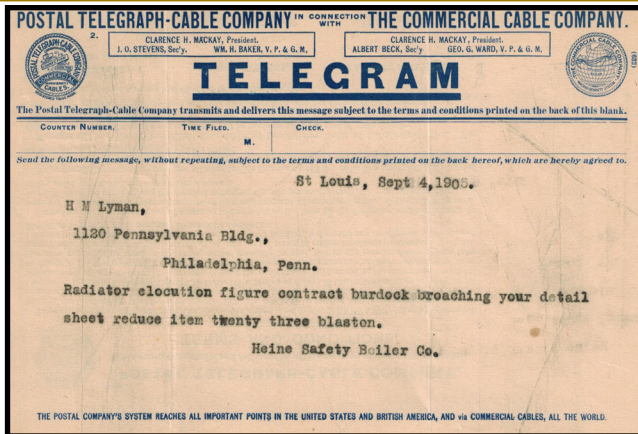# COMMERCIAL CODES

Commercial codes were very common throughout the later 19th and early 20th Century. These codes were designed to minimize the cost of telegrams, the tariff structure being such that the ten word telegram was the default length for a typical fast telegram, with additional words adding significantly to the cost.

The use of code words, which represented an entire standard phrase, allowed one to communicate additional nuance and detail at decreased cost. If one encounters one of these telegrams, the text may seem to make little sense, unless, of course, one understands this lost historical anachronism.

Some codes were also designed to obscure important financial transactions. While the telegraph fraternity was, by and large, extremely honorable and few operators would ever consider disclosing content or using it for personal

QNI MISSION STATEMENT

QNI is dedicated to promoting genuine emergency communications preparedness.

Our newsletter is independently published and distributed free of charge to the Amateur Radio and emergency management community. The opinions contained herein do not reflect the policies or opinions of any particular net or emergency communications organization.

Our mission is to provide a forum for EmComm volunteers throughout North America. We operate on the premise that Amateur Radio public service volunteers should be, first and foremost, communicators and technicians.

If you share this vision, please support *QNI*. Submit your news and articles for publication.

reasons, not everyone is honest. While brokerages and commodities exchanges typically maintained private wires, many businesses used the usual commercial office or messenger service to originate and receive business telegrams.

One will occasionally encounter a code book from the late 1800s or early 1900s. Numerous commercial codes were created and published for sale to business organizations. They make for interesting reading and they reveal an era in which communications circuit capacity was extremely limited.

As a modern analogy; imagine conducting your commercial business via Twitter! Undoubtedly, you too would soon develop a variety of code words to facilitate conveying a greater array of information.

Restructuring the Traffic System?
By James Wades (WB8SIW)

Let's face facts. The traffic system as currently deigned, requires significant overhead. When fully staffed at both the upper echelons and state/section level, it can work efficiently. When structured properly for emergency response, it can do a stellar job of conveying message traffic on behalf of served agencies and the public, as proven by the Cascadia Rising exercise of June, 2016. However, let's face some facts:

- More and more dedicated traffic operators are passing away or "aging-out" of the system. This is particularly problematic at the Cycle-4 Area and IATN levels where an advanced, professional-grade skill set is required.

- The Cycle 2 upper-echelon nets sometimes fail to meet due to a combination of historically poor propagation conditions and fewer volunteers.

- Most new CW enthusiasts are being siphoned into contesting, sprints and collecting numbers. Few new CW operators seem interested in traffic work or they fail to see its relevance.

- Section nets in some states are doing quite well, but in others, they are almost nonexistent. The lack of human resources in some states/sections hinders timely deliveries and originations.

- Insufficient hubs and DTS volunteers are, as of yet, available to achieve the robust reliability and redundancy we need for a truly survivable, automated digital traffic network.

Some of these problems could have been solved had the former ARRL leadership taken a systematic and measured approach to promoting the traffic system over the past several decades, rather than assenting to those in the field who sought to marginalize it by falsely attacking its methodologies. Unfortunately, it will now take a decade or two to reverse the damage done by past incompetency and, in the meantime, the system will lose many high-level volunteers due to attrition. If immediate steps aren't taken to address these issues, the traffic system may cease to function entirely.

Other factors also continue to threaten the reliability of the traffic system, including a historic solar minimum that seems to drag-on indefinitely and a very serious threat from New York University, which seeks to shut down the Winlink program with little concern for collateral damage to local ARES digital networks and the RRI/NTS Digital Traffic System.

These are potentially grim realities that must be faced sooner rather than later. One might argue that the traffic system will have no choice but to lower its overhead in order to buy enough time to reprioritize, build new cooperative relationships, and recruit a new generation of volunteers.

Eliminate some nets?

At present, there are no official discussions occurring in reference to restructuring the traffic system. However, one suggestion that has been discussed informally is that of eliminating the manual mode region nets and converting the Area Nets into a model like that used by the independent "Hit and Bounce Net" in the Eastern/Central areas. In this latter model, representatives from each state check-in to an area net and traffic is exchanged between states. This model seems to work well, at least with light traffic loads.

Rather than filling at least 22 net control slots and 22 assigned liaison function slots between the region and area level each night, it might be possible to conduct a morning and an evening area net each day, perhaps at 8:00-AM and 8:00-PM for the Eastern, Central and Western areas respectively. This would require filling only 6 net control slots per day with no additional liaison duties beyond those assigned at the state/section level. In the process, one sees staffing requirements decreased by approximately 86 percent! With the addition of a morning area net cycle it would also be possible to provide greater flexibility to facilitate timely *routine* traffic flow during poor propagation conditions associated with the seemingly endless solar minimum.

