

Worldradio

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FEATURES

Buzzards Bay, MA — Getting started young

Fort Huachuca, AZ — MARS mission, misunderstood?

Kure Island — Coast Guard honors amateur

Mesa, AZ — Project Goodwill Albania completed

Redding, CA — Packet for the masses

Tel Aviv, Israel — Amateur Radio 11,000 miles away

Vero Beach, FL — Dangerous precedent

Warminster, PA — Tiger scouts visit club station



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- County Hunter • Digital Bus • DX Prediction • DX World • FCC Highlights
- Hamfests • MARS • Mobile • New Products • Off the Air • Old Time Radio
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Project Goodwill Albania completed

**FRANK R. SMITH,
AA7FM/OH2LVG**

The country of Albania, even the Albanians will quickly point out, is the poorest in all of Europe. Now that Albania is awakening from the blackout of political isolation imposed by what has been described as the "most thoroughly communistic government in the world," Albanians are themselves free to travel. The cruel irony in this is that Albanian citizens simply cannot afford to travel anywhere.

Geni, ZA1B (his real name is Marenglen Mema), describes such travel as no more than a fantasy that teases the imaginations of his fellow countrymen. But Geni knows firsthand both sides of this fantasy, including now his own, which was played out recently in Arizona.

Thanks to the generosity and friendship of hams worldwide, Geni has completed his much publicized journey to the United States, and to Phoenix, Arizona, where he received lifesaving medical treatment.

It was Martti Laine, OH2BH, Geni's dear friend in Espoo, Finland,

who summoned up the goodwill and assistance of hams in Europe, Japan and the US to come to the aid of a fellow ham who found himself in a

dangerous predicament: the sudden need for medical treatment not available in his own country of Albania. (please turn to page 21)



Geni, ZA1B, hams it up for the camera at the Grand Canyon National Park. (Photos by Juhani Mark Smith)

Dangerous precedent

AL SMITH, NR2K

David K. and Sharon T. Brower, WA4NST and N4XLF, respectively, of Vero Beach, Florida, recently lost a two-year legal battle over their 68 ft. radio tower and antennas.

In the final judgment for the plaintiffs (seven households) Judge Charles E. Smith of the 19th Judicial Circuit in and for Indian River County, Florida, has found the radio transmissions to be "a noxious and offensive activity," and the appearance of the tower and antenna an annoyance and nuisance to the neighborhood. Quoting the final judgment, "This large (87 ft.) tower and antenna sticks out like an eyesore to this subdivision and neighborhood."

Smith also broadly ruled that the tower is a building that exceeds the two-story limitations for buildings in the deed restrictions and limitations of the subdivision. The deed restrictions are silent about antenna support structures.

Pending appeal, Smith has stayed his order to remove the radio tower and antenna but has enjoined the Browsers from further radio transmissions from their home! If the Browsers are not successful with the appeal, this case will set a dangerous precedent for any ham who has a neighbor who does not like the appearance of his exterior antenna and alleges interference to home electronic appliances. Like the Browsers, the amateur may be ordered

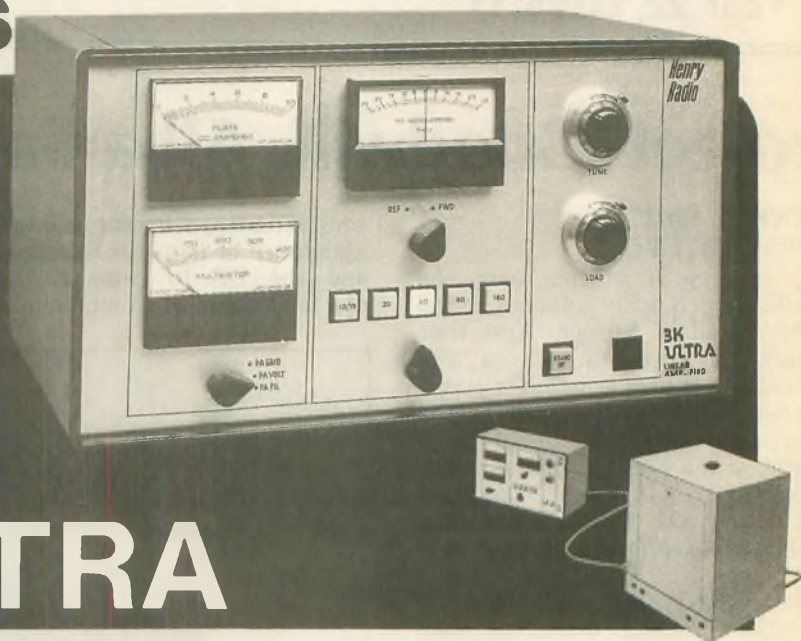
by the court to remove his tower and cease radio transmissions.

This is a sad commentary on the United States justice system. Cases like the above have been fought and won all over the US. Why must we have to continue to fight local jurisdictions? Will the Browsers have to spend thousands of dollars to hopefully win an appeal in this case? If it's not won, then it will set precedent against other amateurs in future cases.

There must be a better way. Meanwhile, it is hoped that the Amateur Radio community as a whole will help in supporting the Browsers. Contributions to the Brower Legal Defense Trust may be sent to: James Laseter, N4ZYX, trustee, 2716 Robin St., Ft. Pierce, FL 34982. wr

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Tiger Scouts visit radio club station

Tiger Den 1, Cub Pack 133 visited the club station of the Warminster Amateur Radio Club, WA3DFU, on 8 February to learn about Amateur Radio.

Warminster resident George Brechmann, N3HBT, who oversees activities at the club station, explained to the young visitors and their parents the role ham radio plays—both as a hobby and as a public service activity—for those who participate. "Ham radio allows you the chance to make new friends all over the world by having conversations with them by two-way radio. It's also a great way for kids to enhance their communications skills," he noted.

The visitors had an opportunity to talk with another ham in Colorado on 17M, using the station's HF equipment, as well as some local hams on the club repeater.

The connection to learn more about other countries fits well with the Tiger Scout promise: "I promise to love God, my family, and my country and to learn more about the world." Tiger Cubs is an activity associated with the Cub Scout program.

First-grade boys sign up with an adult with five objectives: to have fun together, know one another, grow together, get along together and discover together. "They key word is *together*, emphasizes Steve Larson, KA3ZLY, a Warminster Club member who, along with his seven-year-old son, Gregory, participates in the Tiger Den. Parents try to find interesting activities to do with the boys and



Tiger Scouts in Warmington, Pennsylvania, visited club station WA3DFU.

"ham radio fits right into the Tiger Scout promise," according to Larson.

Youngsters attending the demonstration included Brandon Mezick, Christopher Mowery, Gregory Larson, Robert Scafidi, Kevin Singer and Steven Scafidi, pictured with George, N3HBT. WARC volunteers included Scott Vogen, KB3ALX, and Bill Gorodetzer, K3MFI.

The Warminster Amateur Radio Club, which is an ARRL special service club, has over 200 members who are involved in all aspects of Amateur Radio. Members make a special effort to participate in community oriented projects by providing communications support for events that recently included the March of Dimes

WalkAmerica walkathons; the Special Olympics; Clean Air Challenge Bike Trek sponsored by the American Lung Association; community road rallies, 10K and fun-runs; and weather exercise and disaster drills, testing the warning and notification systems for local agencies. WR

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My latest envelope from the QSL
bureau brought a card from Niamey,
Niger, 5U7M. It is a very nice color
photograph of a downtown scene. Also
on the front of the card is the name of
the operator, Yoshiyuki Matsuda, whose
home call is JH4NMT. Yoshi also holds
the call sign of WD2M, which means
that he passed the US test in English
for the Extra Class license—impressive.

Quite a few JAs do come over here
and take the US test. A while ago, in
some quarters, it was being proclaimed
that the reason that Japan was so big in
consumer electronics was because their
no-code license created more hams and
thus more technicians and engineers.

There may be a reverse factor of that.
I just read an article which related that
every Japanese high school student
must take a year of calculus. Only one
out of ten US high schools even offers
calculus.

There was another article in a maga-
zine in which the writer told about
being in a supermarket and seeing some
books with a sign saying the books,
usually \$6, were now 25 percent off.
The checkout clerk couldn't figure out
25 percent of \$6 and he and the box boy
got in an argument. Eventually the
assistant manager, and then the man-
ager, got involved, all arguing about
what 25 percent of \$6 was.

When the customer tried to explain
that the easy way was to divide \$6 in
half (\$3) and then divide that in half
(\$1.50), they all became angry with
him.

What will come next? Will the Base-
ball Batters Association petition to have
the curve ball outlawed because it's
harder to hit than a fast ball?

Last month I discussed the cost of

today's *Worldradio* subscription ver-
sus the cost of 20 years ago. It was
mentioned that the asking price is
driven by postage and printing costs.
Subsequently, I came across an inter-
view with the Postmaster General of
the US. He said, "We've had regular
rate increases now for 17 years at an
average increase of 7 percent a year."

Whip out your calculator and you'll
see that 7 percent a year will take
something that was, 17 years ago, \$1,
and charge \$3.15 for it now.

I think we'd be hard-pressed to find
anyone whose salary went up 7 percent
a year every year for the past 17 years,
but the P.O. just keeps rolling along.

You may have heard of the P.O.'s plan
for an 11-digit ZIP code. That's the
usual 5 + 4, + 2.

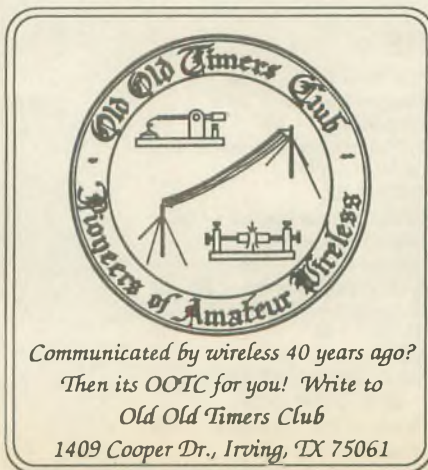
At eleven digits, there could be an
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process of publishing three books and
having discussions with authors of an-
other two.

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— Armond, N6WR



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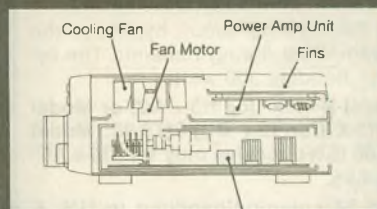
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Elementary students in Berkeley, California, get an Amateur Radio demonstration.

Grade school curriculum

DAVID BRANDON, KG6FR

Students at Jefferson Elementary School in Berkeley, California, had the opportunity on 11 February 1993 to observe a ham radio contact between David Brandon, KG6FR, operating from the school library, and John Billones, WD6GGC ("Golden Gate Charlie"), both members of the East Bay Amateur Radio Club.

Science teacher John Poole had covered Morse code telegraphy as part of the second and third grade curriculum on electricity and magnetism. Students got a briefing on ham radio from John and sent messages to GGC by CW on 15M, using David's Heathkit DX-20, which he last used as

a Novice in 1962, and a 30M dipole antenna.

Matt, KN6CR, and Bill, N6ZFO, also helped out, and tried to establish the scheduled 30M QRP contact. However, propagation conditions and antenna characteristics favored the 15M contacts with WD6GGC.

In all, about 200 students were involved in this event. Their favorite message? "Happy Valentine's Day."

John Poole resolved to re-activate his General Class ticket and passed the test on 28 February in Oakland. Bill, never having been on 30M before, worked 15 countries on the band while gearing up and practicing for the scheduled contacts. WR

Amateur honored by Coast Guard

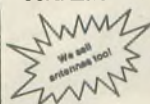
Rick Senones, KH6JEB, of Mililani, Hawaii, was formally recognized by the US Coast Guard for his support of LORAN Station Kure Atoll personnel

over a seven-year period.

Rick visited the remote atoll periodically to assist Coast Guardsmen to maintain and operate a Navy/Marine Corps MARS station. He became well-known to amateurs for his DXpeditions to Kure (KH7) over the years. While home on the island of Oahu, Rick regularly maintained contact with Kure via the MARS network and, at his own expense, ran countless errands providing

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personal items needed by Coast Guardsmen at Kure. He personally placed these items on twice-monthly logistics flights from Air Station Barbers Point.

Representing the Coast Guard commandant, Rear Admiral William Donnell, Commander 14th Coast Guard District, presented the Coast Guard Swivel Shot Award to Rick on 11 January:

"Mr. Rick Senones is cited for exceptional and sustained community service to Coast Guard personnel assigned to isolated duty at LORAN Station Kure Island for more than seven years. During this period, which continued until the last Coast Guardsman departed Kure after decommissioning on 30 July 1992, Mr. Senones worked voluntarily and tirelessly to contribute to the morale and welfare of more than 20 people assigned to Kure. He personally and directly supported countless personal needs of individual crew members.

"Through the years, Mr. Senones was 'always ready' to accept requests for morale equipment, personal items and supplies and place them on the next available Coast Guard C-130 aircraft bound for Kure Island. In some cases Mr. Senones provided his own funds, with reimbursement to follow, so that needed items were on the next flight.

"Having first gained interest in LORAN Station Kure through his work with Amateur Radio, Mr. Senones soon learned that the Military Affiliated Radio System was not established at the unit. Employing previous military communications experience and knowledge of the MARS system, he voluntarily prepared the necessary applications and established a permanent authorization for Kure personnel to conduct radio-telephone morale phone patches with loved ones back home or with distant support personnel on a daily basis.

"During periodic visits to Kure, Mr. Senones performed maintenance and made improvements to LORSTA, Kure's morale radio equipment suite, making it a completely reliable, and probably the most extensively used operational communications equipment aboard the unit.

"Mr. Senones is truly a friend to many Coast Guardsmen who served their year on Kure. He is commended for his community service, spirit, and initiative to help others over the years. His zest for life and concern for the welfare of others make him worthy of respect and admiration from those whom he served and is in keeping with the highest traditions of the Coast Guard family."

WR

Chernobyl holidays

Dr. Valery ("Larry" to his US friends) Pristavko, UC2AAA, has completed his "alarm bell '92" DX-peditions to Chernobyl and the radio-

same area in the Mogilev oblast and EW1C for operations from a small but highly contaminated spot not far from (please turn to page 11)



Valery Pristavko, UC2AAA, has done much to aid in the Chernobyl cleanup.

active-fallout contaminated areas of the Republic of Belarus.

Being professionally bound and deeply committed to the Chernobyl cleanup, he spent his 48-day holiday operating from within the 20-mile uninhabitable "ghost zone" around the nuclear power plant on the border of Ukraine (the plant is only six miles from the frontier of Belarus and a large part of the zone is in Belarus) as well as from two other highly polluted places.

His special event calls were EU10 for the "ghost zone," EV1S for the



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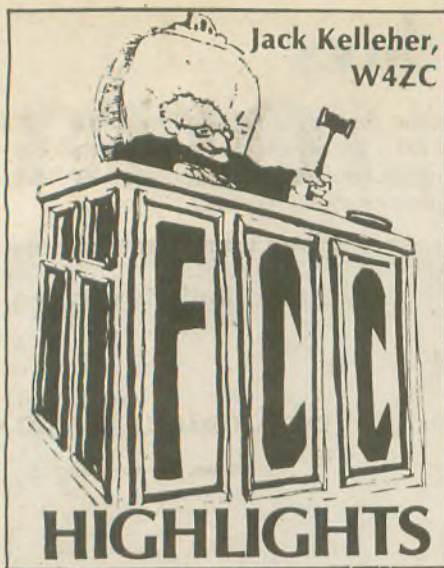
The G5RV MULTIBANDER antenna is an excellent all band (3.5-30 MHz) 102 foot dipole. On 1.8 MHz the antenna may be used as a Marconi type antenna when used with a tuner and a good earth ground. The proper combination of a 102 foot flat-top and 31 feet of 300 ohm KW twinlead transmission line achieves resonance on all the amateur bands from 80 through 10 meters with only one antenna. There is no loss in traps and coils. The impedance present at the end of the 300 ohm KW twinlead transmission line is about 50-60 ohms, a good match to the 70 feet of RG8X mini foam coax. It comes completely assembled ready for installation, handles 2 KW PEP and may be used in a horizontal or inverted "V" configuration.

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HF automatic control of packet radio

On 1 February 1993 the ARRL requested that the FCC grant a final extension of the special temporary authority, first granted in July 1987, for experimentation with automatic control of HF data communications. The STA was due to expire on 3 February 1993; the League asked that it be extended until final disposition of a concurrently filed petition for rule-making to establish permanent rules governing automatic control of MF and HF data operation in the Amateur Radio Service.

Automatic control of data communications at VHF was authorized in 1986 (RM 85-105). Numerous commenters in that proceeding suggested that automatic control also be permitted at MF and HF either on a regular basis or, at least initially, by special temporary authority (STA).

For reasons summarized in the current filing, the FCC chose the STA approach to determining the feasibility of automatic operation below 30 MHz, authorized the STA for experiments to determine the feasibility of HF automatic operations, and extended the STA several times, with a final expiration date of 3 February 1993.

