel."

Best 73s Dan

https://www.atlasobscura.com/articles/best-spelling-alphabet

Solar Cycle 25 is Slowly Coming to Life

November 2, 2019 / Dr.Tony Phillips



Nov. 1, 2019: Breaking a string of 28 spotless days, a new sunspot (AR2750) is emerging in the sun's southern hemisphere–and it's a member of the next solar cycle. A picture of the sunspot is inset in this magnetic map of the sun's surface from NASA's Solar Dynamics Observatory: *(Photo right)*

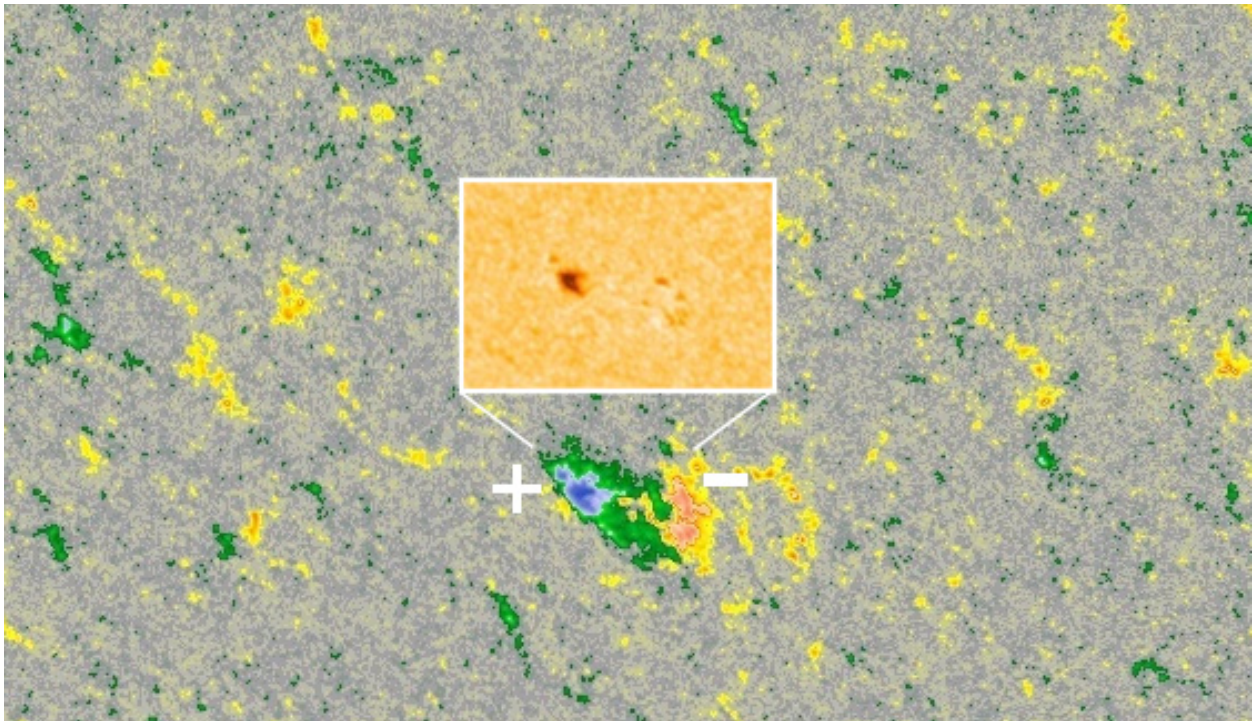
How do we know AR2750 belongs to the next solar cycle? Its magnetic polarity tells us so. Southern sunspots from old Solar Cycle 24 have a -/+ polarity. This sunspot is the opposite: +/-. According to Hale's Law, sunspots switch polarities from one solar cycle to the next. AR2750 is therefore a member of Solar Cycle 25.

Shortlived sunspots belonging to Solar Cycle 25 have already been reported on Dec. 20, 2016; April 8, 2018; Nov. 17, 2018; May 28, 2019; July 1, 2019; and July 8, 2019. The one on July 8, 2019, was significant because it lasted long enough to receive a number: AR2744. Record-keepers will likely mark it as the first official sunspot of Solar Cycle 25. If so, AR2750 would be the second.