Another advantage of eliminating the region net functions would be less conflict within the congested CW/digital sub-bands. Some nets are already experiencing regular disruption and even malicious interference from FT-type appliance operators using sound cards and off-the-shelf software designed by extremely irresponsible developers who fail to conduct a frequency analysis before embedding fixed frequencies into software. This factor, combined with the fact that many new operators have not been integrated into the culture, customs and courtesies of Amateur Radio, virtually guarantees conflict.

Is it time for a new IATN model?

Another suggestion that has been advanced is the concept of converting IATN into a "trunk-line" concept. Route (IATN) Managers would ensure staffing, but rather than operating IATN as a group of individual schedules, it might be possible to set a schedule of watch frequencies during which traffic is exchanged between areas. For example, at 9:00-AM and 9:00-PM local time, routine traffic is exchanged between areas. For example, an IATN operator comes up on the assigned calling frequency, and transmits something like "WAN WAN WAN de WB8SIW QTC 4 K." The WAN operator would then answer and the two would move off

to an adjacent working frequency to clear the traffic.

This method would also have the advantage of allowing unassigned operators to spontaneously volunteer to clear traffic when an assigned operator is unexpectedly absent. The time and frequency would become associated with the IATN function and, over time, operators would simply know to monitor at the assigned hours. Furthermore, the process could be expanded easily in time of emergency.

Change the role of upper echelon networks?

Another option would be to enhance the Digital Traffic Network to ensure it is more robust and eliminate the role of upper-echelon nets as long-distance carriers. Instead, each area net could operate as an "open net" for operators in states without a viable traffic net to originate and relay traffic directly into the traffic system. Meanwhile, from a system architecture function, DTN would handle most traffic above the state/ section level.

This latter option, of course, would depend on the FCC rejecting the destructive petitions advance by a meddling New York University. Unfortunately, it would also eliminate the pleasure of those snappy, efficient area nets and IATN CW traffic exchanges.

Change is difficult!

Change is difficult and undoubtedly, such ideas are disconcerting for many. I have no doubt that most of us would like to see the manual-mode traffic system structure retained intact and participation restored to the way it was in the 1950s or 1960s. This might even be possible, but not right away. In the meantime, we may need to restructure the traffic system, at least temporarily in order to place fewer demands on human resources.

Again, **there are no official proposals on the table**, but perhaps the time has come to open a dialogue that will ultimately end in a restructuring proposal that facilitates a more flexible traffic system that not only places fewer demands on staffing, but which also incorporates the flexibility needed to provide a true EmComm response capability.

Consider these ideas "priming the pump." They are designed to encourage problem solving and incubate ideas. Readers thoughts and ideas are welcome. Share them with us and we'll publish them. The editor can be reached at:

   James.wades@radio-relay.org

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CW—The Cockroach of Emergency Communications
By James Wades (WB8SIW)

The title may sound like an insult, but it is, in fact, a compliment.

While recent developments in narrowband digital modes offer somewhat better performance than CW under poor signal-to-noise ratio situations, CW remains relevant for a number of reasons, some of which are technical (the medium) and some of which are related to the way in which CW is processed by the proficient operator (the human interface). A thorough analysis of this relationship is discussed in an article entitled "The Case for CW" published in "QNI" in 2013.

For those seeking an easily deployed, highly effective method of communications, a low-power CW kit may prove ideal. Why? Consider these advantages:

- No peripherals required beyond a simple key, earphones and wire antenna.
- Minimized power consumption; no need to power/recharge a tablet or laptop computer.
- Hard copy messages are easily transcribed to paper by a proficient traffic operator. No printer is required.

Let's imagine for a moment that you are providing communications in a worst-case scenario. Perhaps it's a true "SHTF" situation. One may have multiple conditions or requirements to contend with such as:

- Long term loss of AC mains.
- Inadequate supply of gasoline for generators and transportation.
- Harsh environmental conditions.
- Security risks, particularly beyond 72 hours into the disaster situation.
- The need to convey message traffic for others in your neighborhood, an agency, or preparedness group.
- Mobility requirements (the need to deploy, bug-out quickly, or periodically change location).

Let's examine each of these conditions within the context of a scenario. For example, let's imagine that one needs to establish basic, reliable messaging under a worst-case scenario such as in the aftermath of a devastating natural disaster or during widespread civil unrest. Perhaps one needs to assist with some type of operation at various locations in the field over an extended period. Perhaps the desire is to establish clandestine communications, if only to protect personal security and prevent one's radio equipment from being stolen during a period in which rule of law isn't present.

Under such a circumstance, we might seek a methodology that offers several benefits:

Simplicity: Fewer devices or peripherals means fewer potential failure points.
Portability: Fewer devices or peripherals means less size and weight and typically lower battery

consumption.

Survivability: Devices that can be used in any type of weather (wet, cold, snow, mud) are preferable.

Universality: A single device, or a redundant device, which operates from a universal power source of common voltage offers advantages. In most cases, 12-VDC is ideal because one can access this voltage from lantern batteries, scavenged car and tractor batteries, and so forth.

