K9YA Telegraph

Robert F. Heytow Memorial Radio Club

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Stocking Stuffers

Two Elenco Kits Reviewed

Philip Cala-Lazar, K9PL

It's that time of the year again, choosing just the right gifts for your family and friends. You know you've been good all year, so how about a couple of stocking stuffers for your very deserving self?

With that gift-giving gesture in mind, and wanting to add some miscellaneous test gear to the shack, I found Elenco's K37 (RS-400 wired version) resistance and K38 (CS-440 wired version) capacitance substitution box kits at prices too good to pass up. The K37 ranges from 10Ω to 1MΩ (5% tolerance-½watt) in 24 steps and the K38 from 100pF to 0.1µF (50-100V) in 24 steps.

"You've been good all year…"

Elenco chose not to supply a kit-specific printed circuit board for its capacitance substitution box–the two kits share the same circuit. Ergo, as supplied, the K38's PCB is identical to the K37's, so, when populating the board, wherever a component location is marked with an "R" think "C" and all will go well. The kits' nicely molded and textured black plastic enclosures offer sharply-screened, easy-to-read, white labels.

As expected, construction of these basic kits is mostly straightforward–no missing parts (Bravo!)–and Elenco thoughtfully includes a tube of lead-free solder. I prefer and used Pb/Sn solder in the construction of my kits, but it's good to have some lead-free solder on hand–just in case. Another smile-maker, the included printed Assembly and Instruction Manuals–no need to print your own from the manufacturer's Web site.

Assembly Hints K37 & K38

The metal plating on the kits' two alligator clips were reluctant to make a good solder joint with the test leads until touched up with a few strokes of an emery board, or similar.

Installation of wafer switches SW1 and SW2: The assembly manual suggests loosely fastening the switches to the front panel before soldering them to the PCB. I found it easier (the pins are more accessible) to first solder SW1 and SW2 to the PCB before mounting them with washers and nuts to the front panel.

Jumper wires 1 and 2: Soldered from SW1 and SW2's wiper pins to "the pad without a hole." The pads on my boards had holes.

Elenco's K37 resistance and K38 capacitance substitution box kits are practical, simple, fun-to-build and inexpensive additions to every ham's building and troubleshooting armamentarium. Now, when home-brewing or troubleshooting gear, finding the right component value is only a turn of the knob away. ■

http://www.elenco.com/

Inside This Issue...

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Enigma Variations

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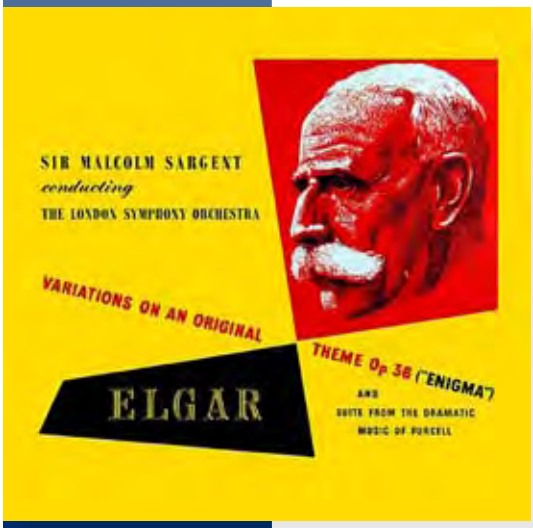

Variations on an Original Theme Op. 36 ("Enigma")

Sir Edward Elgar's beautiful 1893 composition, originally titled "Variations on an Original Theme," began with the word "Enigma" printed over the first bars of its music. The piece was reportedly well received among English audiences after its premiere performance in London, which ironically occurred under the baton of a German conductor. Each of the variations represented one particular personality; the challenge was to figure out who they were. From all we know, the secret died with Elgar in 1934. [1]

Whether Elgar's work and its title were the inspiration for the name which Arthur Scherbius gave his famous encryption machine is questionable. But the fact that the puzzle regarding the identities of those whom the variations were meant to represent was not solved does bear eerie coincidence with Scherbius' intent and purpose for the machine.