The increasing frequency of new cycle sunspots does not mean Solar Minimum is finished. On the contrary, low solar activity will probably continue for at least another year as Solar Cycle 24 decays and Solar Cycle 25 slowly sputters to life. If forecasters are correct, Solar Cycle 25 sunspots will eventually dominate the solar disk, bringing a new Solar Maximum as early as 2023.

Best 73s Tony

https://spaceweatherarchive.com/2019/11/02/solar-cycle-25-is-slowly-coming-to-life/



This little-known inventor has probably saved your life

By Rebecca Seales BBC News, in Melbourne

On Friday 19 October, 1934, the passenger plane Miss Hobart fell from the sky to the sea.

Eight men, three women and a baby boy fell with her, swallowed - it's believed - by the waters of the Bass Strait that lies between Tasmania and mainland Australia.

The plane's wreckage was never found.

One of those on board was a 33-year-old Anglican missionary, Rev Hubert Warren, who had been travelling to his new parish in Enfield, Sydney. His wife Ellie and four children had stayed behind, intending to follow by boat.

The reverend's last present to his eight-year-old son, David, had been a crystal radio set that the boy treasured deeply.

As a boarder at Launceston Boys' Grammar School in Tasmania, David Warren tinkered with the machine after lessons, learning what made it work. He charged friends a penny to listen to cricket matches, and within a few years was selling home-made copies at five shillings each.

As a schoolboy, David was fascinated by electronics and learned to build his own radio sets

Image copyright Warren family collection

Young David was charismatic and a wonderful orator - a boy with star quality. His family, who were deeply religious, dreamed he would become an evangelical preacher.

Hubert Warren (left) died in one of Australia's first major plane accidents

Image copyright Warren family collection

But that was not to be. The gift from Rev Hubert, Man of God, had launched a love affair with Science.

It would prove to be of life-saving significance.

By his mid-twenties, David Warren had studied his way to a science degree from the University of Sydney, a diploma in education from Melbourne University and a PhD in chemistry from Imperial College, London.

His specialty was rocket science, and he went to work as a researcher for the Aeronautical Research Laboratories (ARL), a part of Australia's Defence Department that focused on planes.

In 1953, the department loaned him to an expert panel trying to solve a costly and distressing mystery: why did the British de Havilland Comet, the world's first commercial jet airliner and the great hope of the new Jet Age, keep crashing?

He thought it might be the fuel tanks; but there were dozens of possible causes and nothing but death and debris as evidence. The panel sat down to discuss what they knew.

"People were rattling on about staff training and pilots' errors, and did a fin break off the tail, and all sorts of things that I knew nothing about," Dr Warren recalled more than 50 years later.

"I found myself dreaming of something I'd seen the week before at Sydney's first post-war trade fair. And that is - what claimed to be the first pocket recorder, the Miniphon. A German device. There'd been nothing before like it…"

The Miniphon was marketed as a dictation machine for businessmen, who could sit at their desks (or on trains and planes) recording letters that would later be typed up by their secretaries. David, who loved swing music and played the clarinet, only wanted one so he could make bootleg recordings of the jazz musician Woody Herman.

However, when one of his fellow scientists suggested the latest doomed Comet might have been hijacked, something clicked for him.

The chances that a recorder had been on board - and survived the fiery wreck - were basically nil. But what if every plane in the sky had a mini recorder in the cockpit? If it was tough enough, accident investigators would never be this confused again, because they'd have audio right up to the moment of the crash. At the very least, they'd know what the pilots had said and heard.

The idea fascinated him. Back at ARL, he rushed to tell his boss about it.

Alas, his superior didn't share his enthusiasm. Dr Warren said he was told: "It's nothing to do with chemistry or fuels. You're a chemist. Give that to the instruments group and get on with blowing up fuel tanks."

'Talk about it and I'll have to sack you'

David knew his idea for a cockpit recorder was a good one. Without official support, there was little he could do about it - but he couldn't get it out of his mind.