CW equipment fulfills these requirements very nicely. For example, a complete high frequency portable station might consist of only:

- A low-power CW transceiver
- A simple Morse key
- Lightweight earphones
- A simple wire antenna
- A rechargeable battery-pack
- A cigarette lighter cord
- A set of large alligator clips for connection to a harvested car or tractor battery
- A book of paper message forms and a few pencils.

These items can easily fit into a small waterproof ammo can, a fanny pack or a pouch in one's backpack. They can also be hidden in almost any type of container, such as a Quaker Oats Box, a old paint can, or a similar nondescript container.

Power levels of 5 to 10-watts are usually adequate to access a reasonably diverse traffic network. These power levels provide a nice balance between power consumption and communications range. In many cases, someone will likely be able to copy you and relay your traffic to reach a telecommunications common carrier point that remains operational or another layered net.

For Whom do I Communicate?

One mistake that both EmComm volunteers and "preppers" make is assuming that one will only be communicating for himself. This is unrealistic. One may need to transcribe a message for hand delivery to a fellow team member or neighbor (remember…cell phones are not be working). **Messages that only appear on a tablet screen or laptop are difficult to retain and deliver.** On the other hand, a message transcribed onto a paper form can be given to a runner for hand delivery. Additionally, the addresee can easily "store" the paper-copy message in his coat pocket or a folio for later reference.

It's always nice to imagine oneself communicating from the comfort of his home station, complete with AC power, heat or air conditioning, and access to a computer and power-hungry printer, but this may not be the case. The possibility remains that one may need to provide communications from where it is needed; not from where it is convenient.

Of course, in order to leverage these advantages, one must be proficient with the International Morse Code.

He must also practice net operations and communications procedures. Regardless of mode used, voice, CW or digital, "ham radio" is NOT a noun, it's a verb. One must practice and develop the intuitive knowledge needed to understand radio frequency propagation, process unpredictable message content, and exercise the organizational and administrative skills needed to facilitate emergency communications whether it's for himself or for an agency. The extra effort and occasional practice over a year or two of participation in nets will yield big dividends.

Finally, even if one takes "radio" out of the picture, the ability to communicate in Morse Code has advantages. Remember that there's a difference between *interface* and *medium*. Morse Code may be the "interface," but the radio can be replaced with any aural, hardwire or visual medium. One can use International Morse to communicate between two hills using flashlights or heliographs. One can send a distress message using an automobile horn. One can even communicate clandestinely through walls or for a distance underwater.

While developing basic Morse skills can be a bit difficult at first, those who invest the time and effort will eventually experience an epiphany in which the real value of the skill becomes apparent.   The result will be access to an incredibly flexible method of communications that can be applied to numerous scenarios under almost any conditions.

While Morse may not be for everyone, those that invest some time and effort to become proficient will be rewarded with a skill that will prove incredibly valuable.
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Narcissism, Narratives and Negativism
By James Wades (WB8SIW)

One can't help but wonder if our society has entered a state of pathological narcissism. It is common to observe individuals who have unwavering faith in the infallibility of their own opinions. Some go so far as to equate their opinion with "morality." In doing so, they naturally judge those with whom they disagree as "immoral." This false logic is then used to license actions that are insulting, degrading or dismissive of those with whom they disagree.

Once the narcissist adopts an opinion he establishes a narrative in his mind to support it. He will typically engage in careful gatekeeping, absorbing only facts and opinions that reinforce his narrative while rejecting any ideas, facts or opinions that challenge it. In the era of social media, it is easy for someone to immerse himself in a comforting social media feedback loop of like-minded people through which he can seek validation, thereby reinforcing his prejudices and, ultimately, his own ignorance. Such individuals have little interest in objective truth. Instead, they are primarily interested in validation.

Some go so far as to merge their political narrative with their self image. The two become so firmly entwined

that any disagreement is perceived as a deep personal insult. It is this pattern of thinking that is at the heart of the current political polarization in our country, with a combination of social media memes and perverted media outlets that market opinion as "news" at the heart of the pathology. At times, it seems this pattern of thinking has become so commonplace that it begins to influence all aspects of personal behavior. It even has profound impacts on organizational management and interpersonal relationships.

So, what does any of this have to do with ham radio? In order to answer this question, let's examine a radiogram recently originated during a training exercise:

> 10 R W4**[REDACTED**] 81 HENDERSONVILLE NC 1733Z FEB 17
> **[Addressee data redacted]**
> OP NOTE PLEASE ADVISE WHEN WHO AND BY WHAT MEANS DELIVERY
> BT
> GREETINGS FROM W4[REDACTED] X THIS ANTIQUATED NINETEENTH CENTURY NTS SYSTEM
> USING THE TWENTY FIRST CENTURY WINLINK SYSTEM ON THE FRONT
> END IS A STEP BACKWARDS IN TIME X TRY TO
> EXPLAIN NTS/RRI TO A 16   YEAR OLD ASPIRING INTERNET SAVY
> NOVICE WITH AN IPHONE IN HIS/HER POCKET X WINLINK IS
> A ROBUST/UBIQUITOS INTERFACE TO THE INTERNET X NTS/RRI IS AN
> ARRL USELESS WANT TO BE LAYER WITH NO VALUE ADDED
> X I WILL NEVER USE IT X THIS COMPLETES TASK
> 7
> BT
> BOB **[STULTUS]** W4**[REDACTED]**
> OP NOTE THIS COMPLETE TASK 7
> AR

We were tempted to keep the name and call sign of the originator of such a message because it was obviously designed to insult and degrade those traffic system volunteers who might review or relay the radiogram as it passed through the system. Such an action would have ensured that the originator owned his words. However, it's also unwise to join a donkey braying in the field. Therefore, the name "Stultus" is a pseudonym and the call sign suffix is redacted.