ULTRA

History does not reveal itself immediately. Until 1974, the entire enterprise of decryption and the use of Axis ciphers by the British and their Allies, code-named ULTRA, was a closely guarded secret. Then, when Group Captain Frederick Winterbotham revealed the existence of ULTRA and its role in the British and Allied prosecution of World War II, the contemporary histories of that war suddenly seemed inadequate. [2] What we think of as history is only as accurate as the available record and the diligence of the historian uncovering it. It is inevitable that with the passage of time, the treatment of events by historians will change.

With the revelation of ULTRA and the subsequent slow release of records regarding its role in the war, what might have been thought of as fairly comprehensive treatments of events can be seen as incomplete. Popular literature of the 1950s evidences at least two major examples of how the process of history can impact our perceptions. One of those involves the book and movie, *The Man Who Never Was* [3], and the other was the movie *Five Fingers*, born of the book, *Operation Cicero* [4][5].

Both of those stories involve the elaborate system of deception, which the British developed and implemented in their efforts to protect the secrecy of their intelligence services, and the central role of wireless communication in the prosecution of the war.

In *The Man Who Never Was*, the corpse of a recently deceased British citizen was used for a deception plan. The body was to be transported by submarine to a spot off the Atlantic coast of Spain, where it would be released and allowed to float to shore. The corpse was dressed as a British officer to whom a diplomatic courier-style briefcase had been chained. The briefcase contained documents and the clothing contained personal effects designed to support his identity and his mission.

"Code-named ULTRA"

The plan was devised to convince the Germans of the authenticity of a letter, placed in the briefcase, addressed to a British general in North Africa hinting strongly at plans for an invasion of German held territory in the eastern Mediterranean. The plan was designed to divert German attention from the intended invasion location, Sicily. The book's author was one of the two principal authors and directors of the original plan, Ewen Montagu, who served in the intelligence division of the British Admiralty. The plan bore the somewhat macabre title "Operation Mincemeat."

However, once the secret of ULTRA was revealed, the story of *The Man Who Never Was* became demonstrably incomplete. The scheme was much more elaborate. The body, identified as Major Martin, came ashore in a part of Spain known to be infiltrated by the Germans. It was anticipated that Spanish officials would immediately notify the Germans of the appearance of the British officer who had died in an aviation accident while on a mission to deliver an important letter to a general in North Africa.

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What escaped mention in the book and movie were references that would have hinted at the existence of ULTRA. The British listening services monitored the airwaves for traffic from German agents in Spain. Bletchley Park hoped to trace the communications networks being used by those agents to report the appearance of the late Major Martin on the Spanish coast, and then to trace the transfer of that news and any plans that might be formulated to deal with the supposed plan for the invasion.

The planted information was intended to provide "cribs" for the code breakers, predictable information that was anticipated to appear in the message traffic, thus giving the code breakers some hints or keys into the settings of Enigma that would help break the traffic. [5] Following those leads would provide invaluable information regarding the extent of German intelligence activities in the region.

The Germans became convinced of the authenticity of the plot, diverting some forces from Sicily to the eastern Mediterranean. In the movie, we are treated to scenes in which a German spy, disguised as an Irishman, travels to England in an effort to determine whether the information derived from the various documents carried by Major Martin is true.

Code Name "Polar Bear"

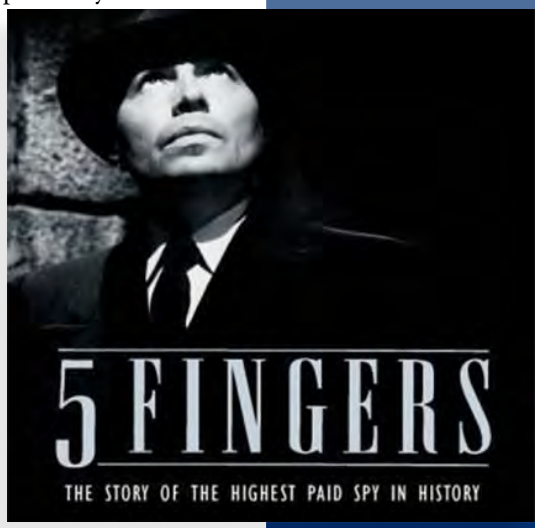
Once in England, the spy, O'Reilly, sets up his suitcase transceiver in his room, snaking his power cord, antenna and counterpoise around the room, and communicating with his German controllers using the supposed code name "Polar Bear." But the "Morse" sent by the actor is unreadable and those of us who know these things aren't certain whether "Polar Bear" is the station calling or the station being called (in addition to wondering why such a lengthy callsign would have been used—allowing the British direction finding units to locate the agent!).