When his boss was promoted, David pitched his invention again. His new superior was intrigued, and so was Dr Laurie Coombes, ARL's chief superintendent. They urged him to keep working on it - but discreetly. Since it wasn't a government-approved venture or a war-winning weapon, it couldn't be seen to take up lab time or money.

Dr Warren said the chief superintendent had cautioned him: "If I find you talking to anyone, including me, about this matter, I will have to sack you."

It was a sobering thought for a young man with a wife and two children.

But his boss's backing extended to sneakily buying one of the precious new dictation recorders, and chalking it up as "an instrument required for the laboratory…"

David holding forth at ARL in 1958

Image copyright Defence Science and Technology, Australia

Encouraged, Dr Warren wrote up his idea in a report, titled "A Device for Assisting Investigation into Aircraft Accidents", and sent it out across the industry.

The pilots' union responded with fury, branding the recorder a snooping device, and insisted "no plane would take off in Australia with Big Brother listening".

That was one of his better reviews.

Australia's civilian aviation authorities declared it had "no immediate significance", and the air force feared it would "yield more expletives than explanations".

Dr Warren was tempted to pack it all in.

But his eldest son, Peter, says his father was stubborn, with a non-conformist streak that coloured his whole worldview.

"He took us skiing," he recalls, "but he did the skiing in washing-up gloves, because he wasn't going to pay $30 for a pair of ski gloves. He wasn't the least bit afraid. He wasn't going to wait and follow the herd at all."

It was in that spirit that Dr Warren took to his garage and assembled his 20-year-old radio parts. He'd decided the only way to overcome his critics' mockery and suspicion was to build a solid prototype.

It would be the first ever "black box" flight recorder.

'Put that lad on the next courier!'

One day in 1958, when the little flight recorder had been finished and finessed, the lab received an unusual visitor. Dr Coombes, the chief superintendent, was showing round a friend from England.

"Dave!" he said, "Tell him what you're doing!"

Dr Warren explained: his world-first prototype used steel wire to store four hours of pilot voices plus instrument readings and automatically erased older records so it was reusable.

There was a pause, then the visitor said: "I say Coombes old chap, that's a damn good idea. Put that lad on the next courier, and we'll show it in London."

The courier was a Hastings transport aircraft, making a run to England. You had to know somebody pretty powerful to get a seat on it. Dr Warren wondered who this man was who was giving away tickets round the world to somebody he'd never met.

The answer was Robert Hardingham (later Sir Robert), the secretary of the British Air Registration Board and a former Air Vice-Marshal in the RAF.

In David's words: "He was a hero. And he was a friend of Coombes, and if he gave away a seat, you took it."

A few weeks later, Dr Warren was on a plane bound for England - with strict instructions not to tell Australia's Department of Defence what he was really doing there, because "somebody would frown on it".

In a near-unbelievable irony, the plane lost an engine over the Mediterranean.

Dr Warren recalled: "I said, 'Chaps, we seem to have lost a donk - does anyone want to go back?' But we'd come from Tunisia and it was about 45 degrees overnight. We didn't want to go back to that hellhole."

They decided they could make it if they ploughed on.

By 1958, David and his wife Ruth had four children. The eldest, Peter, remembers him flying off to England

Image copyright Warren family collection

He recorded the rest of the flight, thinking that even if he died in that limping transport plane, "at least I'd have proved the bastards wrong!"

"But unfortunately we didn't prang - we just landed safely…"

In England, Dr Warren presented "the ARL Flight Memory Unit" to the Royal Aeronautical Establishment and some commercial instrument-makers.

The Brits loved it. The BBC ran TV and radio programmes examining it, and the British civil aviation authority started work to make the device mandatory in civil aircraft. A Middlesex firm, S Davall and Sons, approached ARL about the production rights, and kicked off manufacturing.

The so-called "black box" is in fact a strident orange colour

Image copyright AFP/GettyImages

Though the device started to be called "the black box", the first ones off the line were orange so they'd be easier to find after a crash - and they remain so today.

Peter Warren believes the name dates from a 1958 interview his father gave the BBC.