The entire filing is 35 pages long. The "bottom line," however, is as follows:

"... the American Radio Relay League, Incorporated, respectfully requests that the Commission issue a Notice of Proposed Rule Making at an early date looking toward the authorization of automatically controlled HF data communications under certain circumstances, as per the attached Appendix." The Appendix reads:

"Sections 97.109(d) and (e) are amended to read as follows:

Section 97.109 Station Control

"(d) When a station is being automatically controlled, the control operator need not be at the control point. Only stations transmitting RTTY or data emissions, and stations specifically designated elsewhere in this Part, may be automatically controlled. Automatic control must cease upon notification by an EIC that the station is transmitting improperly or causing harmful interference to other stations. Automatic control must not be resumed without prior approval of the EIC. RTTY and data stations operating under automatic control on frequencies below 50 MHz must use a digital code permitted in Section 97.309(a) of these Rules, and must incorporate provisions for discontinuing transmitter operation in the event of malfunction, or interruption of communications with another station.

"(1) Stations transmitting RTTY or data may be operated under automatic control in the 6M and

shorter wavelength bands, and in the following segments of the 10M and longer wavelength bands: 28.120 - 28.189 MHz; 24.925 - 24.930 MHz; 21.090 - 21.100 MHz; 18.105 - 18.110 MHz; 14.095 - 14.099.5 MHz; 14.100.5 - 14.112 MHz; 10.140 - 10.150 MHz; 7.100 - 7.105 MHz; or 3.620 - 3.635 MHz.

"(e) Stations authorized by these rules to transmit RTTY or data communications under automatic control may transmit third party communications. Any retransmitted messages on behalf of any third party must originate at a station that is under local or remote control."

As of 5 March the Commission has not assigned an RM number to this proposal.

New (interim) FCC chairman

President Clinton has named Commissioner James Quello to head the agency temporarily, until a permanent chairman can be appointed.

Quello has been on the Commission for 19 years, far longer than any other member of the Commission. Quello was elevated to acting chairman to fill the vacancy left when Alfred Sikes resigned 19 January. Mr. Quello, a Democrat, was first appointed to the FCC in 1974 by President Nixon and was reappointed twice by President Reagan and again by President Bush. His term ends on 30 June 1996.

James Quello began his career in broadcasting in 1947 as promotion manager of radio station WJR in Detroit, and he became the station

Amateur Radio Call Signs

Amateur Radio operators often ask the FCC what call signs have been assigned lately. This list shows the last call sign in each group to be assigned for each district, as of 1 March 1993.

For more information about the call sign assignment in the Amateur Radio Service, see Section 97.17(f) of the FCC Rules, or write to the FCC, Consumer Assistance Branch, Gettysburg, PA 17325-7245.

Radio District	Group A Am. Extra	Group B Advanced	Group C Tech./Gen.	Group D Novice
0	AA0LX	KG0DS	N0VRS	KB0LAU
1	AA1FM	KD1NI	N1ONN	KB1ASR
2	AA2MV	KF2NG	N2TZR	KB2PZS
3	AA3DP	KE3HF	N3OJS	KB3APW
4	AD4AS	KQ4PC		KD4YME
5	AB5LE	KJ5IW		KB5YWC
6	AB6RE	KN6HQ		KD6SYN
7	AA7UK	KI7KY		KB7SXX
8	AA8KH	KF8ZG	N8XKP	KB8ORZ
9	AA9GA	KF9NP	N9SMB	KB9ILH
North Mariana Is.	AH0Q	AH0AM	KH0BF	WH0AAU
Guam	NH2P	AH2CS	KH2GO	WH2ANF
Johnston Is.	AH3D	AH3AD	KH3AG	WH3AAG
Midway Is.		AH4AA	KH4AG	WH4AAH
Hawaii		AH6MI	WH6KV	WH6CQF
Kure Is.			KH7AA	
American Samoa	AH8G	AH8AF	KH8AJ	WH8ABB
Wake Wilkes Peale	AH9C	AH9AD	KH9AE	WH9AAI
Alaska		AL7OR	WL7IV	WL7CGQ
Virgin Is.	NP2W	KP2CA	NP2GI	WP2AHU
Puerto Rico		KP4UX		WP4LUV

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manager in 1964 when WJR was acquired by Capital Cities Broadcasting. he retired in 1972 as vice president of Capital Cities Broadcasting. (*Westlink Report*, 2/18/93)

When rock meets hard place

The controversy continues between the Better Amateur Radio Foundation (BARF—and one wonders if the name and its acronym were chosen with tongue in cheek), its supporters, and its dissenters. The items are too numerous to publish within the space here. However, they do indicate to us that the First Amendment is still the law of the land and is being upheld (unless, of course, other laws regarding obscenity come into play). Those who disagree with what is being said may speak their minds. But if the speaker uses amateur frequencies and obeys amateur regulations, those who deliberately interfere can be (and are being) properly disciplined.

A bit of pertinent trivia: The quotation most often used to illustrate the principle of the First Amendment was supposedly written prior to the drafting of the Constitution. The popular version is, "I disapprove of what you say, but I will defend to the death your right to say it." *Bartlett's Familiar Quotations* says, in part: "Norbert Guterman, in *A Book of French*

Quotations, suggests that the probable source for the quotation is from a line in a letter to M. Le Riche (6 February 1770): 'Monsieur L'abbé, I detest what you write, but I would give my life to make it possible for you to continue to write.'" (Attributed to Earl Philip Dormer Stanhope, 1694 - 1773.)

It ain't over 'til it's over

Our item on "Irregularities" in the March issue of *Worldradio*—which was abstracted from the *Westlink Report* for 11/27/92—was interpreted by some as unfair criticism of the FCC. So, we are happy to publish the following excerpt from the *W5YI Report* for 15 February 1993.

Charles Pascal, WB5CIY (Carson City, Nevada), and Sandy V. Crane, N6TFO (Marina del Rey, California), have had their Request for Award Under Equal Access to Justice Act denied by the FCC. On 4 November 1992, both Pascal and Crane applied for a reimbursement of all costs associated with their legal case, which involved questionable Amateur Radio teaching and testing practices.

"... The Equal Access to Justice Act (EAJA) provides for the award of attorney's fees and other expenses to an eligible party ... when it prevails over the Commission. Administrative Law Judge Joseph Chachlin ruled that Crane and Pascal failed to meet their burden of demonstrating that they are the prevailing parties in this proceeding. Crane and Pascal argued that they more or less won the case because their amateur licenses were not revoked as initially sought by the FCC. The judge ruled that by agreeing to a three-month suspension of their amateur licenses both Crane and Pascal failed to satisfy their claim that they are the prevailing parties and that the FCC's Private Radio Bureau accomplished their goal of controlling their questionable teaching/testing activity."

Privatization of commercial operator exams

We noted last month that a Report

and Order on this matter had been adopted on 14 January. The full text of the RO was released on 12 February and can be obtained through established public information channels.

Hams help squelch 420 MHz interlopers

The FCC has fined a television production company for illegally conducting communications in the amateur 420 MHz band and is investigating the company that rented the radios used in the illegal operations.

The FCC's Dallas office on 23 February issued a Notice of Apparent Liability to Cannon Television Inc., of Irving, Texas, for \$8,000 for the violations, which took place in Fort Worth, Texas, in mid-February. The FCC is also investigating a Texas firm for allegedly renting the hand-held transceivers modified to operate on the 420 MHz band used by Cannon.

The 25 radios, Motorola model P-200s, were rented for use in the filming of a pilot for a television adventure series. The P-200s were easily modified to operate below 450 MHz, using software. The radios were delivered ready to operate in the amateur band.

Jon Moon, KA5HND, discovered the movie company transmitting on two simplex frequencies at 443 and 445 MHz, on channels between those normally used by amateurs. Moon was just scanning the band when he ran across the transmissions and eventually figured out their source.

Moon then contacted Chuck Adams, WB5WRR, who operates a repeater and remote base on the band. The two, with the help of other Dallas-Fort Worth amateurs, aided the FCC's Dallas office in locating the apparent source of the signals (in downtown Fort Worth). The FCC then used direction finding equipment to go to the scene.

Local amateurs contacted the FCC on Wednesday, 17 February, and the film crew was ordered to cease and desist, which they did by the next day. They reportedly had been using the equipment for nearly two weeks before being detected. (*ARRL Letter*, 2/24/93) WR

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Chernobyl

(continued from page 7)

Minsk. During September and October 1992 about 15,000 QSOs were made. Equipment used included an IC-735 with MFJ-949 antenna tuner and homebrew 200W power amplifier; and the antenna was a G5RV.

From the "ghost zone" Larry operated from an abandoned boatmen's cabin located right on the beach of the Dnieper River. The main problem was not nutrition or direct effects

of radiation, but heating the cabin; the night temperature outside was frequently below zero degrees Celsius. It was impossible to use an electric heater because of the low energy supply, and since all the timber wood in the area was radioactive, burning it was risky. Instead, coal was delivered by the crew of a tug boat. Additional support came from UC2ABC, UC2AI, RC2AV and UT5UBQ who visited the operating site.

Larry reports that foreign mail into Belarus is still at great risk, as after many protests about mail delivered in damaged condition. (see "QSL Cher-

nobyl—Pipe Dreams and Cruel Customs," October '92 *Worldradio*) the postmen have apparently started to destroy mail after "inspection" for IRCs etc. All QSLs to Larry should be sent via F6AML, as this route still works well.

Since this first DXpedition to the "ghost zone" was a great success—those participating included K4RKI, K4IWW and KB4BME—preparations for the next such operation are in progress. For information on joining the next team contact Larry via F6AML. —*Information submitted by Flavius Jankauskas, K3JA*

Bicycle mobile tour

BIL PAUL, KD6JUI

Members of the Bicycle Mobile Hams of America as well as all other bicycling hams and non-hams alike are invited to participate in the Pacific Crest Bicycle Trail in late June.

The Pacific Crest Bicycle Trail is a road-based bicycle route that I developed which runs between Vancouver, BC, Canada and Tijuana, Baja California, Mexico. Its concept is to come as close as possible to the Pacific Crest Hiking Trail through the Cascades and Sierra Nevada mountain ranges. It's fully described in my book, *The Pacific Crest Bicycle Trail*, published by Bittersweet Press of Livermore, California.

The tour I'm planning begins not far from Portland, Oregon (near the Mt. St. Helens volcano), in southern Washington state and will end in the vicinity of either Crescent Lake or Crater Lake, Oregon. The tour will last about a week and the daily mileage will be 50-plus. We will mostly camp and cook out.

I will be operating 40M (and possibly 20M) low-power (hopefully solar powered) Morse code while on the trip. I will also have a 2M HT along. Another ham has signed up for the trip—NØDA, Dan, of Corvallis, Oregon.

You are invited to join this tour, especially to operate along the way as Dan and I expect to. The tour is open to non-hams as well. The tour is free. The criteria is being in shape for mountain touring, having a climbing-capable bicycle in top shape (and being able to repair it), and having some bicycle touring and camping experience.

If you're interested and want more information, write and I'll send a copy of the full trip altitude profile and a map: Bil Paul, KD6JUI (ex-W9KSJ), 337 Estrella Way, San Mateo, CA 94403-2940. WR



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Amateur Radio 11,000 miles away

GAYLE OLSON, KM6WF

Imagine being awakened from a sound sleep by a loud, shrill telephone ringing. Add to the sound sleep total jet lag fatigue. The voice at the other end says, "Hello, this is 4X1AS."

I was so disoriented that it took me several seconds to reply. Suddenly, I exclaimed, "The ham. You're Shlomo the ham!" This was a real live radio amateur asking me if I wanted to attend an Amateur Radio meeting that evening in his country.

When I replied that I would love to, but that I had no transportation, 4X1AS quickly stated that that was not a problem. He wanted to know if I had brought a 2M radio with me. As I had not, he said he would call someone who was going to the meeting and they would pick me up at my hotel and bring me back afterward.

I hesitated for a moment, thinking that these were total strangers and perhaps I was completely crazy to agree to this. Could I get in trouble, I wondered? And if I did, what would my OM say, with me 11,000 miles away from home on a "Thelma and Louise" vacation with my friend Doris. To say I was nervous would be an understatement.

Then I thought of all the wonderful people I have met in this hobby and decided to take a chance. We agreed on the time that I would be picked up.

Irit, 4Z1BQ, and Yossi, 4X1BQ, were exactly on time. They were warm and wonderful and wanted to know how I got in touch with Shlomo. I explained that a friend, Chuck, KC6PPB, gave me a magazine article from *Worldradio* on satellite long path packet communications. Since I knew I was going to be in both countries soon, I sent a packet to the only 4X on the list and to an SU1 that a friend, Mark, KD6KQ, told me about. When I did not receive any return packets, I dismissed the idea of meeting any hams abroad.

After I recovered from the shock, I realized what a delightful surprise the phone call was. We drove to a coffee shop somewhere in Tel Aviv, and my hosts treated me to a wonderful dinner which I barely ate, as everyone kept

asking me so many questions. I kept straining to hear through the myriad "foreign accents."

We discussed commonalities and concerns regarding Amateur Radio such as their current three classifications with the government wanting them to add no-code technicians, and the problems of jammers and the government's inability to do more to punish the culprits. I was surprised and fascinated to learn that all of Israel, being so small, is one big

Amateur Radio club. What a contrast to the United States and especially southern California.

We exchanged names, call signs and packet BBS addresses. I laughed heartily when Yossi referred to the "@" symbol used in packet addresses as a strudle. "Leave it to an Israeli to relate a packet symbol to food," I quipped to more laughter.

There were approximately 40 radio amateurs at the meeting, and they filled most of the coffee shop. Each one was unique. One OM had what sounded to my ear to be no accent. When I inquired about that, he replied that he owed it to talking on HF daily

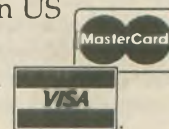


KM6WF received a warm reception when she attended an Amateur Radio meeting in Tel Aviv, Israel.

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where one learned to talk to be understood.

Also in attendance was a Londoner, a New Yorker, a Floridian, and there was even an American who lives only 30 miles from me. One fascinating couple was from County Cork, Ireland. They had sold their home and were cruising the Mediterranean. They stopped in Tel Aviv for a while and then were departing to Cypress for the summer.

From Eran, 4X1MO, to Les, G2DCU, to Clare, EI7CW, to Shlomo, 4X6LM, the company at the meeting was wonderful, and I did not want the evening to end.

As my hosts Irit and Yossi took me home, I learned that when their son was 10½ years old, he was the youngest radio amateur licensed in Israel. It was even more interesting to drive past their home where they live on the 15th floor of what we would call a condominium. They had a marvelous Yagi antenna on the roof.

I inquired about any problems they might have faced getting the proper permission to erect an HF beam antenna since condominium owners in the United States, especially in southern California, have such tremendous problems with covenants and restrictions. They replied that they could have had problems, but



Gayle Olson, KM6WF (left), with Irit Sharon, 4Z1BQ, and Naomi, XYL of Peleg, 4X1GP, in Tel Aviv.

they were elected to the governing board of the building committee where they worked hard and served for several years, conferring with neighbors at residents' meetings and acquiring the approval to erect their beam antenna.

I thoroughly enjoyed the diversity of the people and the closeness of

strangers who are all part of the fraternity of radio amateurs. I knew that this would be one of the most memorable events of my three-week vacation in Israel and Egypt. Imagine, this was all made possible because of Amateur Radio and, more specifically, packet radio, where I reside at W6VIO. WR

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The guts of the AL-80B is its heavy heavy duty power supply. A 26 pound transformer using a high silicone steel core, computer grade capacitors, heavy duty bleeders and ten 3 amp, 1000 V power rectifiers give you a stiff 2700 volts fully loaded. Many amplifiers using two 3-500Zs use such small power supplies they don't deliver much more power output than the AL-80B.

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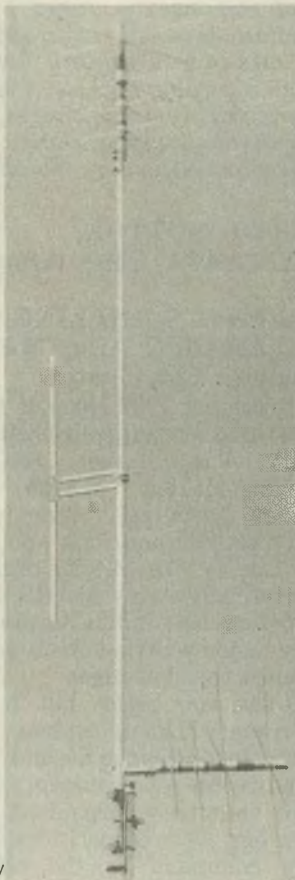
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The MARS mission — misunderstood

The following article is essentially a letter of response by Army MARS representatives to what is perceived to be a misunderstanding among amateurs regarding the role of MARS in emergency communications. Except for slight editing for clarity, it appears here as received by Worldradio.

ROBERT L. SUTTON,
N7UZY/AAA9A, Chief, Army
MARS

CHARLES G. SCHILLING,
N0MUI/AAA9PC, Army MARS
Publications Coordinator

The December 1992 issue of *Worldradio* featured a beautifully-crafted article by Ann Shaver, AH6KY/ABM6AS, entitled "MARS — an emergency resource?" Ann raised some important questions about the role of the service MARS organizations, especially Army MARS, in the wake of Hurricane Iniki's devastation. Her conclusion was that Army MARS didn't meet the challenge.