"Operation Cicero"

Just how the immigration and customs security personnel might have managed to miss the presence of that transceiver and the Luger when they opened O'Reilly's suitcase is equally unclear. We are left with the impression that fastidious attention to detail was operationally necessary to deceive the Germans about Major Martin, but not deemed cinematically necessary in the protection of the homeland. Is there another deception going on here?

The second example of an incomplete history is seen in the movie *Five Fingers*, starring James Mason as a German spy in the British embassy in Turkey. The movie was based on the book *Operation Cicero*, which had been written by the German military attaché, Moyzich, who had been responsible for contact with Mason's character, code-named Cicero.

The British ambassador's valet, played by Mason, had visions of grandeur and saw the opportunity to market his access to British secrets. Photographing secret documents as they came to his employer, Cicero sold his films to the Germans for handsome sums. In the film, the British suspect a mysterious Polish countess, based on rumors of her suspiciously newfound wealth, exiled in Ankara, and known for her widespread contacts in the diplomatic community. The British send a special counter-intelligence agent to Ankara and Cicero is ultimately foiled when he sets off the new alarm, which has been installed on the ambassador's safe.



Neither the film, nor the books written about Cicero before 1974, mention ULTRA. Some time after the appearance of the attaché's book, a book by Cicero, Elyesa Bazna, appeared. According to a Wikipedia entry, the Bazna book was written with the assistance of British intelligence and intended not only to correct the record but also to divert attention from the discovery of ULTRA and of the elaborate deception planning in which the British and the Allies had engaged to attempt to convince the Germans that the invasion of Normandy wouldn't occur there but in the Pas de Calais. [7]

Although the film does not refer to the existence of ULTRA, the film shows a discussion between British officials that discloses they have cracked German diplomatic codes involving messages that refer to Cicero. The mention of this "leak" could be the result of the movie's more American origins, however.

After ULTRA was revealed, it became evident the British had suspected the existence of a spy in Ankara as the result of information contained in ULTRA decrypts of German diplomatic message traffic that referred to material passed to the Germans by Cicero.

Continued - Enigma Variations on Page 7

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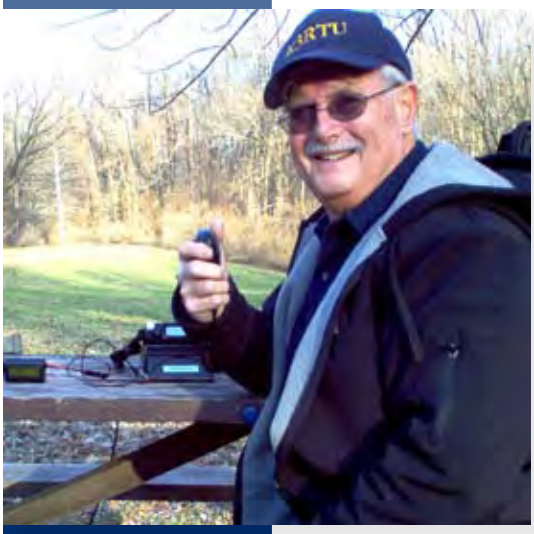
QRP and the Great Outdoors

Jim Smith, K3RTU



Jim, K3RTU

Growing up the son of an avid hunter and fisherman I became a lover of the outdoors. Many of my happiest days were spent with my dad outdoors somewhere in the forests, streams and lakes of eastern Pennsylvania. By this time the ham radio bug had also bitten me hard.

However, ham radio just didn't seem to mix with my love of the outdoors. In early 1962, when I got my Novice license, ham equipment weighed too much, was too big to be lugged anywhere in a backpack and pretty much only ran on AC.