There's a lot to unpack in this message, so let's get started:

First, let's look at this message purely from the standpoint of that social lubricant called "courtesy" and "decorum." Here we have an individual who has no qualms about insulting an entire class of individuals who build, maintain and operate the traffic system. The efforts of his peers mean nothing to him. *Only his opinion matters.* He sees his opinion as so sacrosanct that it gives him license to treat his peers in an insulting and discourteous manner. This behavior in Amateur Radio is a microcosm of the behaviors seen in modern social media in which some individuals have become so narcissistic, so arrogant, that they have no qualms about expressing an opinion in a manner designed to insult or degrade an entire class of people.

Next, let's deconstruct Mr. Stultus's <u>opinion</u> to see if equates with any form of <u>objective truth</u>.

First, Mr. Stultus refers to the traffic system as "antiquated." Yet, the traffic system uses the same basic two-way radio methods that remain in widespread use in commercial and government service today. Two-way radios are used everywhere, from the local construction site to patrol cars to the battlefield. Are we to assume that these important applications are somehow "antiquated?" Within the context of the Amateur Radio Service, the same equipment and techniques are used in multiple operating activities, which seem to escape Mr. Stultus's disapproval.

Next, if one examines the RRI Digital Traffic Network (DTN) he will note that it employs an automated, hybrid mesh network built on PACTOR methods and computer control; the same basic technology used by government services and, interestingly, Winlink; a system which apparently meets with Mr. Stultus's approval. Certainly, such methods do not date from the "19th Century."

Let's also examine the interface devices in the form of transceivers and other technology used to access today's traffic system. Today, traffic operators, like many in the Amateur Radio Service, use transceivers incorporating microprocessor control, high-stability oscillators and software defined systems. Is this "antiquated" 19th Century technology? Additionally, the medium itself, that is, the nature of electromagnetic radiation, the ionosphere, and so forth, is immutable. It's an unchanging natural resource. It's used by a large cross-section of radio amateurs worldwide, whether they handle traffic or not. Clearly, it's nature remains the same regardless of the era in which it's used.

Now, let's look at that "robust/ubiquitous interface to the Internet" Winlink offers.

Apparently, Mr. Stultus is a big fan of Winlink. The author agrees that it's a great system. Both RRI as an organization and the author have defended Winlink over the years. However, if Mr. Stultus wasn't so narcissistic, he could have engaged in a simple intellectual exercise designed to test his opinion by imagining a scenario in which someone needs to send a message <u>INTO</u> a location where the Internet or cellular data networks are disrupted. If the recipient of one of Mr. Stultus's Winlink messages can't access his ISP, how will he obtain and read the message? How is that message routed to the addressee on the <u>delivery end</u> of that "pipeline" when the Internet and cellular mobile data networks are inoperative. Will the "16-year old aspiring Internet savvy novice with an iPhone in his/her pocket" simply stare at his inoperative iPhone? How about a public safety official whose connection to the Internet is severed? How about that relief organization operating in Puerto Rico after Hurricane Maria?

Speaking of Hurricane Maria; thousands of messages were transmitted via basic SSB voice methods and many of these messages were handled by experienced traffic operators. What was Mr. Stultus doing at that time? Was he supporting this disaster operation using an "iPhone in his pocket?" Perhaps Mr. Stultus was planning to fund a program to equip every radio amateur in North America for Winlink?

How about the requirement for flexibility and dynamic response to varying operational parameters? Let's

imagine that one needs to get a message to a public safety official deployed in a disaster area in which the Internet and cellular mobile data networks aren't functioning. If a Winlink equipped operator is unavailable how does that message reach the addressee? How does one know that an email transmitted into that disaster area via Winlink has arrived? Will the public safety official find it when Internet service is restored two or three days later? Will it still be relevant? Will it be diverted into a spam folder? On the other hand, a radiogram containing a variety of contact information placed in the hands of a delivering operator has multiple benefits:

- The traffic operator can attempt manual delivery and seek delivery confirmation *in real time*. If contact can't be made, there is immediate feedback and he can try a different delivery method.

- A radiogram can be transferred to an ARES voice circuit or it can be routed to another radio network, such as a public safety or military two-way radio circuit, to reach the addressee. This is one reason why there is a message router function in a typical EOC.

- A traffic operator can even hand a hard-copy radiogram message to a runner for delivery on foot, on horseback, on a motorcycle or via automobile. Have you ever seen a computer magically arise from the table and drive itself to a physical location?

- A radiogram contains specialized network management data, which facilitates the routing of reply and service messages. If the Internet or cellular data facilities are unavailable, the radiogram's network management data associates a station of origin with a specific net and the message originator's location in order to facilitate the prompt routing of replies. Apparently, this value-added feature is of no importance to Mr. Stultus. After all, he has an opinion and that opinion is immutable….and here we thought only the Magisterium of the Church had such authority!