Well, she was right, but for the wrong reasons. Let us explain. Many years ago, just after the Second World War, a group of Amateur Radio operator volunteers, organized many years earlier, was reconstituted under military command as the Military Amateur Radio System, now known as the Military Affiliate Radio System (MARS). Later both the Air Force and the Navy/Marine Corps established MARS programs. The MARS organizations' purpose is to provide the military with auxiliary communications in emergencies where existing military communications are insufficient or impaired. The Army MARS mission is described in the Army MARS Field Manual, a copy of which is supplied to each member.

In order to exercise the system and ensure it would be ready if needed, MARS is permitted to handle morale and welfare traffic for a limited audience: military and DoD personnel and their families. The purpose of this traffic is to provide readiness training to the worldwide MARS network. It also provides an opportunity for

members to operate and improve the equipment capabilities on a continuing basis. The fact that this provides no-cost service to our soldiers and civilians is a value-added benefit, but again this is not MARS' primary mission.

During times of emergency MARS efforts are directed toward our primary mission of supporting our designated customers by processing, logistical, command-and-control situation reporting and other traffic for the military and civil authorities. While performing this mission we're basically invisible to the public and apparently, to some of our own members.

MARS is not a disaster morale-and-welfare message service for the general public as some may believe—or at least that's not what we're supposed to be. Other organizations are chartered to perform this function. ARES, RACES, and independent Amateur Radio operators and clubs are available to perform this function for the general public and they do an outstanding job. Approximately 96 percent of our MARS membership are volunteer Amateur Radio operators, and many also belong to ARES and RACES organizations. When you wear two hats you sometimes forget the different missions and functions of each.

The key point here in relation to Ann Shaver's article is that our morale and welfare traffic is restricted to "Armed Forces and authorized US Government civilian personnel" as noted above. We must also keep in perspective that this is not our primary mission, and during periods of emergency our nets must remain open to pass emergency traffic for our customers when needed.

"Needed for what?" you might ask. The answer may surprise Ann Shaver and others. That's where we've gone wrong. She should already know the answer, but it appears we must continue to remind our members of our primary mission and the identity of our authorized customers. We provide emergency communications support

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to the designated customers and, consistent with the military's role during and after disasters, provide support to civil authority.

MARS is not presently equipped to deploy large numbers of volunteers to provide local communications during times of emergency. We attempt to get two or three stations on site. The rest of the system is used to route traffic from the disaster area to organizational headquarters elsewhere. The messages we handle are aimed at coordinating and facilitating the relief efforts; relaying the need for specific types of supplies, personnel and equipment; providing back-up communications for disaster medical assistance teams (DMATs) from the National Disaster Medical Service (NDMS); supporting emergency operations centers (EOCs); providing liaison between the military (National Guard, Reserve and Regular Army) and other agencies. We have an important job to do. We are proud to say that feedback from our customers indicates historically MARS has done a fine job.

Well, if that's our job during emergencies, then were did we go wrong after Iniki hit Hawaii? Fact is, we didn't go wrong, and MARS did its job as it has historically done. Army MARS established emergency nets on both HF and VHF prior to the landfall of Iniki and the emergency nets were kept open until released by our authorized users. Specifically, the Army MARS emergency nets included links from the area MARS gateway station at Schofield Barracks to the emergency operations center at Fort Shafter, Hawaii; Civil Defense headquarters in Honolulu; and an HF link to Johnson Island. Approximately 35 Army MARS affiliate member stations checked in to the Army MARS emergency nets established by the Hawaii MARS state director. He established his command post at the area MARS gateway station. If normal communications between Hawaii and the continental United States had been disrupted, major links between Army MARS stations at Hawaii, Ft. Lewis, Washington, and Yongsan, South Korea were available.

Ann was correct in that there was not much traffic, this time, on the established emergency nets that she checked in to or monitored. She may not have been aware of the reason or of the fact that other communications services were provided by MARS during and after Iniki's landfall. In order to pass traffic, you must have a valid customer that has a need for your services in a given situation. The authorized customers for MARS, both military and civilian, were contacted and informed of our established

emergency network and capabilities. For example, when Civil Defense authorities were asked if they wanted us to activate the emergency communications nets they declined the offer. The military had deployed units to the disaster area and did not see an immediate need for our services. If we were needed, they knew to contact the area MARS gateway station. It was initially determined that our services were not required during this particular disaster.


However, in all fairness to Army MARS, members did provide communications services in support of the Iniki recovery. When MARS members reported to the Waianae Civil Defense District Headquarters they were assigned to roadblocks on Farrington Highway where they provided communications back to the headquarters


via VHF hand-held radios. MARS affiliates assisted Oahu Civil Defense by providing communications to locations such as the Waianae coast, which was without commercial power. Other members set up a backup repeater on Muana Kapu for use in the event the primary repeater was lost in the storm. Radio phone patches were run with the LSV *Clinger*, a US Army ship at sea enroute to Pearl Harbor, including weather service updates which allowed them to avoid the storm. Authorized morale and welfare traffic was also handled for the *Clinger*. After the landfall of Iniki, the area Army MARS gateway station provided radio phone patch services for Army and Air Force units deployed to Kauai. It's also possible that additional support provided by MARS was not reported.

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


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Fortunately, MARS was not needed to the degree for which we were prepared. The storm did not hit Oahu or the Big Island as initially anticipated. The civil emergency communications infrastructure had survived the storm and was intact. The military had established necessary communications so the auxiliary capabilities of MARS were not needed this time. Once the MARS emergency nets were deactivated many of the volunteer affiliates who had been ready to perform their duties with MARS then moved on to their alternate role as members of Amateur Radio groups. They served capably in that capacity and we applaud their efforts. That's the beauty of MARS membership: having the ability to perform dual roles as mission requirements dictate.

So where did Army MARS fail to meet its obligations? It is apparent that over the past 47 years or so we've become so involved in the training aspects of processing morale and welfare traffic that some of our members have lost sight of our primary mission. For many of our members, handling of morale and welfare traffic for military personnel has become the central function of

MARS. During Desert Storm, this was the mission asked of us and MARS did an outstanding job. Over 180,000 record messages and 60,000 radio phone patches were processed by Army MARS in support of our deployed troops and families. During 1991 an average of 5,000 Army MARS members processed a total of 1,557,182 messages and 37,399 phone patches, of which the vast majority were morale and welfare.

After Desert Storm we recognized the developing misconception that MARS is just a morale-and-welfare system. We also recognized this must be changed. We identified the need to re-emphasize the emergency communications aspect of the program. We have taken some dramatic steps to accomplish this. Apparently the word still isn't out in all quarters of the organization. To the extent we've failed to ensure that all our members know what we're supposed to be doing during disaster recovery, we've failed in our primary objective. We apologize to Ann and others in MARS who don't understand our role. We're working very hard to correct this oversight. Some steps taken are the development and promulgation of the Army MARS Worldwide Emergency Communica-

tions Operations and Traffic Network Plans, rewriting of the field manual, and the development and execution of major natural disaster emergency support plans.

We've had many successes this past year, including the superb performance of Hawaii Army MARS surrounding Iniki, some excellent exercises aimed at training and expanding our role in disaster recovery, and improvements in liaison with our authorized customers. We made substantial improvements in internal communications in an effort to get the word to all our membership.

We appreciate the exposure *Worldradio* has provided the MARS program in its pages over the years. This exposure has meant additional members and better understanding of the MARS program within the amateur community. We may have been frustrated when we initially read Ann's article since we've been trying very hard to get the word out. We hope that our reply to her article will serve as one tool to assist us in clearing up any misconceptions. We thank Ann for helping us pinpoint a problem. Now we hope she'll help us fix it. We need writers of her caliber to help us deliver our message. WR

Selecting a balun

JACK ALTHOUSE, K6NY

A simple and very popular antenna system is a dipole fed with 450-ohm ladder line. It's awkward to run the ladder line into the shack so, just outside the building, a balun converts from ladder line to coaxial cable. The coax runs into the radio room where it connects to an antenna tuner. The tuner allows the antenna to be used on many bands.

The question is, what ratio of balun should be used? The coaxial cable is

50-ohm and the ladder line is 450-ohm so, obviously, we need a 9:1 balun, right? WRONG!

Halfwave dipole

Let's look at a typical antenna of this type. The antenna is 133 feet long so it is a half-wave dipole on 80M. The feedline is also 133 feet long so it is a half-wave on 80M.

A half-wave transmission line has an interesting property: The resistance seen at the transmitter end is the same as that of the antenna to which it is connected. Our 80M dipole probably has a feedpoint resistance of 50 ohms. So at the transmitter end we will see 50 ohms, not 450 ohms.

In this particular case it doesn't make any difference what the ladder line impedance is, 450, 200, 100 or any other impedance. We will see 50 ohms

looking into the transmitter end. In this instance a 1:1 balun would be our choice. But suppose the transmission line were some other length, say a quarter-wave?

A quarter-wave line transforms impedance. The resistance seen at the transmitter end is: $(\text{line impedance})^2 / \text{antenna resistance}$. In the case of our 50-ohm antenna, that's $(450)^2 / 50$ or 4050 ohms. So now we need an 81:1 balun.

What's going on here? On the band where our dipole is a simple half-wave we may have to match either 50 ohms or 4050 ohms depending on whether the feedline is a half-wave or a quarter-wave. If the feedline is some other length, we'll have to match a still different impedance.

On the second harmonic

But it gets worse! Let's tune up the antenna on 40M. On this band the antenna is a full wave long. The impedance seen at the center will be much higher than 50 ohms—probably about 2000 ohms. The feedline that was a quarter-wave on 80M will be a half-wave on 40M. Remember that the transmitter end of a half-wave line shows the same impedance as the antenna to which it is connected. So, at the transmitter end of the feedline we'll see 2000 ohms.

But what if the line is only a quarter wave long? Then what? At the

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transmitter end we'll see: $(\text{line impedance})^2 / \text{antenna resistance}$, or $(450)^2 / 2000 = 100$ ohms.

We've seen that this antenna system has a transmitter-end impedance of 50 ohms, 4050 ohms, 2000 ohms or 100 ohms depending on the frequency of operation. And this is just for special cases where the transmission line is a half-wave or a quarter-wave (or some multiple of these) long.

It is perfectly clear that just because we have a 450-ohm line we can't expect to see 450 ohms. We can expect to see just about *anything* in the way of impedance. The resistance seen at the transmitter end of our 450-ohm cable will vary at least from 50 ohms to 4050 ohms. It may be worse and it will have reactance in addition to resistance in many cases. But, to keep things fairly simple, let's

use the limits of 50 and 4050 ohms resistive.

Select a balun ratio

The simplest balun is 1:1 ratio, 50 ohms to 50 ohms. If we use this balun the SWR it sees will be 1:1 for the 50-ohm load and 81:1 at 4050 ohms. No balun is going to work at 81:1 SWR!

A 4:1 balun (200 ohms preferred load) will see 4:1 SWR at 50 ohms load and 20:1 at 4050 ohms. A 9:1 balun (450 ohms preferred load) will see 9:1 SWR with the 50-ohm load, and 9:1 with the 4050-ohm load.

The 9:1 balun looks like the best choice with the 4:1 balun a very close second. But wait! There is a general balun law we should look at: *The higher the ratio of the balun the less bandwidth it has and the less it can stand mismatch.*

Baluns don't like mismatch and don't transform impedance the way they are supposed to when they work into a serious mismatch. And the higher the balun ratio the worse they work.

So what is the best selection here? The 4:1 balun! When the SWR it sees is 20:1 it probably will work about as well as the 9:1 balun at 9:1 SWR. And over most of the range of impedances it will see lower SWR than the 9:1 balun. It is what we might call "the best engineering compromise," where there is no perfect solution to the problem.

This suggested best compromise (the 4:1 balun) is not exactly a new concept. Lew McCoy, W1ICP, in his classic antenna tuner article, "The Ultimate Transmatch" (*QST*, July 1970), used a 4:1 balun. Now you see why! WR

Getting started young

TOM BURT, KA1ZAK

My interest in Amateur Radio started at one of my weekly Boy Scout meetings. It was the Scout Master's turn to talk. He told us that we would be participating in the 33rd annual Boy Scout Jamboree On The Air.

He briefly explained what the weekend would be like. He told us a ham radio operator would be providing the equipment and representing our troop. We would be able to send radiograms to friends, family — anybody. After that night, we all had our imaginative ideas about this thing called ham radio and what it might be like. I thought it was some kind of satellite dish that you talk into and your voice is sent to wherever you want it to go.

We thought about it for a few weeks, until the day of the Jamboree came. I was driven down to the scout hut. I was surprised when I arrived.

The other scouts were setting up an antenna that looked a little like a TV antenna. I quickly ran the food for the bake sale into the hut and came back out to help. They started to raise the antenna up and I grabbed one of the lines and helped. It didn't take very long to get the antenna up and the lines secured. One of the guy lines was tied to the Scout Master's truck.

We then entered the hut where the ham operator representing our troop, John Barrows, W1HCR, was connecting all of the equipment. Most of the scouts were standing around the radio watching with amazement. Some scouts, however, were standing around the food table staring with amazement. With everything hooked up, the ham turned the radio on. This was the moment we were waiting for. It was nothing like any of us expected.

It wasn't long before we got our first call. It was from a ship captain who was out at sea. All the scouts were called to the radio. Some talked to the captain, but some were shy and stood back and watched. We were told to say our name, age and scout rank. Another scout and I met up with the captain later on.

After that, some scouts went to work at the food table and some others

went outside to play football. We got many calls from many different countries that day. We also had many visitors from local newspapers, parents and friends. After several hours of working the radio, I had to leave. (I play in the local high school marching band and had to play at the football game.) My father went back to the scout hut and was soon talking on the radio again. I was away when all the newspaper reporters came. After a couple more hours of operating, it was time to pack up and go home. Everyone had enjoyed the day very much. I was sure to come back the next day. I went home and spent the evening looking up all the countries we had talked to that day and thought about who we might contact next time.

When it was time for bed, I went upstairs, brushed my teeth, climbed into bed and tried to sleep. It took a long time to get to sleep but before long it was morning and time to get up. I hurriedly got dressed, ate breakfast and gathered the gear I needed to bring for the day.

My father drove me back to the scout hut. A few scouts were there and John, W1HCR, already had the radio going. I quickly pulled up a chair and sat down. They had only contacted a couple stations before I had arrived. (please turn to page 25)

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
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Project Goodwill

(continued from page 1)

Almost overnight, Project Goodwill Albania, under the direction of Martti and Ken Mizoguchi, JA1BK, was created to get Geni medical treatment in the US.

Coming quickly to the rescue were Dr. Vince Thompson, K5VT, Phoenix, Arizona, one of America's preeminent oncologists (and veteran DXpeditioner) and Dr. Warren Hill, KF7AY, a respected eye surgeon in Mesa, Arizona. Together these radio amateur/medical doctors agreed to help Martti and quickly convinced the Phoenix-Mesa medical community that this was not just a special case, but a special patient as well. Mesa urologist Dr. Peter Matthews and Valley Lutheran Hospital agreed to donate their services, thus providing for Geni lifesaving medical treatment, the cost of which would otherwise have attained prohibitive levels.

But it wasn't just the hams who helped Geni. Swiss Air, commonly regarded by experienced world travelers as one of the world's finest airlines, demonstrated true Swiss hospitality in agreeing to fly Geni from Tirana to the US and back for free. Swiss Air, in fact, just a few months prior, had given complimentary passage to another Albanian citizen, a young boy, who needed emergency surgery in Boston. In learning of Swiss Air's kindness in Geni's behalf, Martti Laine commented that he wasn't surprised — Swiss Air had helped the ZA1A team through many difficult situations when that team was putting Albania on the air in late 1991.

Project Goodwill Albania found yet another friend in Washington, DC: the Honorable John McCain, Arizona's popular US senator. Senator McCain took an immediate interest in Geni's case and directed US Embassy officials in Tirana to expedite Geni's visa to the US. His staff monitored that situation on a daily basis until Geni was issued his visa — indeed, one of the very few ever issued to an Albanian.

Once all these arrangements fell into place, Geni flew to the US on 30 January, arriving at the Los Angeles airport after long flights from Tirana, then Zurich. On hand to greet him were several employees of Swiss Air. Additionally, it seemed as if all the US Customs and Immigrations officials wanted the honor of processing Geni through the formalities. They had to defer to a supervisor who proudly escorted Geni quickly past long lines

with intermediary officials stopping Geni only long enough to welcome him to the United States and to say "get well soon." Noting that he was getting a diplomat's royal welcome, Geni could only exclaim to those around him, "I'm only a ham radio operator from Albania!"

Geni couldn't have had a more international group of friendly DXers on hand in the Los Angeles area to welcome him to America. They included Dr. Terry Langdon, W6/G3MHV, his wife, Mady, KA6ZYF, and, much to Geni's surprise, the HA5BUS Globex DXpedition team from Hungary — Imre, HA5HO; Gabi, HG5BKG; and Pista, HG5CHI. All in all, the group

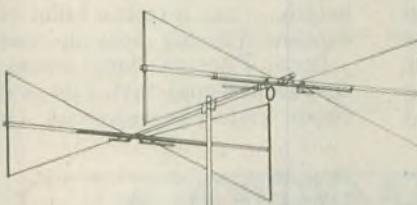
represented several active call signs including OZ, G3, KP4, OH, 7J, HA, W7, W6, VE, XE and, yes, a fellow ZA1! The Hungarians met Geni one more time a few weeks later during their visit to Arizona.