Fast-forward fifty some years, and boy did things change. In 2008 I retired, but just before doing so the QRP bug bit me. I bought an Icom 703 transceiver and enjoyed many happy hours of operation at my home station. I was amazed at what I could work with just five watts CW or ten watts SSB. Then I did something many other outdoor lovers among the ham radio community were doing. I took that little rig, a SLA (sealed lead acid) battery and a 20-meter dipole and put it all into a backpack and headed out to my favorite hiking spot.

"I could work DX!"

Now I had the chance to be outdoors enjoying nature and ham radio at the same time! My first time out with my backpack was a big success and proved to me I could work DX! Each foray into the outdoors has been a learning experience that taught me how to perfect my technique and equipment.

Soon, I began to experiment with different types of antennas and ways of deploying them. I have successfully used: dipoles, a 51-foot G5RV, a Buddistick vertical, end-fed slopers and a tape measure vertical constructed from a design by KF5FNP featured in *QST*. One lesson I learned was that terrain and flora in various locations can make a big difference in the type of antenna that can be easily and effectively deployed. For instance, in a heavily wooded area with lots of underbrush, a dipole or even a vertical can be a real challenge to deploy. The fewer lines I need to throw up into trees the better. Rotator cuff injuries to both shoulders make throwing lines high up into trees a painful and frustrating experience. I've found that an end-fed sloper connected to a 9 to 1 UNUN works well, as long as you use a few counterpoise wires or the coax itself as a counterpoise. Two of my backpack QRP rigs have built in antenna tuners and with those I've been able to run a fifty-foot wire right to the rig's antenna terminal to make contacts–with the aid of a counterpoise.

I've already mentioned the Icom 703, which is a great rig, but a little on the heavier side and also a tad greedy on receive current. My Yaesu FT- 817 is definitely lighter and better on receive current. Better still is my Elecraft KX3, which uses very little current on receive and is lighter than either of the other two rigs. All three of these rigs are super performers.

Since I've mentioned weight, the other nasty fact of life is that you also need to carry a battery. Here is where your backpack can get really heavy. I started out using SLA batteries. The 8-Ah size when fully charged can power one of the rigs mentioned above for several hours, but weighs about six pounds! A 2- to 3-Ah SLA will still give you up to two hours of operating time and weigh less than half what the 8-Ah weighs. I'm no longer a 21 year old and I need to keep the weight in the backpack down, so I've started using a lithium battery. My lithium iron phosphate battery is a clear winner because it weighs just a little over two pounds and still provides an amazing 14.5 Ah of current.

If you have minimalist tendencies and any type of external batteries would be too much bother then make use of your rig's internal battery compartment. Many of today's QRP rigs have room for AA batteries. I prefer using lithium AA batteries. They are excellent performers with long life, but

Continued - QRP and the Great Outdoors on Page 8

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Rose

Part VIII

Scott B. Laughlin, N7NET

Rose and Charlie were seeing each other on a regular basis, during the last few weeks of high school. Many of their dates were spent in the radio shack, while she learned Morse code.

"I think I want to earn my ham license," she announced one evening. "Can you help me?"

"You bet. Right now let's shoot for a Class B ticket."

"Ticket?"

"Well, ticket, license. The two terms are interchangeable. The testing schedule is once every quarter. I'll have to check, but I think the next testing session is in September. That will give us plenty of time to prepare you for it and you can test before going off to college."

"Okay.

For about fifteen minutes each evening she studied theory and code,

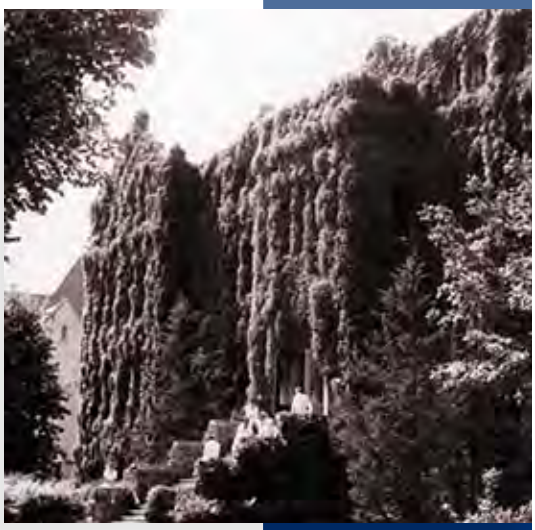
"You're still in the learning mode from high school. You'll be surprised how quickly you'll be ready for your test.