"Right at the end there was a journalist who referred to this as a 'black box'. It's a generic word from electronics engineering, and the name stuck."

In 1960, Australia became the first country to make cockpit voice recorders mandatory, after an unexplained plane crash in Queensland killed 29 people. The ruling came from a judicial inquiry, and took a further three years to become law.

Today, black boxes are fire-proof, ocean-proof and encased in steel. And they are compulsory on every commercial flight.

It's impossible to say how many people owe their lives to data captured in the death throes of a failing plane - to the flaws exposed, and the safety innovations that followed.

'I'm a lucky bastard'

David Warren worked at ARL until his retirement in 1983, becoming its principal research scientist. He died on 19 July, 2010, at the age of 85.

For more than 50 years, his pioneering work on the black box went almost unacknowledged. Finally in 1999, he was awarded the Australian Institute of Energy Medal, and then in 2002 was made an Officer of the Order of Australia (AO) for his service to the aviation industry.

Asked why it took so long for him to be recognised, his daughter Jenny observes: "His battle was inertia. He had this huge enquiring mind, scientifically visionary, and could see how it would work - how it would play out.

"He was sitting there in 1958, saying 'this device can make this happen.'"

Peter Warren blames "a 1950s colonial mindset which said nothing good could come out of this country, and everything good would get invented in either the UK, or Germany or America".

The historic secrecy surrounding ARL's work, which is now more widely understood, is another likely factor.

Dr Warren lived to see Qantas name an Airbus A380 after him in 2008. Jenny Warren says she's been trying to get a seat on it ever since.

David Warren pictured in 2002 with a Miniphon, which inspired the first combined voice and data recorder

Image copyright Fairfax Media via Getty Images

David Warren's funeral featured a tongue-in-cheek nod to his legacy

Image copyright Reuters

But he never saw a penny in royalties from the black box.

He was often asked if he felt hard done by. Peter says his standard response was: "Yes, the government got the results of what I did. But then, they also didn't charge me for the other hundred ideas that didn't work."

David's children inherited his sense of humour.

At Peter's urging, Dr Warren's death notice included his personal catchphrase: "I'm a lucky bastard."

At Jenny's request, he was buried in a casket labelled: "Flight Recorder Inventor: Do Not Open."

Do they think of their dad when flying?

His daughter replies simply: "Every time."

Best 73s Rebecca

https://www.bbc.co.uk/news/world-australia-49012771 18 July 2019

The HARS Technical Library

This is the new lending library thanks to Bob G3IXZ, who is the "owner". The library is of course at Hill House - thanks to Geoff G8BPN. Great stuff here…, do take a look.

Subjects covered include: Antennas, Technical, Reference, Historical, Equipment and QRP.

Articles Wanted!

Please think about submissions/projects you might like to send in or see.

General topics and key words are listed below.

		Training
		QRP/QRO
Members projects	Events	Illustrations
Members station	Notices	Photographs
Construction	Help	Early radio
Items wanted	News	Restoration...
Items for sale	DX	
Hints and kinks	Militaria	

... or anything else that you think might be of interest to HARS members. If you have an idea for a submission, but don't know how to present it, I will do it for you.

Please submit anything and everything to journaleditor@herefordradioclub.uk or talk with Mike at the Club meetings.

73s es GDX, G3LZM
Mike Bush (Editor)

Getting a Guru – advice to the young Radio Amateur

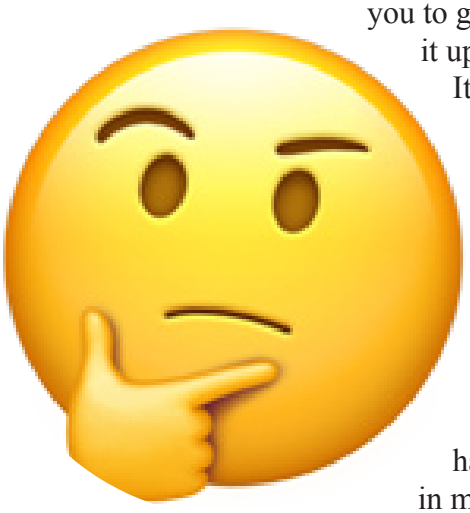
Duncan James

Everyone in the wonderful world of wireless needs a guru, a wise guide to whom you can go for advice when your SWR won't come down or your fuses keep blowing. In America they are called 'Elmers', meaning one of the unsung fathers of Amateur Radio. It is a name coined in 1971 in the ARRL's journal, QST. But this isn't America so let's stick to guru. If you are new to radio, or even if you are not, you will need a guru and there's plenty of choice but you will have to shop around.