Geni chose to make the trip to Phoenix by car so he could enjoy Arizona's beautiful desert scenery. As he was approaching the Phoenix area, he was greeted by several friendly hams on various repeaters, which itself developed into a rare occurrence: a 2M pileup which Geni handled with the adeptness of any experienced DXpeditioner.

Very early the next morning, Geni was with his doctors. Over the course

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
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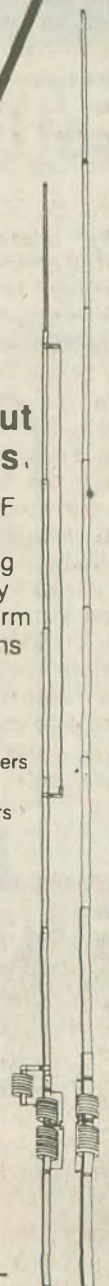
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Marenglen "Geni" Mema, ZA1B, prepares to greet the many visitors who came to honor him at a reception in Phoenix. Swiss Air generously provided round-trip transportation from Albania to help Geni receive lifesaving medical treatment in Arizona.

of the next two weeks, he would receive two major medical treatments and follow-up examinations. Dr. Peter Matthews and his team would return to Albania one of her citizens in good

health — much to the relief of a very concerned father, wife and two sons.

Local Phoenix hams made certain that Geni would have a lot to do in between medical treatments. Geni was

hosted by several Phoenix-area DXers, made an appearance at an elementary school, was serenaded by a children's chorus at a Phoenix church, visited several Albanian families and was honored at a reception held at the Consulate of Finland where he met dozens of amateurs and their spouses.

Geni also got to see some of America's spectacular natural scenery: He visited both the Grand Canyon National Park and the Grand Teton National Park, the latter during a stay with his close friend Wayne Mills, N7NG, who was a member of the original ZA1A team.

Bidding his friends in Phoenix an emotional farewell, Geni flew back to Los Angeles where he enjoyed a reunion with close Albanian friends who have resided in southern California for several years.

Geni wrapped up his American visit in true DXer style. Just a few days before his scheduled return to Switzerland and Albania, he traveled to Mexico to participate in the ARRL DX phone contest with Garbriel Valdez, XE2GV, as his host. In between turns in the contest and afterwards, Geni worked eager DXers as XE2/ZA1B, creating some of Mexico's most memorable pileups — pileups large enough to force Geni to extend his stay in Mexico by an additional two days! That's true DX spirit!

Geni has asked us to express his thanks to all the hundreds of amateurs and their families, not just for their generous support of Project Goodwill Albania and thereby his immediate care, but for the many sincere expressions of friendship and goodwill on the part of those whom he met in person in America, those hams and their families who hosted him as well as countless many who greeted him on the air. During Geni's stay here and in Mexico, he had the opportunity to meet several thousand hams on the HF bands. Each and every contact meant something special for Geni.

It was Geni, ZA1B, who was crucial to the reopening of Albania and the world of Amateur Radio to one another, thereby giving the outside world a long sought-after ZA QSO which ended a 45-year hiatus of ham radio activity in his country. Project Goodwill Albania has given the rest of us a chance to give something back: a long sought-after return to good health. Thanks to Amateur Radio and the setting into motion the finer traditions of our hobby, a colleague has been restored to health and returned to his native land with no longer just a fantasy, but now real and permanent memories that he is already sharing with fellow hams and family in the new Republic of Albania. WR

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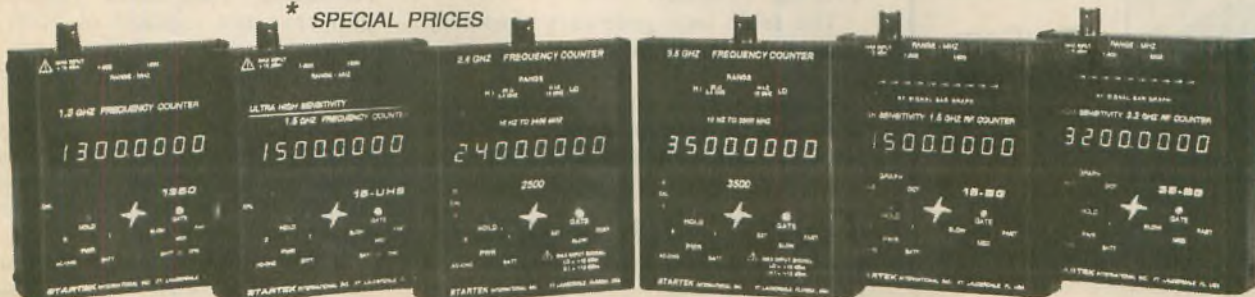
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Update: Satellite Gateway System

DAVE MEDLEY, KI6QE

The Satellite Gateway System is now, February '93, two years old, and since its small beginnings transferring one or two messages per day between Alaska and California, today over 500 messages are transferred between 36 gateways worldwide on a daily basis. This is growing at the rate of about 10 percent per month as packet users realize that they can get responses to their messages in 24 hours or so, regardless of the destination.

The primary gateway in California, KI6QE, handles between 40 and 70 pieces of traffic daily, all private messages, and in the month of January a total of 2.7 megabytes of data was transferred.

As the traffic grew it became apparent that a backup system was most desirable, particularly as the main satellite was withdrawn from service in mid-December for software maintenance and again in mid-January. Thus we developed a backup system using an older and very reliable satellite, LUSAT.

The LUSAT backup experiment has been quite successful and was put to a real test in mid-January when UO-22 was once more shut down for software changes. Fourteen gateways in North America, South America, Europe and Australia were active and traffic was kept flowing between them rather well. Those gateways concerned will all be classified as full service gateways, and will have adequate backup to insure uninterrupted service.

The following gateways have participated so far: KI6QE, California; W0SL, Kansas; WB5EKW, Texas; NR3U, Pennsylvania; NU9H, Indiana; NL7NC, Alaska; KK4UZ, Alabama; GB7LAN, England;

North America

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W9HGI
NL7NC
VE8DX
WA0PTV
KF4WQ
W0SL
NU9H
NR3U
N0GIB
WB5EKW
KG4TM
WH6AQ
W7LUS
KK4UZ
N7RSN

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#NOCAL
AK
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NC,SC
KS,MO,IL,IA,CO,AR
IN,IL(Chicago area),MI,KY,WI,VE3,4
PA,NJ,OH,MD,VA,WV,DC
SD,ND,WY,NE,MN,MT,VE5
TX,NM,OK
Guantanamo, Caribbean area
US Possessions, Pacific area, Guam
FL, Central America
AL,LA,MS,GA, TN
WA,OR,VE6,7

Europe

ON4KVI
EI6EH
EA3RAC
OH6SAT
GB7LAN
SV8RV

Western Europe
Ireland, Denmark
Spain, Portugal, Italy
Finland, Sweden, Norway
UK
Eastern Europe, Russia, Ukraine,
North Africa, Middle East, India
France, Switzerland

FC1EBK

FC1EBK.FRA.EU

Oceania

ZL2AMD
VK5ZK
VK8SO
FO5LQ
VK4BBS

New Zealand, South Pacific
VK5,VK6,VK8
Alice Springs
French Polynesia
VK2,VK3,VK4,VK7,VK1,H44

Middle East

4X1AS 4X1RU.ISR.MDLE

Israel

Far East

JA6FTL JA6FTL.JNET6.JPN.AS
7J1ALF 7J1ALF.JNET1.JPN.AS

Africa

ZS1ABM ZS1ABM.ZAF.AF

South Africa

South America

LU8DYF LU8DYF.OLIVOS.BA.ARG.SA
PY2GN PY2GN.SP.BRA.SA
CX5AE CX5AE.#GOV.ME.URY.SA

CP,OA,CE,YV,LU/LW
PY
CX

EI6EH, Ireland; SV8RV, Greece; ZL2AMD, New Zealand; VK5ZK, Australia; LU8DYF, Argentina; CX5AE, Uruguay.

The table lists gateways presently (2/1/93) in operation.

When UO22 is out of service LO19 is used as a backup. KI6QE switches to LO19 immediately. The gateways

capable of 1200 baud operation check in to KI6QE that they are available for traffic handling and forwarding continues. The areas covered by gateways not capable of 1200 baud operation are serviced by participating gateways via other distribution networks such as HF and VHF from the closest satellite gateway. For example, all traffic for Europe is picked up by SV8RV, who has an extensive HF network throughout the region.

If any reader has any questions or needs help with the satellite gateway system you can contact Dave Medley, KI6QE, at 1450 Bayview Heights Drive, Los Osos, CA 93402. An SASE is appreciated. Packet messages may be addressed to KI6QE.#CENCA.CA. USA.NA. WR



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Getting started

(continued from page 20)

Once I had arrived, we started to get more and more calls.

Luckily, my parents had given me the day off from church to participate in the Jamboree. We did not make as many contacts as the previous day. The only public that came in were family and friends of the scouts, not as many radiograms were sent and the bake sale didn't go as well, but it still was a fun day. By the end of the day many scouts wanted to learn everything about this wonderful hobby.

We were informed at the next Boy Scout meeting that W1HCR agreed to start Novice ham classes for our troop. We were told of the costs of radio equipment. Within a few weeks W1HCR was ready to start the class and about 10 boys were interested.

Upon arriving at the scout hut (where all the classes were held) I noticed the only equipment in the room was a Morse code key. I was very curious what this was for. It certainly isn't used in ham radio, I thought.

To my surprise, the lesson started out with Morse code being sent throughout the room for the scouts to copy. John, the teacher, told us this is how we would be spending the first six months of our ham radio career. I was disappointed that we would have to learn Morse code, or CW, as he called it. I wanted to talk as I had at the Jamboree. Some of the scouts dropped out of class but I kept going.

At times I wanted to quit the lessons but my parents urged me not to. I got really tired of studying the tapes that we were learning from. Sometimes I only listened to them once or twice a week. I don't know how I ever learned CW without practicing more. We had lessons every

Saturday for about an hour. We each bought a Novice manual and were assigned a few pages to read and study each week. The next week we would be tested on the questions we read and the CW that was assigned for that week. After about four months we were ready to take the test. Only five of the original 10 scouts made it to this point.

The day of the test came too quickly for us all—only one, Scott, KA1YRF, passed the whole test. We resumed the classes with only four scouts this time, as one more quit. After about seven weeks we were ready for a second whack at this test. It was extremely

easy this time. We were all happy, especially Jon, KA1ZAI, who had struggled through studying the tapes.

We met for a few more weeks to discuss equipment—what to get, where to get it and how much it would cost. Before long, three out of the four scouts were on the air using borrowed radios, arranged through the Mashpee, Massachusetts Amateur Radio Club. I had to wait about four months for a radio to become available. We had help and donated parts to assemble the rest of the equipment, like antennas, keys, etc. We were required to make 200 CW contacts before we could get the microphones for the


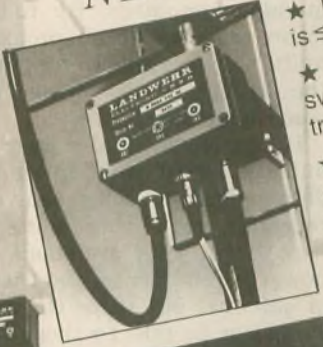
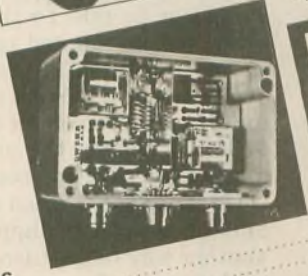


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145 MHz	220 MHz	432 MHz
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145 MHz	430-450 MHz
144-148 MHz	F < 1.1 db
F < 0.7 db	typ. 0.9 db
typ. 0.6 db	17-19 db
18-20 db	150 Watt
150 Watt	350 Watt
750 Watt	Type N
Type N	

SPECIFICATIONS

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- Noise Figure.....
- N GAS xxx MA.....
- Gain.....
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radios. I started working CW on 15 and 80M. I had my 200 contacts easily in a few months. One other scout, Chris, KA1ZAJ, was doing pretty well but had equipment problems. The other two scouts stopped doing ham radio at home but joined the Amateur Radio club at their school.

Chris, KA1ZAJ, is now using the Yaesu FT101 that I had, and I bought

my own Kenwood TS-820S. Both of us use half-wave dipole antennas and I added a 10M to the 15 and 80 that I had been using. All four of us earned the merit badge "radio" in May 1991 when we passed the Novice test. Chris and I are still deeply involved in Boy Scouts, earning our Life rank last year and working on the Eagle now.

I can't speak for the others but,

thanks to ham radio, I wish to pursue a career in electronics. I would like to thank W1HCR and KA1AOM who helped with numerous equipment problems, my parents and Scout Master Ed Petravic, and all the scouts of Cape and Islands District Troop 44 who helped me obtain my Amateur Radio license. 73 and hope to catch you on the air!

WR

Packet for the masses

JOE MELVIN, KB6WIJ

One of the biggest complaints we've heard about packet radio is the cost of setting up a station, "Geez, I can't afford to spend 300 bucks on a data controller!" Digital communications is like everything else—you get what you pay for—but if you're only interested in packet radio, a fancy multimode controller is a lot of technology that you don't need!

The goodies mentioned here will *not* send and receive RTTY or decode weather FAX pictures, but they will send and receive packet radio without use of the "cubic dollar" approach.

First, let's assume that you're interested in accessing the local packet BBS and the DX cluster in your area. These machines live on 2M or 440 MHz, so you probably already have the radio that you need. Don't get too fancy—an old crystal controlled rig will do just fine, and I have always used a Kenwood hand-held with a mighty 5W. (Buy more antenna before you buy more radio!)

You will also need a computer but, again, you don't need to get fancy if you're just interested in packet. If you are an IBM fan, there are bargains all over the place on new and used IBM compatible computers. You might start with the Tucker Electronics catalog. For the Macintosh types, there are good deals to be made at outlets such as Whole Earth Access. If you look around, you can probably scrape up an old Commodore 64 with a monitor, disk drive and printer for a couple hundred dollars or less.

Bear in mind, however, that computers can be severely addictive! A brand new 486DX2 50 MHz computer

with a stereo sound card, a hard drive and a warp drive will not improve your ability to send packet, but it sure is a lot more impressive to show your friends than a Commodore 64! If you're not sure what type of machine would be best for you, ask around and see what other people are using.

Once you have a computer (that you've learned how to use at least a little) and a VHF or UHF radio, you need to hook them together and make some packets. There is a variety of ways to do this and still avoid a serious budget deficit. The PK-88 from AES, the KPC-2 from Kantronics, the 1270B from MFJ and the Tiny-2 from PacComm are full-blown packet machines that are compatible with IBM, Macintosh and Commodore computers. By full-blown, I mean that, once you program these units, they are able to function even if the computer is being used for something else.

If you would like to keep a packet bulletin board running or act as a digipeater (the packet equivalent of a repeater), one of these units is a good way to go! They are small, have low power requirements, and there is a lot of software out there to enable your computer to talk to them. There are even custom-tailored cables available for most of these, so you don't have to "roll your own"! With software, these units range from about \$140 to around \$185. Of course, the used equipment market can save you some money, too!

If you're not worried about full-time bulletin boards or digipeaters, there's another way to go. Instead of buying a packet controller, program your IBM compatible computer to be a packet controller! The *BayCom* program was

created by a group of amateurs in Germany, and it turns your computer into quite an impressive packet machine. You can connect to as many as eight different stations at the same time, so you can be using one port to monitor the local DX cluster and another port to ragchew with a buddy across town, while another ham is using a third port of your machine to digipeat to someone else!

Now all you need is a relatively cheap modem to connect your computer to your radio. PacComm sells the BayMod modems for \$65, and TigerTronics sells the BayPac BP-1 for \$49.95. Best of all, both companies include the *BayCom* software with their modems! This software does require a bit of familiarity—for example, there is a parameter that needs to be set before use or it will speak to you in German—but it works like a champ!

If you want a *really simple* program to use, spend an extra \$20 and buy *SoftNc* from J-Com. It will only allow one packet connection at a time, but there are only 12 keyboard commands, and all of them are displayed and explained by pressing ALT-H. If you have a Commodore 64, you will need to look for a copy of *DigiCom-64* software, which is public domain and can be obtained for free (check your local phone BBSs). A Commodore 64 packet modem can be obtained from MFJ (MFJ-1271, \$50), as well as other sources.