Also, what about the training value of the traffic system? Traffic operators learn net discipline, standardized procedures, the proper use of the phonetic alphabet and other techniques that remain highly relevant to the use of **any** two-way radio system. Perhaps Mr. Stultus believes that accurately conveying important data or tactical instructions is unimportant, whether it's done via a voice phone call or a radio network, or has this process also been rendered obsolete by that "16-year old aspiring Internet savvy novice with an iPhone in his/her pocket"

One more point; let's place things in the context of Mr. Stultus's self-described interests on his own "QRZ" biography page. He enjoys VHF-SSB, contesting and he restores antique Zenith Transoceanic radios. Starting with the latter; what would that "16-year old aspiring Internet savvy novice with an iPhone in his/her pocket" think of a Zenith Transoceanic Radio? Using Mr. Stultus's logic, he should immediately gather up every Zenith Transoceanic radio he can find and burn every one of them in a really big bonfire! Heck, the author will even supply the beer and brats. After all, when was the last time you saw a "16-year old aspiring Internet savvy novice with an iPhone in his/her pocket" carrying around a transistor radio, let alone a bulky Zenith Transoceanic set using A-batteries and B-batteries and 1-series vacuum tubes. Oh…and contesting! What would the "16-year old aspiring Internet savvy novice with an iPhone in his/her pocket" think of a contest in

which the only purpose is to exchange identical signal reports, a serial number or the like, again and again for 24 or 48 hours?

Finally, and perhaps most importantly, unlike Mr. Stultus, the author doesn't seek wisdom from 16-year old children, nor does he assume that possession of a smart phone is a measure of intelligence, wisdom or insight. Doing so is certainly Mr. Stultus's right as a free man, but the author doesn't recommend it!

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Beware of Incompetent Technicians
By James Wades (WB8SIW)

Some months ago, I purchased a Drake AC4 power supply to put an old Drake T4X-C transmitter back in

service. The seller advertised the power supply as "rebuilt" and seemed forthright and honest. It turns out that he was not only honest, but also a terrible electronics technician.

Upon receiving the power supply, it worked well, so I installed it and began using the transmitter. Everything functioned fine for a couple of months until one day, while the gear was warming up for a net session, a loud bang was heard and the aroma of acrid electronics filled the air.

The power supply was immediately examined. Upon removing the case, a damaged 150K resistor was found. It has shattered and broken in half. A look at the schematic revealed the problem. The ham who had "rebuilt" the power supply connected a 150K ohm, 1-watt resistor between the 630-volt B+ line and ground, rather than placing the resistor across the capacitor as indicated on the schematic. Over time, the resistor overheated and decayed until, at some random point, the high voltage arced across the resistor to find ground, creating a rather impressive failure mode and blowing the 5-amp slow-blow fuse!

Considering the error, it is rather surprising that the resistor lasted as long as it did! While the voltage drop was relatively minor, a simple calculation using Ohm's Law indicates the resistor, rated for 1-watt, was dissipating approximately 2.6 watts, significantly exceeding its rating. Had it been installed properly, the actual dissipation would have been approximately 0.6 watts, well beneath the rating
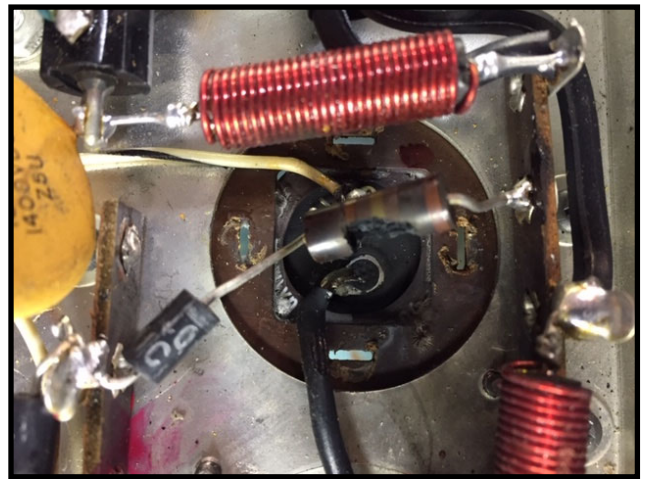
Above: A "well-done" 150K ohm resistor in an improperly rebuilt Drake AC4 power supply.
Below: Schematic diagram showing the proper location of the cooked resistor in the circuit
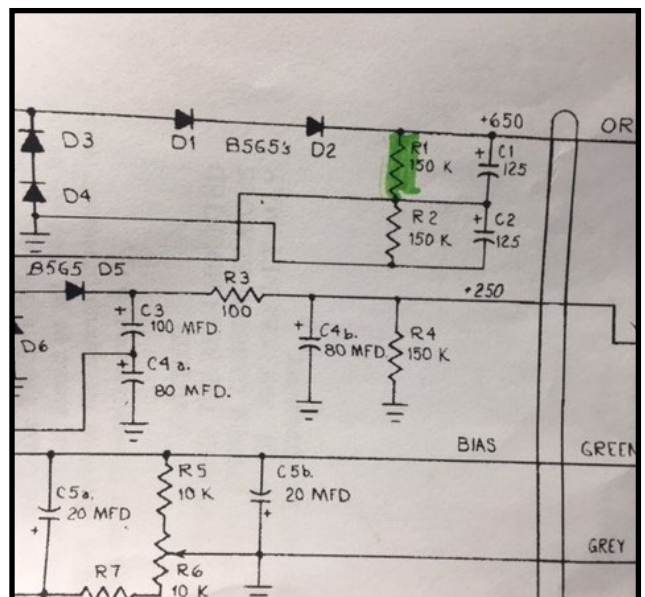
of the original resistor.