Join the local radio club, which you will have done if you are reading this, and you'll find everyone knows more than you do about radio, or they think they do, so you must select your guru with care, after all you don't want to end up with a dud.

Interviews

You will need to plan your interviews. Start with the loudest candidates since you can usually dismiss them at an early stage. They are the ones who seem to know it all but are usually bluffing. Try a few sticky questions that previously you have Googled so that you know the answer and see if the guru candidate comes up to scratch. I'd recommend, "What are pin diodes?" as a useful question. It counts as a failure if the prospective guru tells you to go away and look it up on the Internet. It also counts as a failure if the explanation involves complex mathematics that leaves your head spinning – unless you have a degree in mathematics, in which case your head won't be spinning and you may have found your guru, or you may possibly be a guru but hadn't realised it.



Don't ask a sticky question about antennas because you will only get sticky answers, or more likely answers that are squelchy, muddy and "possibly right or possibly wrong, it all depends……" As you will learn, everything to do with aerials is a lot like politics, it's a matter of opinion and permanently unresolved.

You could also have a few tricky components in your pocket. A resistor is the basic one. Flourish it under the nose of the guru candidate and claim "not to be too sure of the value, could you check it for me?" Disqualification answers are "sorry I left my specs at home," or "I can't do those, I'm colour blind," both of which could be genuine but you won't want a flawed guru, so my advice is to move on. You can always check the validity of the "sorry I left my specs at home," excuse by having in reserve a large, 5 watt example with colours that you could see with your eyes closed.

Capacitors are a better bet.

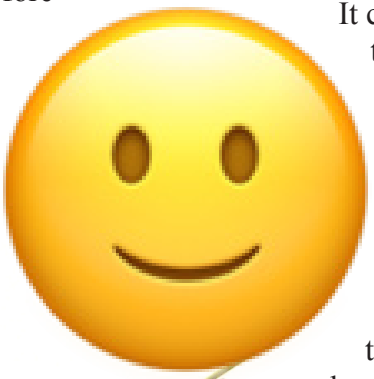
Capacitors are a better bet. Get something with one of those incomprehensible numbers on it, 101 or 103, and have a magnifying glass in your pocket to circumvent the lame "specs at home" excuse.

One of the best tests is the 'circuit diagram challenge." Here you can pose a whole series of questions. A double-superhet circuit diagram would serve and with your finger firmly planted on the bridge rectifier (you should be able to find that) you then ask a sticky question such as "Is this the vfo?" or "I wondered if this was the discriminator circuit." The deeper your demonstration of ignorance the more likely you are to get a response. It's called leverage.

You should be aware that gurus with a suitable depth of knowledge tend to have been radio amateurs for many years so, sadly there is always a risk that they will soon become Silent Keys so, depending upon how near your guru is to the Silent Key threshold, you may have to repeat your candidate selection procedure

more than once. This can be tricky because, by then you will be expected to know all the guru test material that you used before so it will be no use playing the innocent. It may therefore be a matter of raising your game.

If your club runs the Advanced Course for the licence exam you could do worse than sit in on the lectures and throw in the occasional challenging question – off piste, so to speak, which may well be dismissed as not in the syllabus (which could be an "I don't know") so always ask for an explanation during the coffee break.



It can be valuable to know all the guru selection manoeuvres because it is always possible, if you are lucky and have marked, learned and inwardly digested all that you have been told by your guru and other gurus that you will encounter, you may one day be subjected to guru selection and perhaps become a guru yourself.

Best 73s Duncan