There are other suppliers of packet radio equipment that haven't been mentioned, and new tricks and techniques are a daily occurrence in digital communications. The goal of this article is not to recommend one manufacturer over another, or to give the new packet user a lesson in "everything you need to know about packet." Rather, my hope is that the newcomer to packet radio will not let the fancy advertising (with its equally fancy pricing) discourage him or her from giving it a try. If you purchase one of these systems and find that you outgrow it in the future, remember what I always tell my wife: You always need a backup rig, and it would be nice to have a mobile setup in case of an emergency—and gosh, it would be really great at Field Day . . . WR



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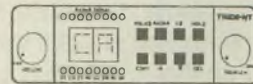
Five banks of 20 channels each. Covers 29-54, 118-174, 406-512 and 806-954MHz (with cell lock). Features scan, search, delay, priority, CTCSS option, lockout, service search, & keylock. Includes AC/DC cords, mounting bracket, BNC antenna. Size: 4 3/8 x 6 15/16 x 1 5/8. Weight: 4.5lbs. Fax fact document #550

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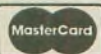
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Ballet in the sky

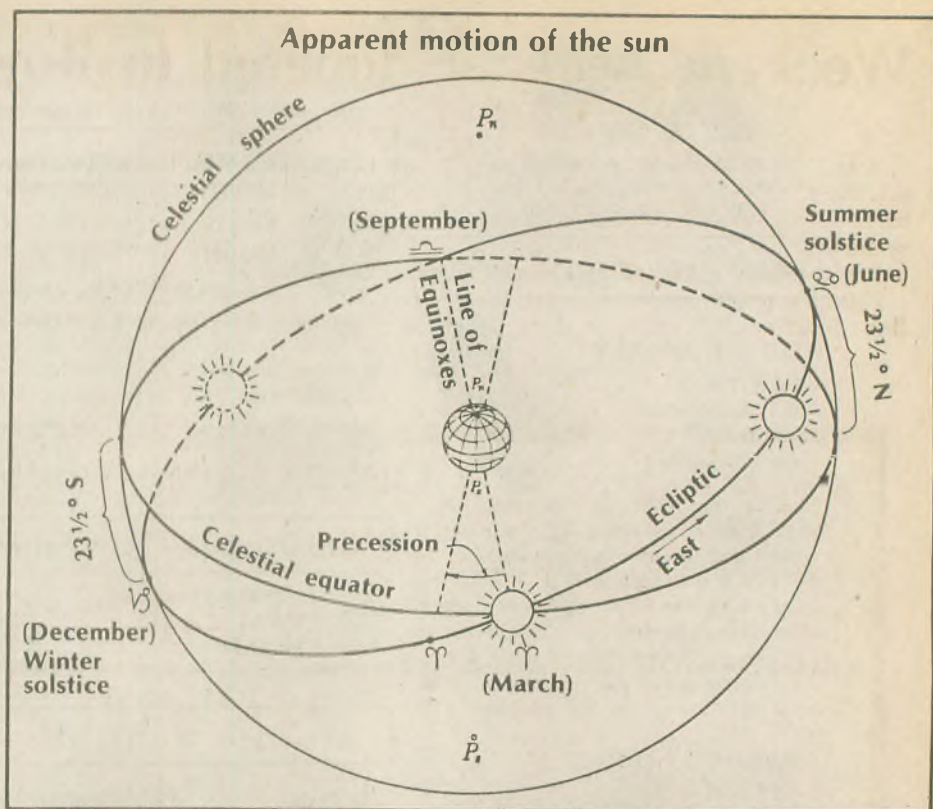
DON SMITH, W6NKF

While I applaud Ken Neubeck's, WB2AMU, article, "Sporadic E Propagation," I have to take exception to his attempt to re-write the laws of astronomy with the diagram on page 23 (Figure 3).

Being an old seagoing salt, and having navigated a wide range of ships of all types about this old globe, I promptly ran outside with sextant in hand to see if the universe had been changed whilst I was not looking!

The earth travels about the sun every 365 days, five hours, 48 minutes, 46 seconds, in a path that is not quite a perfect circle and is tipped on its axis about 23.5 degrees (23 degrees 27 minutes to be exact). As it rotates around the sun in this tipped angle, the apparent motion of the sun seems to wander north and south of the earth's equator about 23.5 degrees.

The earth is at perihelion early in January and at aphelion six months later. On or about 21 June, about 10 or



11 days before reaching aphelion, the northern part of the earth's axis is tilted toward the sun. The North Polar regions are having continuous sunlight;

the Northern Hemisphere is having its summer with long, warm days and short nights; the Southern Hemisphere is having winter with short days and long, cold nights; and the South Polar region is in continuous darkness. This is the summer solstice.

Three months later, about 23 September, the earth has moved a quarter of the way around the sun, but its axis of rotation still points in about the same direction in space. The sun shines equally on both hemispheres and days and nights are the same length over the entire world. The sun is setting at the North Pole and rising at the South Pole. The Northern Hemisphere is having autumn, and the Southern Hemisphere is having spring. The apparent motion of the sun is crossing the earth's equator.

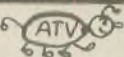
In another three months, on or about 22 December, the Southern Hemisphere is now tilted toward the sun and the conditions are the reverse of those six months earlier; the Northern Hemisphere is having winter, and the Southern Hemisphere, summer. We call this the winter solstice.

The word equinox means "equal nights," and the word solstice means "the sun stands still" because the sun stops its northward or southward motion and appears to stand still for a few hours before it starts in the opposite direction.

The diagram here, from an astronomy book, should help explain how this ballet in the sky takes place. WR

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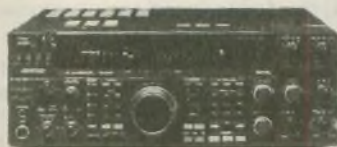
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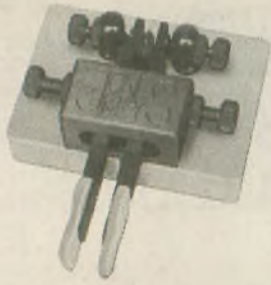
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Product Review

The view from the peak

GEORGE HINDS, N8CIX

After selling off some gear, I gave myself a gift. I decided to get a new dual-band transceiver for the car. This would allow me to move the old dual-band Alinco DR-570 mobile rig into the house as my fixed station. It also allowed me to use a dual-band antenna on the tower, instead of the previous separate VHF and UHF antennas.

It was time to do some pondering about various makes and models. There didn't appear to be truly significant differences in technical specs between various makes from what I read in the ads. I was ripe to try something different—and I found one for which the price was right: I chose the Yaesu 5200, my first-ever Yaesu transceiver.

Certainly it had all the bells and whistles of the day. Programming was straight-forward; dial lighting had a variable control and provided excellent visibility (though the numerous front-panel buttons were not easy to see at night); cross-band repeat was easy. So into the car it went.

Then came the awakening. With my first run over to our city hall area I was having second thoughts about my newest purchase—this thing was being driven crazy by the telephone company pager, police, etc., all located in the area and often going at the same time. Strange, very unwelcome beeps, burps, squawks and intermod noise were coming out of the speaker!

I had been hearing complaints from friends about their new, wide-frequency spread rigs emitting garbage noise when running around downtown Colorado Springs in high RF areas and when near the almost co-located police department and telephone company pager transmitters here in Woodland Park. Why hadn't I heard this before

on the DR-570? The old Alinco seldom emitted an unwelcome burp—remember someone telling you that newer is not always better?

After almost three months of continued dissatisfaction, out came the Yaesu and back in went the old DR-570 Alinco for a week-long test—and the problem practically disappeared.

About this time, I read a comment by a respected West Coast Amateur Radio columnist who had tried out the newest Alinco, the DR-599T, and commented that while it was even more sensitive than previous models, at the same time it did away with the burps, squawks and intermod problems experienced with other wide-coverage rigs. That did it! I decided to take the gamble.

I called the dealer from whom I had purchased the 5200; he was agreeable to talking trade-in and we dickered a fair deal. I went home with the new Alinco and installed it in the Chevy Caprice. Great-t-t! Quiet, even though I drove around the local problem area so long that it's a wonder the gendarms didn't get suspicious. It opened up when an on-frequency signal was present; it stayed quiet otherwise.

A week later, business took me back to Denver where I drove in what had previously been an area of constant RF problems along highway I-25 from downtown to the infamous I-70/I-25 "mousetrap" intersection. Would I have the same problems? Not this time. I had what I thought was one brief burp. Before, it was so bad I would have turned the rig down or off.

Upon arriving home, I filled out the warranty card and mailed it. I had a very useable radio. Then I undid the box and very carefully accomplished a few mods to expand receiver coverage to 108-174 MHz, including AM on-the-air band and an unexpected and unadvertised plus: 850-910 MHz FM (with the addition of a separate antenna).

Of course, the new Alinco does what all the other "newest of the new" dual-band mobiles are advertised to do, along with having remote control, autodialing and paging via DTMF (optional DTMF receiver unit required), cross-band repeater, remote head mounting capability with an optional kit, etc.

So, if your mobile rig is giving you the problems I and so many others have experienced, you may want to find an Alinco DR-599T user and check it out. You have my opinion. You be the judge.

WR

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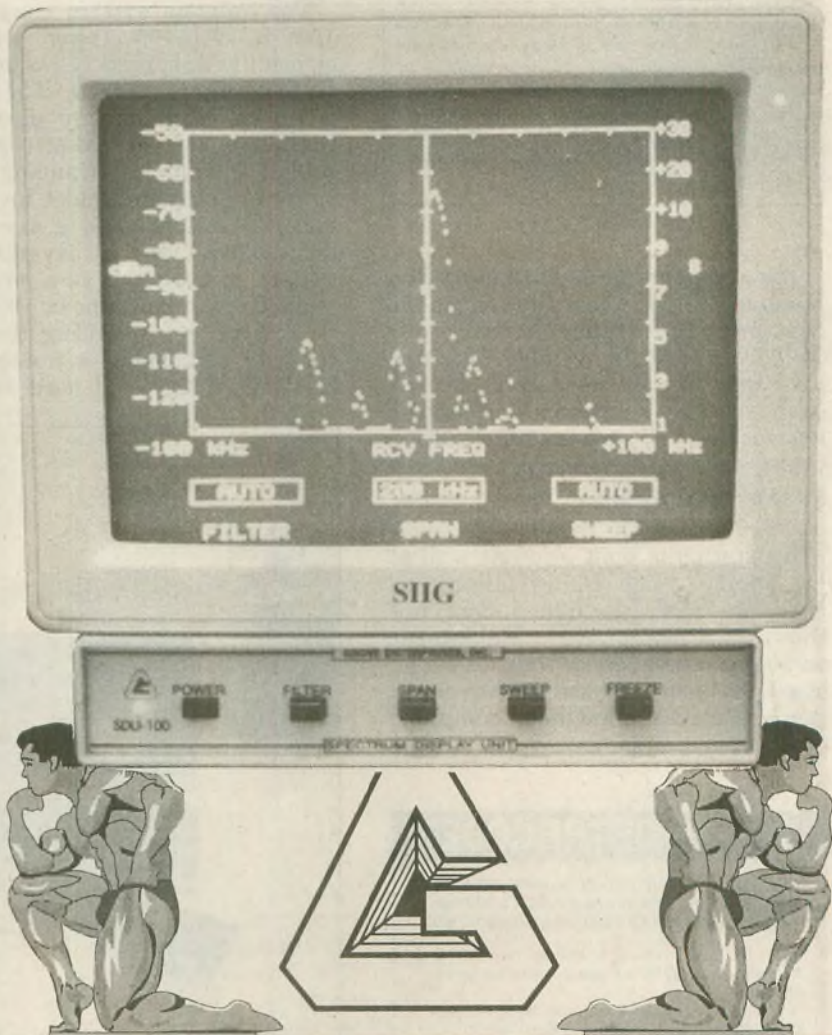
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**Bob Sullivan,
WØYVA**

STATION APPEARANCE

Send *Worldradio* a picture of your shack and the staff will choose a winner to receive a free one-year subscription! Stations will be judged by neatness (wires tucked away, etc.) and accessibility of equipment. Monetary value of equipment is not a consideration.

Winners will also receive a top quality, Laserjet-printed copy of the *DXCC* and *WAS BeamHeadings* list (a \$15.95 value) compliments of Jack Hurray, W8JBU.

The Amateur Radio station of Bob Sullivan, WØYVA, was featured as the Station Appearance winner for November 1992. Regrettably, however, we displayed the wrong name and call along with Bob's photos and station information. To express our sincere apologies, we here present Bob's station again, in proper form.

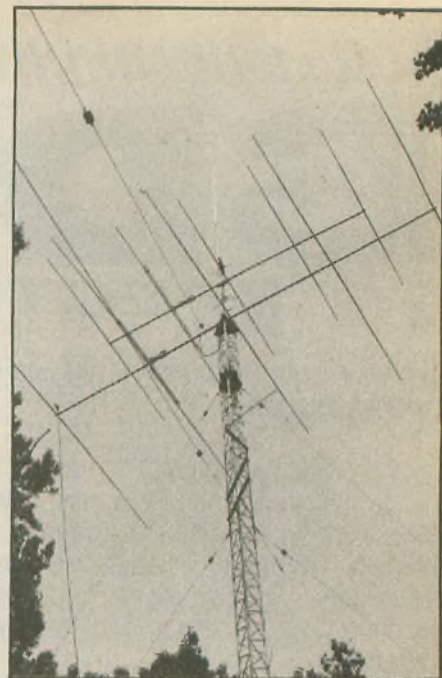
My station is built into one wall of my library which allows full access from the back (through a door not shown) for maintenance. Equipment on bottom shelf (left to right) is a Collins 312B4, control head for Advanced Radio Devices legal-limit computer controlled, full auto-tune linear

amplifier (the amplifier deck is located behind the wall), Yaesu FT-1000 transceiver, homebuilt station control center for power control, antenna switching, wattmeter, phonepatch, clock, monitorscope, and miscellaneous control functions. On top of this control center is an AEA packet controller.

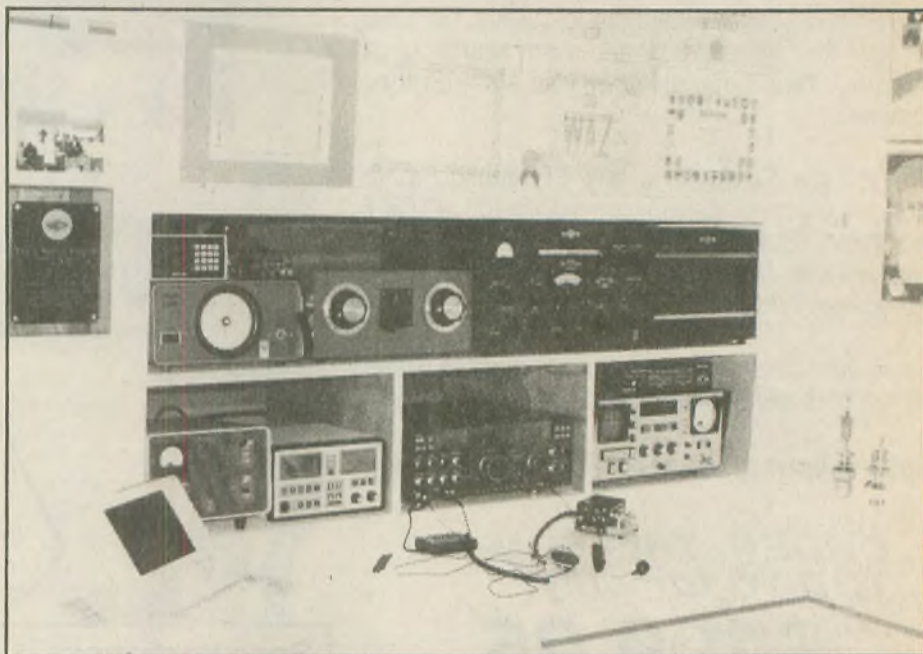
On the top row, left to right, is the 2M transceiver, antenna rotator controls (two), homebuilt antenna tuner, my beloved Collins 75A4 and its speaker.

The antenna system consists of a 100 ft. AB-105 tower with five-element wide-spaced Telrex 20M Yagi, five-element Telrex 15M Yagi, 432-MHz Yagi for my packet node backbone, 2M vertical at top also for packet operations. Hanging off the tower are sloping dipoles for 160, 80, and 40M. Rotator is a very heavy-duty military unit by Hygain. At the bottom of the tower is a remote controllable high-power coax switch.

Most of my operating these days consists of keeping a watch for the last four countries I need and main-



taining a packet node for the local DX-spotting cluster which operates 24 hours a day, every day.



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Amateur "Hi"



Russ Rennaker, W9CRC, unexpectedly found someone he'd Elmered decades ago.

While running a QSO with a friend a few months ago, we got to talking about events that happened years ago when I was chief engineer at a radio station in Indianapolis.

Suddenly there was a "breaker" and we let him in. He said some of the

things we were talking about sounded familiar to him and he would like to know my name.

I gave it to him and he came back, gave me his name, and said he was a neighbor of mine in Indianapolis, and I had helped him build his first rig and get his license when he was about 10 years old.

That was some 60 years ago and we'd had no contact in all those years!

SPECIAL EVENTS

Willa Cather conference

The Hastings ARC will operate WØWWV on 1 May from Red Cloud, Nebraska, at the Willa Cather Pioneer Memorial 38th Annual Conference.

Operation will be on CW 21.100-21.200 and phone 3.980, 7.280, 14.250 and 28.400 from 1500Z to 2300Z.

For QSL, send SASE to HARC, P.O. Box 128, Hastings, NE 68902.

Tex Ritter Museum

Carthage Amateur Radio Service, Inc. will operate N5IKB on 8 May from the Tex Ritter Museum in Carthage, Texas.

Operation will be near the middle of the 40, 20 and 15M General level and 10M Novice bands.

For certificate, send contact number, your QSL and #10 SASE to N5IKB, 221 Browning St., Carthage, TX 75633.

Golden Spike commemoration

The Ogden ARC will operate NL7JE on 10 May to commemorate the driving of the Golden Spike, Promontory Summit, Utah.