Fortunately, I found a 150K, 1-watt resistor in my well stocked "junk box," allowing me to restore the power supply to proper operation with minimal delay.

Clearly, the seller had no dishonorable intentions. He was just a poor technician. The rebuild had cold solder joints, wires simply solder-tacked to terminals and other poor workmanship. Most importantly, he didn't examine and understand the schematic diagram before commencing work.

In another case, I was restoring an old Sonar FS-23 CB radio. It was an impressive piece of equipment with excellent build quality and a fun Saturday afternoon project.

Of course, as you might expect, there are few CBers in this world who don't want more "power." In this case, some "golden screwdriver" technician had bypassed the screen dropping resistor on the 6BQ5 PA tube, effectively placing the same voltage on both screen grid and plate!

One might say that modifying a good piece of equipment in this manner is much the same as using a fine micrometer as a C-clamp!
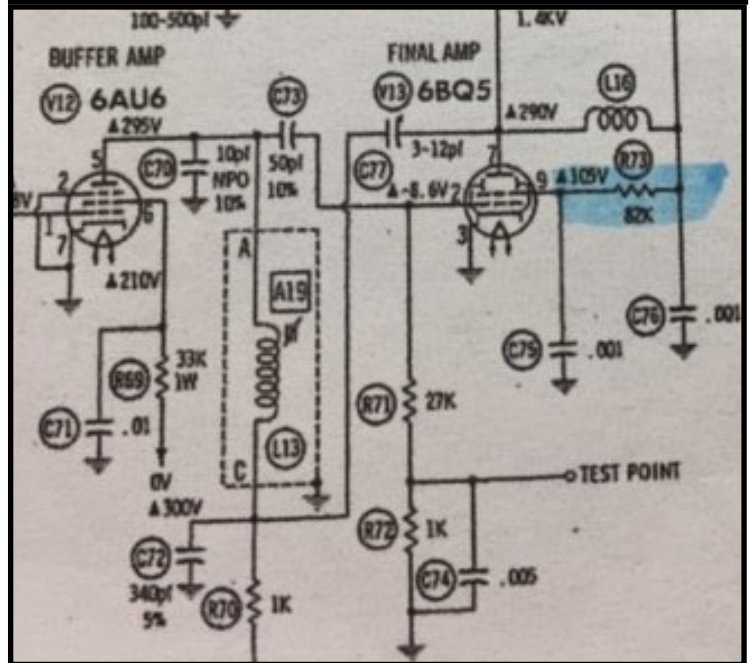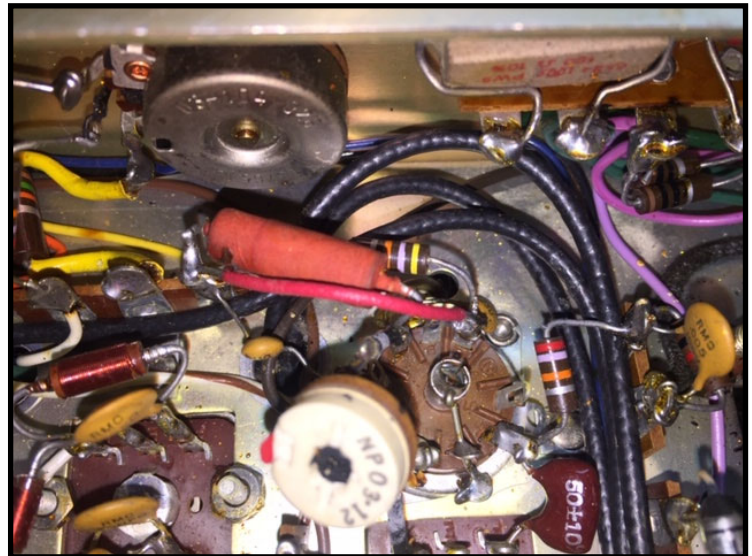
A "golden screwdriver" modification to an older Sonar FS-23 CB radio. More power!!!

The moral of the story is simple: If you buy something on eBay or from a classified advertisement, of even if a piece of equipment is given to you, examine it carefully upon receipt. Even if the seller is completely honorable, there may be unforeseen incompetent repairs or problematic modifications present, some of which might even be dangerous.

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Left: A Sonar FS-23 CB from 1964. Occasionally called the "Collins of CB Radios," its beautifully constructed.

Some Thoughts on WInlink
By James Wades (WB8SIW)

The recent "hot and cold" emergency communications exercise conducted in North Florida confirms an observation made during the 2016 Cascadia Rising disaster exercise. The issue of available circuit capacity remains a significant concern when applying Winlink to a widespread communications emergency.

Each Winlink node can connect to only one station at a time. Furthermore, while there are many Winlink nodes available worldwide, propagation characteristics ensure that not all of these are accessible simultaneously. Furthermore, when multiple stations in an affected state or region attempt to connect to a few available nodes within propagation range, users begin to "stack up" in cue. An analogy might be a check-out line at a busy grocery store.