They worked day after day, week after week. Finally, test day arrived. With Virgil's permission, Charlie drove Rose to the FCC field office in Kansas City. She was nervous about the test, especially the code-sending portion. He brought along the J-38 key she'd been practicing with, in hopes the engineer would allow her to use it.

The engineer allowed it, and after an hour she earned her Class B amateur radio license, giving her CW privileges on 40-meters. Three weeks later, she received a copy of her license, which she framed and hung in Charlie's ham shack.

But Charlie had plans. He hadn't waited for the paper license to arrive. He was already building a forty-meter mobile transmitter with a rotor-selector providing three crystal-controlled frequencies. The power output was about twenty watts. The receiver was a transverter making the car radio capable of receiving forty-meter frequencies. The antenna was a bottom-loaded vertical, permanently tuned to cover that small portion of forty. Everything worked off the six-volt system. She just needed to have the motor running.

With the mobile station ready, he took her Ford coupe into the shop one evening and by midnight it was installed.



University of Kansas
Marvin Hall

The family farm was west of Butler, about two miles from the Kansas line, far enough for a good radio test. Virgil and Anne were impressed. Rose was ecstatic.

> *"Rose was ecstatic."*

The following week Rose packed her clothes and headed for Lawrence, Kansas to enroll at the University of Kansas and major in geopolitics.

Every evening at 2000 hours local time they met on one of those three frequencies and chatted, in CW, of course, for ten or fifteen minutes. When they were finished they each signed with 88.

There was a future with these two and they both knew it. ■

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Repurposing

Paul W. Ross, W3FIS

Sportsman's Dry Box

As a small boy, living in a modest-size town in upstate New York, Saturdays for my father was the day for "fix-it" and "honey-do" lists for work around the house. The first order of business for my father was often a trip to the local hardware store, and perhaps the lumberyard. This was long before the day of "big box" home supply stores.

Those old hardware stores were an amazing thing for a ten-year-old boy. My father was raised on a farm in Kansas, so was quite used to building, repairing, and working on no end of things. It must have been genetic, as I eventually moved into electrical engineering as a profession, eventually ending up teaching computer science, along with an occasional mathematics and physics course. A couple of good shop courses along the line did no harm either. If you are going to invent stuff, you are quite likely to have to build some of it yourself.

"XYL Friendly"

Well, one thing I learned from my early experience with the hardware store trips, and my trip through science and engineering, is to repurpose things. Just because something is intended for one thing does not mean that you can't use it for something else. Hence, the exponential growth of my junk box and bins of salvaged hardware. However, when you are looking for four of something, you can only find three....

Over the years in my hobby of amateur radio, I have run into many things that can be repurposed. I admit this ends up something like an augmented "hints and kinks" list, but here goes. If nothing else, it should prod you to think of all sorts of common things you can use for something else. Some are obvious, and others not so much.

Model airplane paint—both spray cans and little bottles. I find that buying spay paint in large quantities is a bad idea—the stuff sits around and tends to go bad. Interestingly enough, the model paints cover well, are pretty tough, and come in quite a range of colors. If you really need something tough, check out the appliance epoxy paints, though your range of colors seems limited—black, white, and "putty."

Clear plastic tubing, this stuff is great for slipping over coaxial cables that get fed through car windows for mobile operations. You might have to remove one end or other of the cable, either the coax connector, or the connection to the antenna. This greatly reduces wear and tear on cables and keeps them from getting damaged when the window is rolled shut. It is also much more "XYL friendly," as it avoids having to drill holes in her new car. You don't want to do that....

Zip ties, these are your friend for securing coiled-up cables. Just use the small size, and a pair of fingernail clippers quickly cuts them off when needed. At a few cents each, these are well worth having around. If you happen to have a bicycle cable tightener, you can tighten them up more than you can do by hand.

Wood from a craft store for key bases, stands for small radios and the like. They come in solid or plywood, various thicknesses, and some nicely shaped. Seal them good, and give them a coat of paint. Most craft stores, in the jewelry section, often carry a nice selection of nippers, pliers, tweezers, and other small tools.