Operation will be on 3.970, 7.270, 14.280, 21.375 and 28.415 from 0001Z to 2100Z.

Send QSL and SASE to Ogden ARC, P.O. Box 3353, Ogden, UT 84409.

Armed Forces Day

The Playground ARC will operate W4ZBB on 15 May from the Air Force Armament Museum to salute US troops on Armed Forces Day.

Operation will be in the General portions of the 40, 20 and 15M bands and in the Novice phone portion of 10M from 1600Z to 2200Z.

For certificate, send #10 SASE and contact number to PARC, P.O. Box 873, Fort Walton Beach, FL 32549.

Lewis and Clark departure remembered

The St. Charles ARC will operate WBØHSI 15-16 May from the Lewis and Clark Rendezvous on the shores of the Missouri River commemorating the departure of the Lewis and Clark Expedition on 21 May 1804.

Operation will be on 7.265, 14.265, 21.365, 28.465, 146.67, AO-13 modes B and J, as propagation and QRM permit, from 1300Z to 2100Z.

For certificate, send a 9 X 12 SASE to St. Charles ARC, P.O. Box 1429, St. Charles, MO 63302-1429.

Marconi Memorial Tower Radio Site

The Ocean-Monmouth ARC will operate a special event station 15-16 May to commemorate the Marconi Memorial Tower Radio Site.

Operation will be on CW up 10 kHz from the bottom of Novice subbands, 10.145, 14.045, 18.080, bottom General 80-15 and Novice 10M phone

subbands from 1600Z 15 May to 1600Z 16 May.

For certificate send 9 X 12 SASE (or US \$1) to OMARC, P.O. Box 75, Bradley Beach, NJ 07720.

Armed Forces Day II

The DuPage ARC will operate W9DUP from the First Division Museum at Cantigny, Wheaton, Illinois, to celebrate Armed Forces Day.

Operation will be on SSB 7.250, 14.290, 28.400 and 145.25R from 1600Z to 2300Z.

For certificate, send QSL and SASE to Jack Carr, NV9S, DARC, P.O. Box 71, Clarendon Hills, IL 60514.

"What Hath God Wrought"

The Bay Area ARS, in cooperation with the Anne Arundel County Historical Society, will

operate KB3MF on 15 May from the Baltimore/Washington, DC area to commemorate the 149th anniversary of the telegraph message "What Hath God Wrought."

Operation will be on 7.125, 14.035, 21.145 and 28.245 from 1300 UTC to 2000 UTC.

For certificate, send QSL (shortwave listeners send details of the reception report) and a 9 X 12 SASE to Ray Robley, Bay Area ARS, 211 Laurel Rd., Linthicum Heights, MD 21090.

Vietnam Memorial anniversary

The Sangamon Valley Radio Club will operate W9DUA on 1-2 May to commemorate the fifth anniversary of the dedication of the Illinois Vietnam Veterans Memorial at Oak Ridge Cemetery.

Operation will be in the General portions of the 160M through 15M bands to include Novice 10M subband from 1400Z 1 May to 2200Z 2 May.

For special QSL, send #10 SASE to W9DUA SPL EV, Sangamon Valley Radio Club, Red Cross Building, 1025 S. 6th, Springfield, IL 62703.

How to adjust a bug

DON DEVENDORF, W8EGI

Many have presumed the semi-automatic mechanical key to be defunct and gone the way of the slide rule. But the truth is this is not so — the key is alive and well.

Many of us still have the old bug with which we made our living back on the old commercial radio circuits and it's fun to put it on the air again. Although we have differential electronic keyers now, I find no problem in using the old mechanical key interchangeably. It all comes back as sort of a mental downshift:

1. Adjust the armature vertical pivot bearing for just barely perceptible play and tighten the locknut (finger tight).
2. Align the dot and dash contacts and clean them with bond paper; no abrasives.
3. Set right side stop adjustment so rear of armature just touches the dampening wheel. Tighten the locknut.
4. Set dash contact and dot stop on

the armature to equal 1/16 inch movement either way at the end of the paddle. This is the old Navy and Western Union recommendation. Personal preferences may vary.

5. Hold the paddle over in the dot position until the armature stops vibrating. Then, while still holding dots, adjust the dot contact to just hold continuously, as indicated on an oscillator or ohmmeter. Tighten dot locknut.

6. Set and lock dot and dash return spring adjustments, again to personal preference. Both should be fairly firm for clean code.

7. To prevent dot bounce, jam a small piece of foam into the U corner of the armature dot contact. Years ago a cigarette butt did the job. You should get 10 to 15 clean continuous dots before the armature stops vibrating.

All this was prompted by Lowell Corbin, KD8FR, who brought a beautiful Vibroplex to a Field Day outing.

—Central Michigan ARC, Lansing, MI

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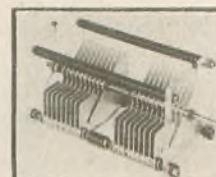
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Mail fraud

It has been some time since any mention has been made about the Pitcairn Island Award. Nothing has happened regarding the outstanding certificates. After your last article, I received a letter from a friend of Dr. O'Toole stating that arrangements were being made to have another design made for the certificate but that the governments of Pitcairn and Britain had to be consulted. I do not believe this; anything that would benefit the Pitcairn Islanders would be welcomed by the islanders.

Dr. Gary O'Toole, KB6ISL, initiated this award for the Pitcairn Bicentennial. After making contact with VR200PI/JR you were to send an application to Dr. O'Toole with \$5 US, and you were to be issued the number of your certificate.

This was done by many amateurs. My contact number was 4525, which means that VR200PI/JR averaged over 2,000 contacts per month. As there were 10 months left in 1990, it does not take much mathematics to estimate the number of contacts made. My certificate number was #395, so there would be a great deal of

cash on hand at KB6ISL by the end of 1990. The bottom of the QSL card also notes, "Bicentennial Award Manager—Dr. G.O'Toole."

Personally, I would not mind if the money got to the Pitcairn Islanders, but it appears to me that something is definitely not right with this venture. I think it is time for some action to be taken, perhaps for fraudulent use of the mails. This is a very serious offense here in Canada, and I would presume the same applies in the United States. If there are still no awards forthcoming, then all participants should be reimbursed immediately.

RUSS A. WILSON, VE6VK.
Calgary, Alta, Canada

Editor's note: Worldradio has no other feedback since our last update (August '92) on this certificate. If anyone has resolved his claim one way or the other, i.e., if anyone has received an award or a refund, please let us know.

No such animal

I take exception to past QRP editor K7YHA's comments (March issue) on no-code Techs. he states that they are making 2M the "CB" of Amateur Radio. He writes that "we" should not be patronizing to them, yet his entire article on the subject is *patronizing*.

No-code Techs (no such animal as "Tech-Plus," at least in any FCC rules and regulations that I can find) as a group want to be good amateurs and receive help from all their fellow Amateur Radio operators.

Some keep moaning and groaning about 2M, yet segments of the HF bands make the Cbers, even at their worst, look professional! We should help every amateur operator to be better on the air and encourage *all* to upgrade—not for the snobs' attitudes but for the fun and opportunities a higher grade of license opens up.

However, if anyone wants to stay where they are, let them be—they have the right—this is a *hobby*, after all. Clubs that are growing, prospering and fun to be in are the ones in which no-code Techs are treated as what they are—fellow amateurs. The ones that are treating them as lepers are the ones that are dying. Open up and benefit the hobby and each other.

THOMAS R. MOONINGHA,
N3LWJ
Maugansville, MD

Lighten up

I have been reading with some astonishment the response by some to the article written by Ron Nott, K5YNR, "The Myth of the Resonant Antenna," Dec. '92. In fact I went back and re-read the article, thinking I surely missed something. However, I feel that the criticism he seems to be getting is certainly undeserved and unwarranted. To those who wish to have spherical geodesic specimens at Ron I offer the following:

Come on, lighten up you guys. All Ron said was that an antenna element which is physically resonant has no super or special qualities over an antenna element which is not physically resonant. From the response I've seen so far, you'd think he had defamed motherhood and apple pie. I've seen complaints that he was only using near-field readings. So what? Near-field, far-field, or in-between-field, what difference does it make as far as self-resonance versus efficiency is concerned?

Ron happened to use as a reference field strength measurements which are used by the FCC for AM broadcasters. His choice for using those detailed charts was, in my opinion, nothing more than to give credibility to the measurements given. I'm sure all would agree that antenna elements

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of various lengths (in terms of wavelength) and the environment in which the antenna is installed will affect readings at different "take off angles," but that wasn't the point!

The point was—possibly too easily gleaned for the nitpickers—those charts showed clearly that at the physical resonate points (half and quarter-wavelengths in the examples) of an antenna, no unusual changes in field strength occurs. Therefore it can easily be seen by anyone who looks that a self-resonant antenna is not necessarily any more or less efficient than an antenna which is not self-resonant (that is to say, an antenna whose physical dimensions are not at any resonant point in the frequency of use).

I note that one respondent complained that he could not see that the charts had anything to do with resonance... The point was that resonance had nothing to do with the field strength.

To repeat what Ron did say (and not expound on what he didn't say), "The performance of an antenna is determined by its geometry, dimensions, quality of construction and materials and in no way by its input impedance." I would have added, "and the environment in which it is installed," but I don't want to join the nitpickers.

The late John Harle, W5IIR, in his book, *The Easy Way*, sums the use of non-resonant antennas best: "Quit worrying about them."

DAN RICHARDSON, K6MHE
Whittier, CA

Windfall of IRCs

Steve Lund, WA8LLY ("QSL Standards," Off the Air, Jan. '93), didn't realize the full extent of the new regulation regarding IRCs. The new regulation, issued 1 January 1991, provides *retroactively* that from then

on all IRCs issued after 1 January 1975 will be good for the first unit of *air mail* postage. This is regardless of the original amount paid and supersedes the original language which calls for surface mail. The regulation makes obsolete all IRCs issued before 1 January 1975.

The rationale is that surface mail for letters has become practically non-existent, and IRCs should be upgraded to be consistent with modern times. The Postal Union chose to "grandfather" all the existing IRCs (but obsoleted those issued before 1 January 1975—a small loss!).

So those who stocked up on IRCs have a "windfall." But it has always been true that no matter what the original cost of an IRC may have been, when it comes time to redeem it, it is good for the amount of the first unit of the present day mail rate. The only change is that now that first unit is the air mail postage rate, not the surface mail rate. This is true of US IRCs in foreign countries, and also for foreign IRCs redeemed in the US. However, if you want to redeem them for cash, then you will get only the original cost minus 1¢.

I got this from the *DX Magazine*.
TED CHERNIN, KH6GI
Honolulu, HI

Ain't that simple

With reference to "Which way is north?" supplied by AA6EE, appearing on the bottom of page 78 of the March issue: Anyone interested in determining true north by the sun is referred to the *ARRL Antenna Book*. In the chapter entitled "Antenna Orientation," there is a detailed method outlined whereby this can be done.

I assure you it "ain't" that simple!
J. HARVEY CHASE, W4TG
Gray, GA

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DX WORLD

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W100N

The following DXers were issued *Worldradio's* Worked 100 Nations Award the period 12 February 1993 through 11 March 1993:

- 448) Robert F. Balzarini, WA2CKP (all 10M SSB); 12 Feb. 1993
- 449) David Brooks, N7HTK; 25 Feb. 1993
- 450) Art Wallace, KK6XN; 11 March 1993

DXathon

We have received inquiries regarding the DXathon. In fact we even received a couple of entries. But, due to lack of a sufficient interest in the annual event the staff at *Worldradio* has decided to discontinue the DXathon. It is indeed unfortunate as we enjoyed keeping a list of the number of different nations worked during 1992.

Equatorial Guinea (3C1)

There is activity from this one, but this one is difficult to track down. He found only one report, 3C1EA on 12M, a few months ago. He was reported working into the Maritime provinces on 24.894 MHz around 1600 UTC.

One of our readers wanted to know if we had knowledge of the operating habits of 3C1EA. No, we don't. You could consider writing a letter to him and making an on-the-air schedule. That was common practice years ago.

Western Samoa (5W1)

A delegation of Germans on holiday kept things busy from Western Samoa recently. The operators, whose calls included DL2RUM, DL7UFR, DL7URH, DL7UTR, DL7UOO and DL7VTK, were on all bands and modes signing 5WØCW and 5WØUO. Most of

the contacts were made on CW. QSL requests should be sent via DL7UOO (formerly Y23UO), Siggi Presch, Wilhelmsmuehlenweg 123, O-1144 Berlin, Germany.

Mako, JA1OEM, was also there during the first half or so of February, signing 5W1HP. Mako also worked multi-band.

The only other report we had for this one was 5W1CR, who was worked on 7 February at 0745 UTC on 14.266 MHz.

Senegal (6W6)

6W6JX seems to hold down the fort on this one as he has been handing out contacts to the deserving DX on 160 and 80M. Check 1.829 to 1.833 MHz after 0500 UTC or 3.500 to 3.505 MHz from 0400 UTC.

Two other calls were reported from Senegal that included 6W1PZ on 14.212 MHz at 2230 UTC working into British Columbia and 6W7/F6BFH on 14.024 MHz at 1930 UTC and 24.945 MHz at 1430 UTC.

Spraty Islands (9MØS)

The Spraty Islands DXpedition that was due mid-March has been postponed. There is a possibility that it will be rescheduled sometime in April.

Palmyra/Kingman (KH5)

The joint DXpedition to Palmyra Island and Kingman Reef, signing N0AFW/KH5 and N9NS/KH5K, respectively, finally happened after a delay in Hawaii. The chartered vessel, which was also used by the DXpedition to Howland Island, had not yet returned to Hawaii for their departure. Other arrangements had to be made. The first we heard them was Saturday, 13 March. Our own feelings of the operation are mixed. We heard NØAFW/KH5 announce on the local NCDXC machine that he was on 15M. We checked the frequency and heard N0AFW/KH5 make his call, give his name and other data, state where he was listening and stand by. We called him. "Zeros only!" I told him he didn't ask for zeros! Made no difference. I didn't need Palmyra on that band anyway, so I didn't wait around. Too bad, as I would have included a contribution with my QSL card.

Later that evening, a list master representing the "256 Net" was taking a list for N9NS/KH5K! Why a list so early in the game when many a deserving DXer was trying to work a new one? The QSO rate is very low via lists and only a selected few will get to work him. This is not an attack on list operations. However, we think the list style should have been used near the end of the DXpedition for the benefit of all DXers, listers and non-listers alike.

Mellish Reef (VK9Z)

An international group of DXers have formed a team for a DXpedition to Mellish Reef this fall, scheduled for late September 1993. The team members will include Bill, VK4CRR; Harry, VK2RO; Steve, P29DX; Murray, WA4DAN; and Jack, KB7NW. Jack will captain the yacht *Banyandah* for this trip, which was the same vessel used for the 1982 Mellish Reef and Willis Island DXpedition.

The group plans to have three to four stations operating around the clock during an eight-day visit to the reef. This will be an all-band affair utilizing 6 through 160M. Monoband Yagi beams will be used on the higher bands.

Estimated costs of the DXpedition will be approximately \$30,000. All contributions to the DXpedition will be used for the non-personal expenses. In the event the DXpedition is cancelled, all monies will be returned. If you wish to help with the finances please send your contribution to Murray D. Adams, WA4DAN, 1993 Mellish Reef DXpedition, 403 East 14th Street, Greenville, NC 27858. Checks should be made out to 1993 Mellish Reef DXpedition. Overseas DXers may wish to send their contributions to Bill Horner, VK4CRR, 1993 Mellish Reef DXpedition, 26 Iron Street, Gympie, QLD 4570, Australia.

There had been another planned DXpedition to Mellish Reef last year by the Heard Island DX Association. The group planned to include the reef in their trip to Willis Island. Due to lack of support the team cancelled the visit and concentrated on Willis Island instead. Any DXpedition needs financial support if it is to be successful.

Montserrat (VP2M)

Stu Stephens, K8SJ, reports on his VP2MFA operation in February. During his 13-day period that ran from 5 to 17 February, he made 3,073 contacts, with only two of them on SSB. One third of the contacts were on 40M.

Stu wishes to apologize for those he worked the last two days as he was working QLF style (sending with his left foot), as his arm had literally blew-out on him. Next time he is going to

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bring a memory keyer. This reminds us of a remark made by contesteer Dick Norton, N6AA, made a few years back during an SSB contest when his tongue kind of went numb!

Stu says that the Montserrat Tourist Board and the Montserrat Amateur Radio Society are very much interested in encouraging Amateur Radio activity and visitation to the island. The cost is comparable to a stay at a Florida resort, although travel costs are higher. He suggests contacting the Montserrat Tourist Board, P.O. Box 7, Plymouth, Montserrat, or the Montserrat Amateur Radio Society, P.O. Box 448, Plymouth, Montserrat. ARRL headquarters also has reciprocal licensing information and applications.

A check with *DXpedioners Caribbean Licensing Guide*, compiled by Craig Maxey, WB7RFA, reports that the license fee comes to \$14.40 (not US dollars).

Gibraltar (ZB2)

We found some four calls active from Gibraltar during February, which include the following:

ZB2AZ	7.011 MHz	0800 UTC
ZB2AZ	28.458MHz	1415 UTC
ZB2CF	14.226MHz	0015 UTC
ZB2DF	7.023MHz	2215 UTC
ZB2JL	28.474MHz	1745 UTC

ZB2GR was not reported during this past period.