Imagine a significant hurricane affecting eight or ten counties in a region. If multiple EOCs, several command posts and a variety of NGOs all attempt to use Winlink simultaneously, they may discover that circuit capacity is inadequate. Therefore, some recommendations for developing a proper emergency communications plan includes:

- Avoiding a one-mode-fits-all approach. Radio amateurs tend to engage in mode parochialism. Some tend to apply their favorite mode to an emergency communications problem rather than utilizing the mode or network best suited to the problem. Yet others confuse the utility of a mode during casual operating or drills with its efficacy in time of emergency.

- Minimize demands on circuit capacity. Brevity remains paramount whether one is using Winlink. CW or smoke signals. Encourage agencies to use of brief, concise language when composing messages for transmission on any EmComm circuits, regardless of mode, agency or radio service.

- Use the mode best suited to the emergency management function being supported. Layer nets based on circuit capacity, geography and emergency management function.

- Remember that all radio networks have limited circuit capacity. Only so much traffic can be pushed down the pipeline at once.

The real take-away can be boiled down to two basic rules:

A diversity of methods is the key to an effective emergency communications program.

Brevity, simplicity and efficiency are key to the effective use of communications circuits.

Those unfamiliar with the relationship between survivability, circuit capacity, flexibility and communications security should read Chapter One of the *Radio Relay International Training Manual TR-001*, available on the Publications section of the RRI Web Page.

The World's Longest Telegram
From *CP TeleNews*, January, 1976

The world's longest telegram, measuring more than three miles in length, was transmitted from Canadian Pacific Telecommunications at Montreal in September, 1975. Sponsored by CFCF radio, the message contained 599,000 signatures and urged then Prime Minister Pierre Trudeau and Quebec's Premier Bourassa to abolish Bill 22, the provincial language legislation.

Twelve CRT units were in operation around the clock sending the telegram, which arrived at the center in boxes as more and more of the signatures were collected by the radio station. Transmission began on the night of September 10 and was completed on the morning of September 26.

In Ottawa and Quebec City, CN Telecommunications loaded copies of the completed message into cars, drove to the parliament buildings, unloaded onto trolleys, and the rolls of signatures were trundled along the corridors of power to the premier's offices.

The Bill 22 telegram is acknowledged as the world's longest. Western Union in the United States once transmitted a telegram of record breaking length, but it was a mere 300,000 words.

In Canada, the previous longest telegrams were sent during World War I by Canadian Pacific Telegraphs from Halifax. These were frequently 70,000 to 90,000 words—the longest was 100,000—and it used to take fifty or so Morse operators in Halifax two or three weeks to complete transmission of any one of the messages.

The YTG Story
By Donald K. DeNeuff (SK)

If one were to look to Hollywood and the post-counterculture publishing industry for history, one would probably conclude that only the French Resistance played a role in the war. Yet, the French Resistance was relatively small compared to the resistance units of Eastern Europe. For example, the Polish Home Army ("Armia Krajowa") was about ten times the size of the French Resistance. Not only did the Poles operate under far worse conditions, but infiltration was extremely rare and their effectiveness was exemplary.

Yugoslavia was also home to a number of very effective resistance organization. Like the Poles, they were rarely infiltrated by the Nazis and they proved very effective. This story alludes to those ignored heroes of World War Two who served in the anti-Nazi (and anti-communist) underground movements. - Editor

Germany invaded Yugoslavia in April, 1941 and King Peter II fled to London. But many Yugoslav troops continued to fight the Nazis in the mountains. Draja Mikhailovich led the largest group—Chetniks.

Eventually, they became involved in open warfare for control of the resistance movement with another partisan group backed by the USSR and Great Britain and led by Josip Broz, later known as Marshal Tito.

The Press Wireless station on Long Island in New York during World War Two continually scanned the frequency spectrum for new and unusual signals. One day, a hand Morse signal was discovered repeatedly and frantically calling one of the PW New York stations "WPK WPK—can you read me?" PW answered with a "QTH?" and the reply was "This is General Mikhailovich's press station in the mountains of Yugoslavia and we will sign YTG. We have a big load of press messages for you—can we start now, please? PW operators were of course under government surveillance and had to inform the authorities of what they had discovered and for approval to tell YTG to proceed. Thereupon, day after day, YTG would run a string of long press messages to major American newspapers, news magazines and press associations. None of the dispatches was ever signed with a name, but they provided vivid (and mostly accurate) reports on the activities of General Mikhailovich and his forces.

The station moved from one location to another, staying close to the fighting. The operation sounded exciting at times, especially when YTG would stop transmitting and say "Nazis are shelling us—we've got to get out of here quickly—see you later" and off the air he'd go—often not to be heard from for several days. Then, we'd suddenly hear him tuning up and calling with another big load of press messages.   Of course, the "Y" call letter prefix has always been assigned to Yugoslavia, but we wondered sometimes whether the call letters really stood for "Yugoslav Travelling Guerillas." In listening to his transmissions, I often had a feeling that the "fists" at YTG were typically American. Not until long after WW2 had ended did I learn that this was actually so. The OSS (*U.S. Office of Strategic Services; predecessor to the CIA—Editor*) had parachuted a group of seasoned U.S. Navy radiomen to assist Mikhailovich.

General Mikhailovich was captured and executed in Belgrade July 17, 1946 by the [communist] Tito regime.