Big box office supply stores carry a variety of useful items including double-sided foam tape (be careful, it may stick better than you might wish!). I have found the little 1/4" color coding dots useful for marking calibration points on my QRP rigs that don't have calibrated dials. These, and colored vinyl tape (often sold as a number of small rolls in various colors) is helpful in labeling those cables in your Field Day and "go" boxes.

Two-prong trailer connectors. I know, everybody likes Anderson Power Pole connectors. I am cheap, and can't quite bring myself to invest in a proper crimper and convert everything to Power Poles. I do mostly

Continued - Repurposing on Page 8

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Continued - Enigma Variations from Page 3

Obviously, the British could not act upon the information nor discuss it in dispatches to the embassy, as it appeared that all the traffic was being read. As a result, personal contact was necessary in order to look into the matter of embassy security.

Bletchley Park

As in virtually every disclosure resulting from the work of the Y services and Bletchley Park, it was imperative that action taken as the result of ULTRA intelligence be attributed to other sources. In the case of Cicero it becomes clear that had the British not closely guarded the existence of ULTRA, a spy such as Cicero, having access to the secret documents of the British ambassador in Turkey, could have discovered and revealed to the enemy the very existence of ULTRA, Bletchley Park, and the fact the Allies were regularly reading and decrypting the highest levels of German message traffic. The utility of disseminating information only to those with a "need to know" is evident.

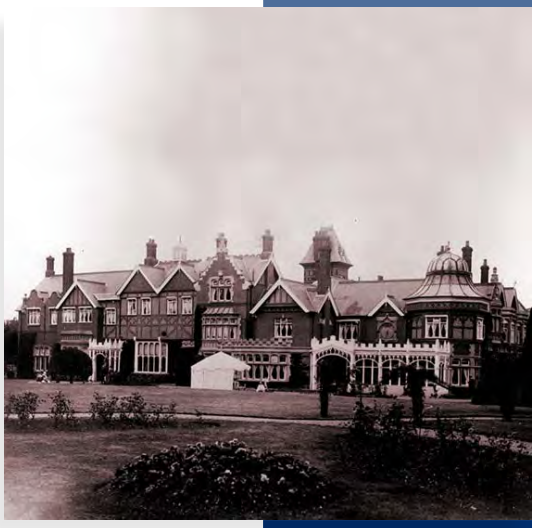
Cicero's disclosures turned out not to be as damaging as they could have been. The Germans were highly skeptical of Cicero's loyalty and suspected him of being a British plant. As a result, they rejected his information as unreliable. The role of double agents, and of the secret XX (Double Cross) Committee, is another fascinating subject for another day. The existence of the XX Committee and its work was another of the secrets jealously guarded for years after the war's end.

"The Man Who Never Was"

It is interesting to compare movie storylines with the events depicted in reliable and researched historical treatments. There are significant differences revealed in comparing each movie to the literature dealing with the same events and episodes. Rather than detail them here and possibly spoil the enjoyment of examining both, the reader is invited to read the books and watch the movies. You will not only see how history can be manipulated for cinematic or dramatic effect, but also thoroughly entertained in the process. [8] See if you can spot the real Ewen Montagu in the movie, *The Man Who Never Was* and the other elaborations, which enhance the entertainment value of both films.

The outcomes of both events depended upon the use of wireless communication in wartime, and on the use of deception to achieve military ends. The deceptions did not end there, however, as we have seen, because the untold part of the stories remained hidden from the audiences and readers until after Winterbotham's historic, but sometimes inaccurate, revelation of ULTRA.

Variations on a theme are all part of the process of history, and I can't help wonder whether Elgar's musical puzzle would have yielded to Alan Turing's genius? But, Turing had more pressing and consequential matters to deal with. ■



Bletchley Park

Notes:

[1] https://en.wikipedia.org/wiki/Edward_Elgar

[2] Winterbotham, Frederick, *The ULTRA Secret*, Weidenfeld & Nicolson, London, 1974.

[3] Montagu, Ewen, *The Man Who Never Was*, J.B. Lippincott Company, 1954

[4] Moyzich, L.C., *Der Fall Cicero*, Palladium Verlag, Heidelberg, 1952.