Cayman Islands (ZF)

Bob Truhlar, W9LNQ, informs us that he will be operating from the Cayman Islands in April. He has been issued the call ZF2UB and most likely will be signing ZF2UB/ZF8. Look for him on both CW and SSB, including the WARC bands. His XYL, Dot, will sign ZF2UA/ZF8.

IOTA

The following is a sampling of the IOTA activity recently. Most of the frequencies indicated are the standard IOTA operating frequencies.

EU-039	Chausey Island	FF6KFV/P
EU-057	Ruegen Island	DL4KUM
EU-123	Isle of Arran	GM3UA
AN-013	Seymour Island	LU4ZS
AN-017	Petrel Island	FT5YE
AS-012	Amakusa Island	J16KVR/6
NA-027	Newfoundland Island	VO1SA
NA-052	Marco Island	AB4VT
NA-061	Kaien Island	VE7GKH
NA-067	Okracoke Island	KF2GP
NA-138	Amelia Island	W51JU
NA-141	Nettles Island	W2RPH/1HØ
NA-163	Angel de la Guarda	XF1A
NA-167	Isla del Tiburon	XF1T
NA-	Nicholson Island	VE8YQ
OC-176	Chesterfield Islands	FK5C
OC-177	Seribu Island	YEØI



Jorda, OK2BTC, prefers to work stations in Japan and the US. He is also an awards hunter and is chasing some of those needed states for WAS. Jorda, evidently, is new to DX as he has worked 240 countries with only 209 confirmed. He uses a homebrew 100W transceiver to a two-element, three-band quad. He is 41 years of age with three sons. (Photo courtesy of KDØJL)

Don C. Wallace, W6AM
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DXCC matters

The ARRL Awards Committee voted unanimously to accept the DXCC recommendations to delete Abu Ail Islands from the DXCC countries list, effective 31 March, 1991. When the Red Sea Lights Company relinquished control of the islands on that date, they became unadministered. Because of this change of status, the area now falls under Point 4 of the countries list criteria.

If you have the chance to have your QSL cards checked for DXCC at the various DX conventions you should take advantage of it. With the humungous amount of applications and endorsement submissions, there has been considerable delay in the turnaround. These checkings will eliminate that worry about your cards. We had our cards checked at DXPO-92 last October. We received the printout in February, four months later.

The League keeps us up to date with the backlog, reporting that the number of unprocessed applications on the DXCC desk at the end of February was 1,686 (132,619 QSL cards). At the previous month's end the numbers were:

January	2,460 (172,154)
December	3,239 (238,544)
November	3,541 (262,217)
October	3,803 (268,729)

The applications being sent out at

the end of February were received 14 to 21 weeks earlier. Twenty applications were received prior to that time.

The staff at the DXCC desk thanks all participants in the program for their continued patience.

Descendant of Chinggis Khan

No, we are not bringing our genealogical interests into the column! That is the name of an Amateur Radio Club in Mongolia that was formed to immortalize the memory of Chinggis Khan and his heirs during the Mongolian Empire. Membership is open to all. But, before you run to your checkbook, we must inform you that membership cost is \$20 US per year.

However, the club does offer an awards program. There are a total of three awards at \$10 or 20 IRCs each. They are for all contacts made since 30 March 1968 and are offered in different modes and bands. QSL cards need not be sent. The object is to accumulate points for the awards specified. All countries in the following list count four points each, with Mongolia counting 10 points.

Chinggis's Chronicle Award: The great Chinggis Khan (1162-1227) was the founder of the United Mongolian Empire and ruled for 22 years. He died at age 66, and 66 points are required for this award.

Ugedei's Chronicle Award: Ugedei Khan (1186-1241) was the third son of Chinggis Khan and succeeded him as Emperor, ruling for 13 years. He died at age 56, and 56 points are required for this award.

Hubilai's Chronicle Award. Hubilia Khan (1215-1294) was the grandson of Chinggis Khan and he ruled over 40 years. Hubilia Khan lived 80 years, making the requirement 80 points for this award.

QSL cards from the following countries are valid for this award: China (BY), Germany (DL), Philippines (DU), Iran (EP), Hungary (HA), Korea (HL), Italy (I), Japan (JA), Bulgaria (LZ), Austria (OE), Czechoslovakia (OK), Poland (SP), Turkey (TA), European Russia (UA), Ukraine (UB), Azerbaijan (UD), Armenia (UG), Turkmenistan (UH), Uzbekistan (UI), Kazakhstan (UL), Kirgizia (UM), Tataria (UA4P), India (VU), Afghanistan (YA), Iraq (YI), Romania (YO), Vietnam (XV), Georgia (UF) and Mongolia (JT).

Send your applications via registered mail to: Award Manager, P.O. Box 106, Ulaanbaatar 51, Mongolia. Want something from Mongolia on your wall? Now, here's your chance!

Antique QSLs

These two cards date back a few years—some 60 years. Anthony Rura, W2UDA, worked these two gentlemen back in those early days. Anthony states that the EAR37 call seems to indicate the call was issued to the 37th amateur in Spain. EAR37, operated by Emilio Rotellar in Zaragoza, was worked on 19 February 1933 at 2400 GMT on 40M. Emilio notes on his card that he worked WAC with only 5W.

On 18 November 1933, Anthony worked CN8EIT of Casablanca on the same band. This station was running 15 watts into a Zepp antenna. This operator indicated that he had 20 countries to his credit.

Anthony, who now signs W2UDA from Yardville, New Jersey, was using the call W3ARN at the time. The call areas were different in those days, with New Jersey split between the second and third call areas. And New York was split between the second and eighth call areas. There was no zero call area.



QSL information

Mike Jakiela, KM6ON, QSL manager for Valery Baranovich, RAØFA, requests that in addition to your QSL requests the QSO information be printed on the back flap of your SASE. That way, if your QSL card gets sepa-



rated from the envelope, he can still process the return QSL card easily. This is a very helpful suggestion, and we think all QSL managers will appreciate it.

The DX Bulletin reminds us that the address given in the 1993 Callbook for Antoine Baldeck, F6FNU, is incorrect as it is his summer address. Please use B.P. 14, F-91291 Arpajon Cedex, FRANCE. Be sure to include two green stamps with your self-addressed envelope.

Mike Scism, VP5P, now has a new QSL manager. Mike wishes to thank his former QSL manager, Jack, WN5A, for all the help he has extended during the past three years. After 40,000 contacts he thought it was time to give him a break. The new QSL manager is Timothy Fanus, WB3DNA.

Dave Van der Weele, WA3L, used the QSL route given recently for YXØAI and had the request returned by the post office as "not deliverable as addressed." The problem was the address was so successful the participants were overwhelmed and lost their enthusiasm. The latest we have on this one is now: YXØAI-YV5ARV, 1909 North 41st Avenue, Hollywood Hills, FL 33021. The cards will be processed and mailed from Caracas, so don't include US postage.

We noted in a recent issue of The DX Bulletin that the turnaround time for a

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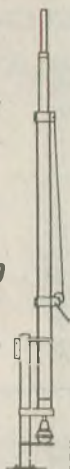
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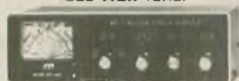


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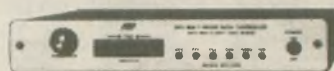
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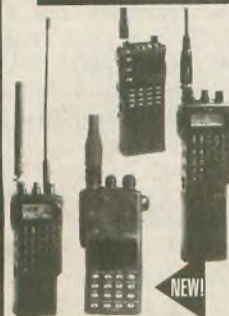


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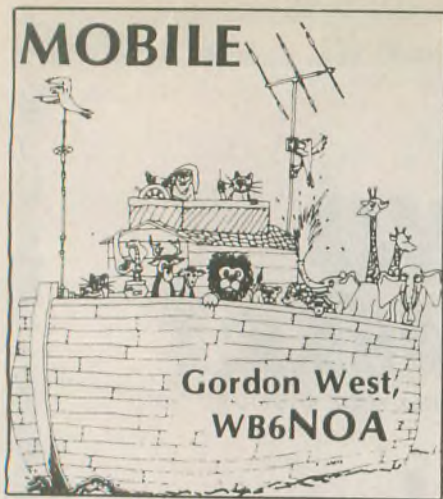
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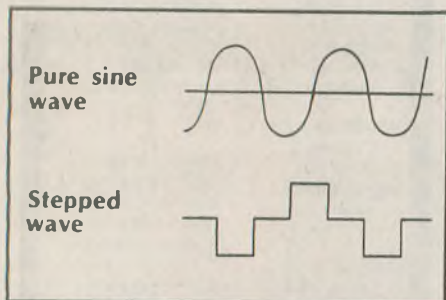
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Mobile voltage inverters

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The output of a voltage inverter will power all ham equipment with its modified stepped wave.

Amateur Radio operators, who better understand electrical principles and electronic waveforms, have been leery about plugging into voltage inverters that may give off hazardous spikes or an extremely square waveform. And back in the days of mechanical vibrator inverters, such was the case. The inverters now on the marketplace are all solid state, and they produce house power voltage with precise AC regulation and a relatively smooth waveform that will not harm equipment as sensitive as your Apple or PC home computer system—including that new CD-ROM drive that may be running your Kenwood Windows program.

Voltage inverters use high-voltage switching transistors with relatively

small transformers. They run silently. They also don't run at all if left turned on with no load present on the output.

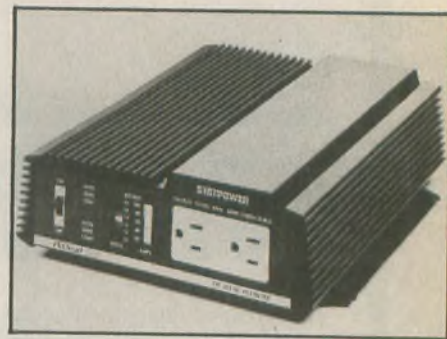
This means you may hard-wire your inverter into your battery system and leave it constantly turned on. It will draw less than 1/100 of an amp during its "sense" search. As soon as it detects anything getting turned on, it silently comes on line and delivers a smooth output that may handle anything from a little 75W soldering iron up to a large microwave oven. Typical efficiency for these inverters is approximately 78 percent. If you work that out, for every 10A of 12VDC that you may invert to 110VAC, you lose only about 1A in heat.

The size of the inverter will determine its ultimate power capabilities. The small little voltage inverters that you plug into your cigarette lighter, sized about the same as your handheld transceiver, will deliver about 200W output which is plenty to run most home computer systems. Bigger inverters, about the size of a mobile HF transceiver, may deliver up to 1,000W output, plenty of power to run small electrical tools and that small microwave oven.

If you need to run a huge refrigeration system or power up a chain saw, you will need an inverter sized about as large as your big high-frequency base station to deliver this amount of power. It's also wise to choose an inverter that will operate most of the time at 75 percent of its average power output, which is precisely in the peak zone of efficiency. In other words, don't choose a 2,000W inverter to run a 200W computer.

The waveform will be a precise 60-cycle modified sine wave. Looking at the modified sine wave on a scope reveals a building-block approach to a

relatively smooth AC output. The high-speed switching transistors all but eliminate any hum that might be detected out of any radio receiver hooked into the 110VAC circuit. The output is so well-regulated and protected against spikes that it would be far safer to run your home computer off an inverter than it would be to plug it into conventional AC lines at the end of a circuit at the trailer park or boat marina where power surges are very common.



This small inverter will easily power most 110VAC HF SSB ham rigs.

Power inverters are best run off a dedicated battery specifically designed to operate your "house" system. Don't use your regular starting battery—after a day of running your inverter to power your computer system, you could very easily drain your battery to a point that it would not be able to start your vehicle or boat. But if you run your inverter off a separate battery, you can recharge that battery once you get your engine started and your alternator kicks in. Battery isolators are a great way to take care of this automatically.

For every 100W of power consumed at 110VAC, you will pull approximately 10A of current at 12VDC. Inverters, tied into a dedicated small automobile battery, will nicely run the microwave and power tools for intermittent use during a typical night at the campsite when you don't want to fire up your regular generator, or out on the boat at anchor. It's no big deal if you pull 10, 20, or 30A for short periods of time off a regular car battery.

But if you regularly run a home-style air conditioner that could draw up to 1,000W, that's 100A that won't go for more than about 45 minutes on your typical car battery. Just keep in mind, for every 100W the appliance pulls, it's going to draw 10A at 12VDC.

Power inverters are sold by all RV stores and all marine electronic outlets. Trace, Heart, Power-Stat and Newmar are the major players, and almost all power inverters are priced

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at approximately \$1 per watt. The most popular inverters are 250W inverters, and this is usually plenty of power for most mobile installations. Even though your power drill might suck up 500W on turn-on, or that big soldering iron momentarily draws more power on initial turn-on than the average draw, almost all modern power inverters will deliver twice their rated output for brief periods of turn-on. And if you do overload the inverter, it simply cycles off.

So next time you plan to go mobile, don't leave some of that AC gear back home because you have no way of plugging it in when you're out on the road. With power inverters, you're all set for an ample supply of house power. Just keep your house battery charged in between inverter use. WR

POWER REQUIREMENTS

The following table can be used to help estimate 12V battery requirements

Load (watts)	Typical Device	Time in Minutes					
		5	10	15	30	60	120
		Amps					
30	HT CHARGER	2	4	6	1.4	2.7	5.4
60	B&W TV	5	8	1.4	2.7	5.4	10.9
100	COLOR TV	8	1.4	2.3	4.5	9.1	18.1
200	COMPUTER	1.5	1.8	4.5	9.0	18.1	36.3
400	HF RIG	3.0	5.6	9.1	18.1	36.3	72.5
600	MICROWAVE	4.2	8.3	12.5	25.0	50.0	100.0
1000	TOASTER	7.6	13.9	22.7	45.3	90.6	181.3
1200	COFFEE MAKER	9.3	16.7	27.8	55.6	111.1	222.2
1800	HF LINEAR AMP	14.5	25.0	43.5	87.1	174.2	348.4

DX World

(continued from page 41)

BRAZIL (see note 4)

- PY3ZYM/PYØF** —Hirota Asaoda, Box 51001, Rio de Janeiro 28932-970, RJ, BRAZIL
S58FA —Box 56, 69220 Lendava, SLOVENIA
TZ6FC —Radio Club of 38 Regiment de Transmissions, Quartier Ferrie, Box 1307, F-53013 Laval Cedex, FRANCE
VI6CKB —Box 463, Kalgoorlie, WA 6430, AUSTRALIA
VR6MW —Box 27, PITCAIRN ISLAND
YE0I —Box 6193, Jath, Jakarta 13061, INDONESIA
YF7VEE —Box 75, Tarakan 77101, INDONESIA
Z19CW —Box 11, Warsaw 93, POLAND
ZD9CQ —Box 2934, Johannesburg 2000, SOUTH AFRICA
ZK1DT —Hugh Thomforde, Penrhyn, NORTH COOK ISLANDS
ZL7AA —Box 54, Hastings, NEW ZEALAND (see note 5)

Notes

- The address is rather long: Commandante de la Estacion Scientifica, Base Libertador Bernardo O'Higgins, Antartida Chilena, CHILE.
- HF SSB QSL requests via EA1JP; HF CW via EA1JO; HF RTTY via EA1EVY, and VHF, UHF and SHF via EA1DJT.
- This is the QSL route for the most recent HC8A operations only. The manager is Betsy Townsend, P.O. Box 644, Spokane, WA 99210. Operations prior to 1990 have different QSL routes.
- QSL cards may also be sent through the buro via PY5CC.
- Bureau cards may be sent via ZL2AL.

Many thanks to the following contributors: EA1IF, JT1BV, RB5FF, VP5P, W2UDA, KA3DBN, WA3L, WA4DAN, AA4EL, KM6ON, W6TUR, W6YNR, N7NZ, K8SJ, W9LNQ, KDØJL, Salt City DX Assoc. (KB2G), Northern Arizona DX Assoc. (W7YS), Western Washington DX Club (WAØRJY), American Radio Relay League (KR1R), CQ Ham Radio, The DX Magazine (VP2ML), Long Skip (VE3IPR), The W6GO/K6HHD List, The Long Island DX Bulletin (W2IYX), QRZ DX (W5KNE), and The DX Bulletin (VP2ML).

Many of you no doubt have received a mailing from a major equipment manufacturer sponsoring a cruise to the Caribbean. It is an attempt to entice DXers with the promise of being able to operate the radio from one or more locations. There is an interesting statement in the cover letter that we find amusing: "Forget about the hard work setting up stations, the lack of adequate facilities or just the simple comforts.

Everything has been taken care of for you." I like that last sentence. Shades of list operations, again.

During the recent DX contest VP5H was working a pileup on 10M, when one misinformed type came back with his name, location and the remark, "We are in all the Callbooks."

VP5H's answer? "I'm glad you are in all the Callbooks." 73 es GL DX, and I am in the Callbook! de John, N6JM.WR

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County Hunter

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The effectiveness and efficiency of an Amateur Radio net is dependent on the experience and skill of the net control, and a county hunter's net is no exception. One of the best county hunter net controls is Paul Bugen, WA3TUC. He is the net control to learn from, a role model for beginning county hunters. Paul always impresses me as the most professional, organized and knowledgeable net control. He has contacted all US counties four times, so he's very familiar with county names and locations. But there's more to this county hunter than just ham radio, so here's the rest of . . .