-30-

While dining at the Officer's Club at Kaneohe Bay, Hawaii recently, your editor noticed this homage to the 3D Radio Battalion in the bar. Thanks to all the Marines for your service, Semper Fi!
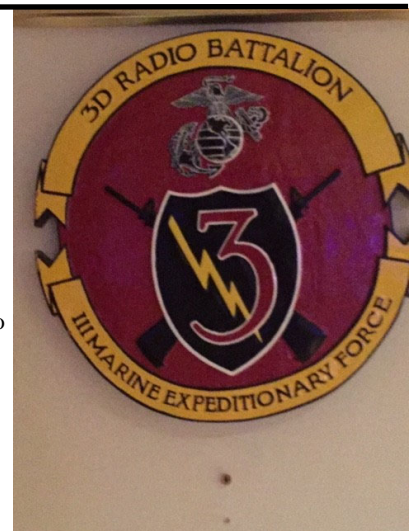
Are you an experienced traffic handler? Do you enjoy working with the public? RRI is seeking self-starters who love telling on-air and "in real life" friends and neighbors about RRI, traffic handling, and our emergency programs like Neighborhood HamWatch and the National SOS Radio Network.

This is a completely unpaid volunteer position but we will accept only the highest qualified and most motivated candidates:

- General Class amateur radio operator's license

- 24 months membership-in-good standing of your state or section level traffic net

- A letter of recommendation from your net manager

- Willingness to accept direct supervision

- Be self-starting and responsible within your area of responsibility

-

The RRI POC is an experimental / trial position and the program is subject to significant modification or even withdrawal so only operators with a thick skin and an entrepreneurial spirit should consider volunteering. But you will be helping RRI promote traffic handling and amateur radio communication to your state.

Some duties include:

Collecting net report data for your state, either from cooperating STMs or directly from net managers, consolidating that data and transmitting it to the RRI Statistician.

Organizing an RRI presence to promote traffic handling at two or three hamfests within your state.

A willingness to present basic introductory talks about RRI programs to Amateur Radio Clubs, Em-Comm organizations and community organizations in your state using standard RRI materials.

Interested? Send a quick note describing your interest and qualifications to: info@radio-relay.org.

Traffic in the Time of COVID-19
By Kate Hutton (K6HTN), RRI Training Manager

I am looking into my crystal ball (?) and I'm seeing the future. It's a near future of many, many fewer VE sessions. Not so bad, considering that people will have more time to study and perhaps pass for a higher level license. In the short term, however, fewer VE sessions means fewer new hams to congratulate with radiograms. So we are likely to see a decline in traffic on the nets and the Digital systems soon.

How much of a decline? Let's start by assuming that "most" of the traffic passed now is to new hams, along with related SVC messages. I'm not sure what "most" means here, but I'm guessing 80% at least. Let's assume that the COVID-19 issue does not affect the amount of traffic unrelated to new hams. Let's look at how interesting/boring the nets would be without 80% of the traffic.

Applying Radiogram CQ to sample weeks in late February and early March tell me that there are about 600 new hams per week. My own experience tells me that if I try to look up phone numbers for 600 hams, I'll get something for a little over half of them, say, 350. (Perhaps half of those would actually be good numbers, depending on the geographic area. But I'm talking here about traffic passed, not traffic delivered.) Remember this is for the whole United States. The share for your area, region and local nets may be disproportionate.

Let us go farther and say that the nets would really LIKE to have fewer messages per week: maybe half as many or 175. Then consider that we almost never actually PASS the text for traffic directed to new hams. So let us say the optimal number of messages going through the net system per week is 100, to roughly equalize the amount of time and effort needed.

According Mr. Wades WB8SIW, RRI has 275 registered radio operators. Allowing for unexplained non-participation, it seems reasonable to me for ALL RRI OPERATORS TO WRITE AND SEND 1 TO 2 MESSAGES PER WEEK, over the nets. Any amount of additional traffic sent by DTN or Winlink could also be sent. Of course, one need not be an RRI member to send, pass and deliver traffic! But yes I am calling out those who cared enough to register.

More of us are "flattening the curve" by "sheltering in place" and close to our rigs. To me this sounds like a quite reasonable effort and worth doing. I know the RRI crowd to be smart and imaginative. 1 or 2 per week? Very possible! Maybe even easy. Think of it! The nets would get more varied and more interesting traffic. More of the messages would include valid phone numbers and/or email addresses. These are admirable goals.

PERSONAL ASIDE 1: The last time the FCC ULS contained nothing new for a period of time was the government shutdown in January 2019. In order to make Brass Pounders League for that month, I had to send "junk mail" to all the RRI members. Remember that?

PERSONAL ASIDE 2: According to my own records, I have been on Brass Pounders League for 9 1/2 years straight. A few reports to the League were late, but they all got submitted. Without new hams, I could not have done that, and my streak could stop at any time due a decline in VE sessions. But I don't mind; it has been a good run. I still want to see the nets thrive, however. The more varied and interesting, the better. Let's DO it!!

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The RRI PayPal address is: james.wades@radio-relay.org**

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Order your Radio Relay International ball cap today! Wear it with pride at radio club meetings, ARES events and public service activities. Order form on page 18.

Do you occasionally deliver radiograms by hand or mail copies via USPS? Order the RRI "radiogram enclosed" or "radio-telegram enclosed" stamps. Order form on page 18.

Send photos of your shack!
Traffic operators are are encouraged to send photos of their shack for publication in the Newsletter. Show us your "working conditions." Antenna systems and the like are also welcome! Your editor's shack is pictured above.