[5] *The Man Who Never Was* starring Clifton Webb, 1956, *Five Fingers* starring James Mason, 1952.

[6] Holt, Thaddeus, *The Deceivers*, Scribner, 2004, at pp. 369-378.

[7] Jeffrey, Keith, *The Secret History of MI6*, The Penguin Press, 2010, at pp. 503-504. See also: http://en.wikipedia.org/wiki/Elyesa_Bazna

[8] One of my British friends has reminded me that in Spielberg's treatment of D-Day, the British seem not to have played a part. Similarly, in *U-571*, the German submarine and its Enigma machine are captured by an American force; in reality, it was the U-110 which was captured by the British, yielding the first Enigma machine recovered from a U-boat in the war.

The Moment You Knew...

Of course you remember the defining moment when you had to get your ham ticket. Your eyes opened wide and you couldn't soak it in fast enough. Tell us about it—your Elmer—your first contact—your first rig, etc.

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Continued - QRP and the Great Outdoors from Page 4

not rechargeable. One caveat, you will have to run at a reduced power level. Plan to operate at fewer than three watts.

Will you be able to make contacts? Well you might be as pleasantly surprised as I was. Using the FT-817 running 2.5 watts I was able to make a 2,000-mile contact from Pennsylvania to Alberta, Canada on 20-meter SSB with a base-loaded whip. Using the KX3 I worked Stockholm, Sweden on 15-meters CW running 2.8 watts and an end-fed sloper.

As I said earlier, each time I venture out with one of my backpack rigs I learn something. Operating on an island near Clearwater, Florida taught me about operating near salt water with vertical antennas. Here is a tip, set up any vertical antenna within a couple of wavelengths of saltwater, for the frequency you are using, and watch what happens. It's like having an amplifier. On the island beach my backpack-mounted 120-inch whip produced a 5x5 report while operating 10-meters SSB. The station that gave me the report was 6,000 miles away in the Ukraine!

With just simple antennas, running 5 watts CW or 10 watts SSB I have been able to work over 35 DX entities and over 25 states while backpacking. I'm not bragging because I am well aware many others have done the same or much better. I am, however, challenging you to get out in the forests and fields of your state and try backpack QRP. I am sure you will enjoy the experience no matter what the season. I enjoy this type of operating all year long. So give it a try! ■

Ham Lingo

DICK SYLVAN, W9CBT

"MIC FRIGHT"

Continued - Repurposing from Page 6

QRP operation, so things are either cigar lighter plug, or the trailer connectors. I got into using them (also known as "bullet" connectors) when working with battery chargers for my SLA gel cells. Again, any good hardware store or marine supply house carry those in various cable lengths.

Sportsman's dry boxes. These are the best thing since sliced bread! They are a modern version of the old World War II ammo box. They come in a variety of sizes. The larger ones, like a .50 cal. machine gun one, are great for a "go" box. I can get my Yaesu FT-817ND, charger, computer interfaces, ATU, etc., in one. For smaller QRP rigs, I use the smaller-size ones, like the ones used for rifle or small machine gun shells. They have a nice O-ring seal to keep out moisture and dirt. Some pieces of foam plastic or rubber for packing, and you can keep things safe from being bounced around in the car. I also have one fitted with a SLA gel cell, cigar lighter jack, etc., for "picnic table" portable use. While you're in the sportsman's store, look for fishing tackle lure boxes for RF connectors and adapters.

Dielectric grease from the auto supply house. This is great (use just a *drop)* on UHF screw type connectors to keep them from binding or seizing up. This stuff is also great for preventing corrosion. I live near the Atlantic Ocean, and salt air is not our friend here!

Batteries from emergency lighting systems. Apparently good practice is to swap them out of service after a couple of years. They are still good for use, and can often be bought quite cheaply.

Plastic storage boxes—buy your own, do not steal from the XYL at the peril of your well-being.

Dental floss—good for lacing cables the old fashioned way.

Cable tags—from computer supply outfits–good for keeping that rat's nest of cables in the shack sorted out.

My XYL has me in a twelve-step recovery program for engineers. It does not work... I still take things apart, and when I put them back together, I seem to have stuff left over.... ■

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