Paul's story

Paul Bugen was born in Easton, Pennsylvania, in 1912; he's 81 years young. His parents were Russian and Polish and individually came to the US at an early age. He remained a "townie" through high school and graduated from Lafayette College in 1932, in the midst of the Depression. He worked in his dad's corner grocery store all through school and spent a year in the law office of his "preceptor" before going to Washington, DC, in September 1933. There, he obtained a job in the disbursing office of the Agriculture Adjustment Administration, where they were putting out 75,000 checks a day to farmers for not growing wheat, corn, tobacco and sugar, among other things. His job at the AAA paid \$120 per month, and he lived in an attic room at a boarding house with two meals a day, six days



Paul Bugen, WA3TUC, at his operating station with MARAC car plaques and USA-CA certificate on the wall, August 1991.

per week, for only \$38 per month.

At night he went to law school at Georgetown University. At that time it was one of only four night law schools in the country, and it took students four years to get an LLB degree. Oddly enough, the District of Columbia allowed one to sit for the bar exam after three years of law school, so Paul was a member of the DC bar before graduating. After graduation, he transferred to the Internal Revenue Service in September 1937 and worked as a claims examiner in the tax processing division.

In 1941 Paul transferred to the Intelligence Division (now known as the Criminal Investigations Division) of the IRS, where he worked as a special agent investigating criminal tax fraud. He entered the Army in 1943 in the Counter Intelligence Corps of the 104th Infantry Division (Timberwolves) and served with them in Belgium, Holland and Germany until VE Day. Paul received a Bronze Star for helping to uncover and destroy a

sabotage unit of the SS in Cologne, Germany.

After receiving his discharge in November 1945, he rejoined the IRS's Intelligence Division in Detroit, Michigan, until transferring to the Philadelphia office in June 1946. It was here that he met and married the best stenographer in the office, Rena, in 1947. Paul and Rena now have three daughters and seven grandchildren.

He was promoted to the position of Group Supervisor in 1952 and went on a special detail to New York in 1962, where he spent a year and a half supervising 16 special agents who had been brought in from all over the country to investigate an internal IRS problem in that city. In 1963, Paul was promoted to reviewer-conferee at the IRS regional office in Philadelphia, where he stayed until his retirement in June 1972, following the first of three coronary bypass operations.

Paul's brother, K1WPS (now deceased), had tried to get him interested in ham radio for many years. While Paul was recuperating from surgery, his brother came down from Marblehead, Massachusetts, with an "old" Drake R-4A, strung a wire around the house and told him to listen—maybe he'd get interested.

Paul listened, got interested, and went up the street to the shack of W3EY, who became his Elmer and helped him get his Novice ticket in November 1972. Using an old Heathkit, Paul spent many happy hours on CW until his heart acted up again; he missed his youngest daughter's wedding in the fall of 1973 when he had his second bypass operation. Paul's brother again came to his rescue, "loaning" him a Yaesu FT-101B, and prodded him to get his General Class license in 1973. (Paul later upgraded to

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Advanced in 1981.)

Not long after receiving his General ticket, Paul visited a neighbor, W8DYK, and found the pool table in his rec room covered with little white cards. He was told they were "mobile reply cards" and was introduced to the great world of county hunting. Paul worked his first county in November 1973 and made his first mobile trip in 1974. Since then, he has made contacts from over 1,000 counties in all 48 continental states.

Paul spends many hours as net control. He has been net control or assistant for almost 5,000 hours. He learned a great deal about net operation from the late Karl Adkins, WA6MAR. Paul is the proud holder of the Karl Adkins Net Control Award, plaque #3, issued from the Mobile Amateur Radio Awards Club (MARAC).

Paul completed contacting all 3,076 US counties and received the coveted *CQ* magazine's USA-CA #156, 7 September 1976. He picked up his last county, Fallon, Montana, from a non-county hunter, W8NCD, from Charleston, West Virginia. Sam Moore was vacationing with his wife when he checked into the net from Carter County. Paul was assisting the net control, WA6MAR, and asked

Karl to ask Sam if he would be traveling to Fallon County, which Paul had needed for several months to complete his working of all US counties.

Paul developed a lower back problem in 1978 and could no longer lug the Yaesu FT-101B up and down the stairs. He stopped going mobile. He had surgery for a detached retina in his right eye in 1978 and had to discontinue the investigative work he was doing for one of the best defense lawyers in the Philadelphia area. The combination threw him into deep depression and he was like a zombie, having very little interest in radio or anything else.

He was rarely on the air until he started volunteering at Abington Memorial Hospital, a couple hours a week at first. When he saw it was helping, he started giving the hospital two full days a week in 1980 and began county hunting again in 1982. He didn't really snap out of it until April 1983, when he acquired a Kenwood TS-430S and made a mobile trip to Florida.

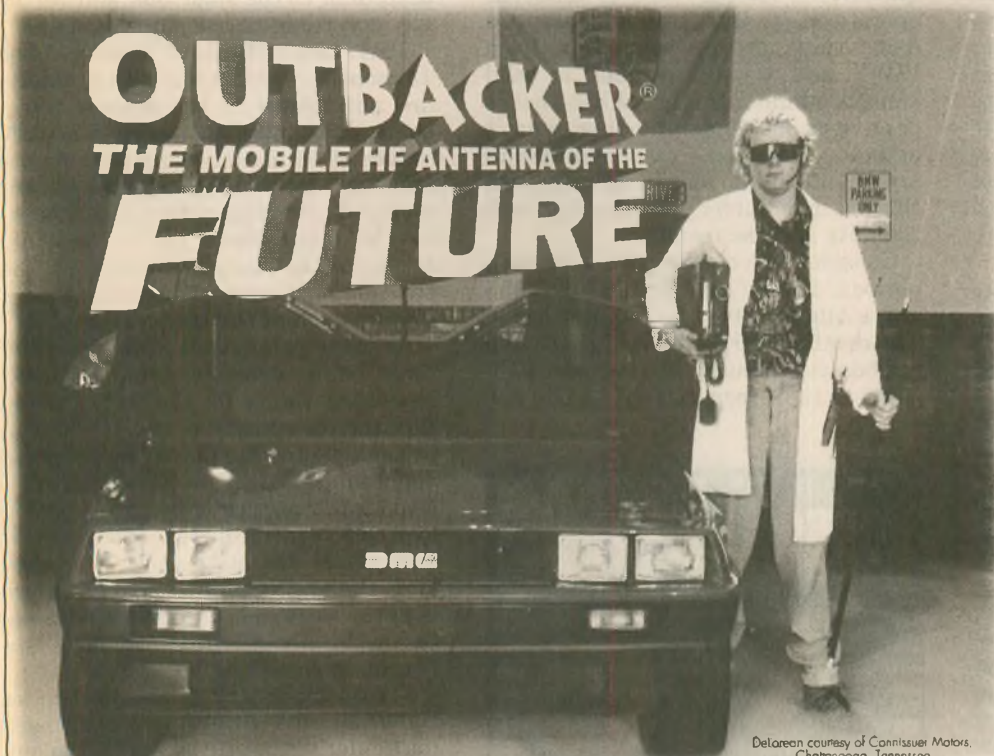
He finished contacting all counties a second time and received the MARAC award #26 on 13 September 1983. As a challenge, he sought the Third Time Around, using only mobiles in counties out of their own call area, and

received award #12 on 25 October 1985. He received the Fourth Time Around Award on 24 April 1991. Now, believe it or not, he's trying to work all counties a fifth time—this time using only mobiles in counties in their own call areas—and already has 2,600 counties. He also is a holder of the Master County Award, affectionately called Bingo, dated 12 January 1987.

Paul has attended every MARC national convention since 1983 and hosted the 1990 convention at Valley Forge (King of Prussia), Pennsylvania. He was elected the SSB Net Control of the Year for 1984, 1985 and 1986 and is most proud of receiving the County Hunter of the Year Award at the national convention at Coeur d'Alene, Idaho, in July 1985.

Paul's third bypass operation took place in October 1986, after an angioplasty (balloon procedure) lasted only five months. The third bypass was by the same surgeon who worked on him in 1973, and he jokingly promised Paul another 13 years. Paul is in the sixth of those promised years and, with the good lord's help, may still be county hunting for another seven. I hope so.

Listen for Paul on the SSB county hunter's net on 14.336 MHz. And, happy hunting! WR



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You may recall that recently, when I was agonizing over my "sins of omission and commission," I promised to repair one shortcoming by giving a discussion of how the 10.7cm solar flux and sunspot counts are related. I'll do that now, giving some of the historical record along with the present situation.

First, as you know, sunspots were discovered back in the 1600s when Galileo found blemishes on that perfect spherical orb, the sun. Man, being the bean counter that he is, began keeping score, and now we have a sunspot record that goes back to 1750. Actually, there are earlier years in the published record but the data isn't considered all that reliable. Since there's no chance of repeating the observations, the data is simply set aside and more modern records, with rules for collection and analysis, are used for scientific purposes.

Radio noise bursts in the HF range were noted by amateur operators before WWII but since antennas on 28 MHz were large and not all that rotatable, the sun was not identified as the origin. It wasn't until February of 1942 that the sun was established as a source of radio noise. Again, a monitoring program was soon put in place and the spectral and temporal features of the radiation were quickly established.

While bursts of radiation were recorded from time to time (see Propagation in the May '92 issue), a slowly-varying background was noted in the microwave region. With that, correlations began to be made with other slowly-varying quantities, the sunspot count as well as sunspot area. And since individual days showed a scatter in their correlation, the same averaging techniques used with sunspot numbers were applied to the solar flux.

Monthly means are prepared from the daily records of sunspot counts. Then 13 monthly means of sunspot counts are averaged, the first and last month being given a weight of 0.5. The resulting value, smoothed in that fashion, is assigned to the month in the middle of the data period. For example, the 13 monthly means of SSN counts from January of one year through January of the next year are used to obtain the smoothed value for the month of July in the middle of the record.

This technique is used to produce both smoothed averages of sunspot counts and the intensity of 10.7cm radio noise; when one set of values is compared to or correlated with the other, it results in mathematical expressions relating the two data records. For example, one expression encountered often in the literature is shown below:

$$\text{FLUX} = 63.7 + (.73) * \text{SSN} + (.0009) * \text{SSN} * \text{SSN}$$

Obviously, that expression can be inverted algebraically to obtain a value of SSN for a given value of the smoothed flux.

And that's the problem! The expression shown above is valid for 13-month smoothed values; it does *not* apply to the daily values of either quantity. That's where amateur operators get into trouble, taking a daily value of the solar flux from WWV and trying to infer a valid sunspot number from it. When that is done without understanding what's actually involved, disappointments are bound to happen. So let me work this out in detail for you, showing both the data and the results.

Consider two consecutive 13-month periods, 1 July 1987 to 31 July 1988 and 1 August 1988 to 31 August 1989. The months in the middle of those two periods are January of 1988 and February of 1989, respectively. If, like me,

you have the weekly reports from NOAA/SESC in Boulder, Colorado, which give daily values for the sunspot count and solar flux, you can go through the records and study the data.

If you use the Boulder report, you'll find that the smoothed SSN for January 1988 was 73.3 and for February 1989, 196.0. Quite a change between those two times! But what about the details, say the monthly means that went to make up the final smoothed values in those two periods? For the first sequence, the monthly values ranged from 35.2 to 137.1, while in the second period the range was from 137.0 to 297.3. Here we see quite a spread in the means for each of the two periods.

When it comes to the smoothed values for the solar flux, given in solar flux units of $1\text{E-}22$ watts/(sq.mtr-Hertz), the values are 107.8 sfu for January 1988 and 194.0 sfu for February 1989. And the monthly means ranged between 84.2 sfu and 152.7 sfu for the first interval and 152.5 sfu and 239.6 sfu for the second interval.

The actual daily values of the sunspot count and intensity of the solar flux can be displayed in scatter plots, as in the two halves of Figure 1. In those plots, each day is represented by a point, located horizontally according to the solar flux and vertically according to the sunspot count.

There are 396 points in each of the 13-month intervals but all the points are not shown in the scatter plots; some days have the same flux-SSN values as earlier days and their points land on top of previously plotted points. This problem does not come into the calculations of the monthly means or the smoothed values for the two periods, now shown as crossed lines in each of the two scatter plots.

So there you have it, data from 396 days being used to come up with smoothed values for the 10.7cm solar flux and the sunspot count. If you look at each half of the figure, you can see something of the quasi-linear correlation that is suggested by the algebraic expression given above. However, in contrast to the mathematical expression, the scatter plot shows that there is not a one-to-one correspondence between the two quantities; rather there is quite a spread in values.

For example, look at the data in the right-hand half of Figure 1 and, more particularly, the spread in SSN values at the smoothed value of the solar flux, 194 sfu. That was a time close to solar maximum and you see that daily SSN values extend above and below the smoothed value of the SSN by ± 100 . True, there is a concentration of data points closer to the smoothed

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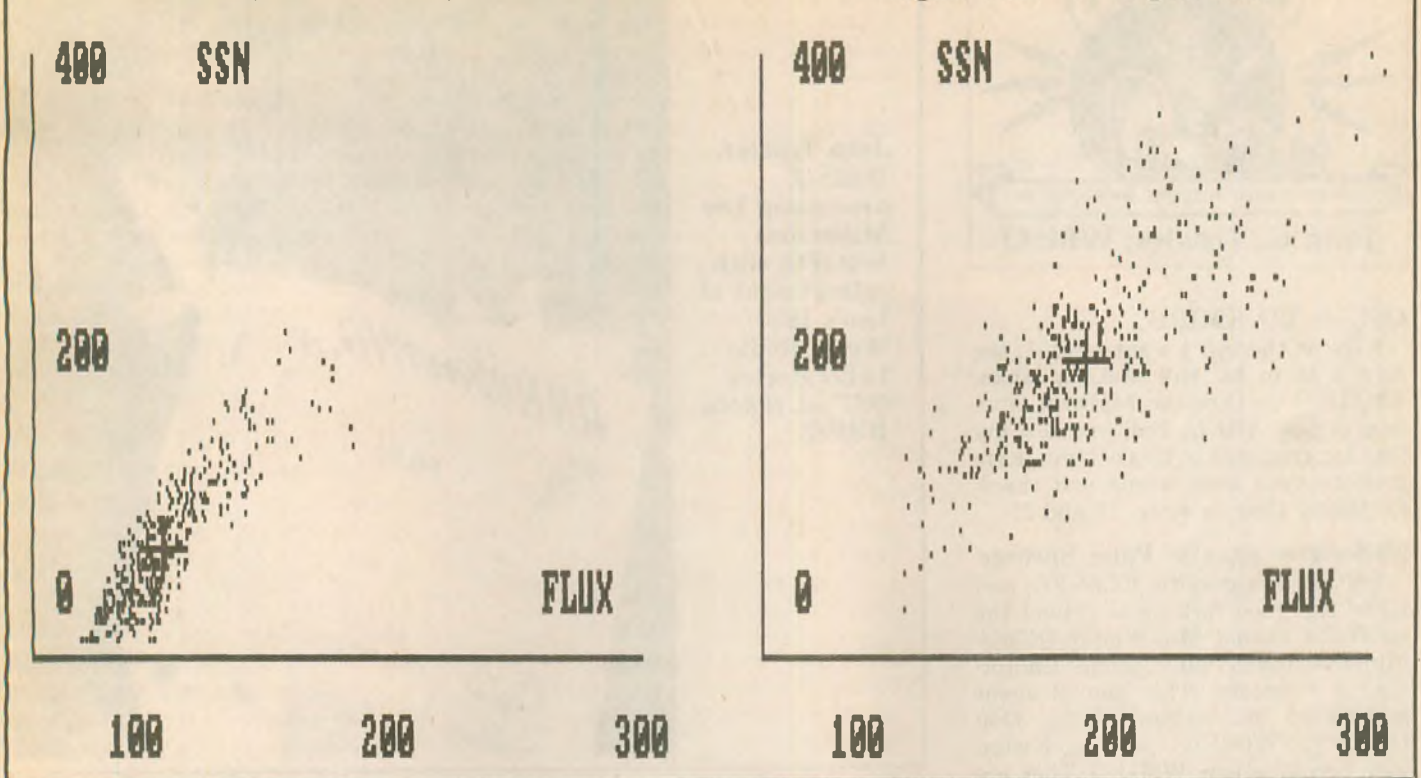


Figure 1

value but the spread is still quite significant.

From that you can see that calculating the SSN value to go with the daily flux value may be misleading, especially if used in an HF propagation program. What is needed is the spread in SSN values with appropriate measures of their probability. And that goes to the heart of the matter: We're really trying to come up with a major variable describing the activity on the sun, using observations of another quantity which is only statistically related to it. In short, it's a gamble, and one should really know the odds to play the game.

Now, having said all that, I have to say a few unkind words about the American data on sunspot counts. In fact, it goes to our very nature as Americans: The numbers are just too generous. They are higher than those which finally come forth as "International Sunspot Numbers." To give you a feeling for the magnitudes, the monthly means used to find the smoothed value for January 1988 and February 1989 had to be reduced to about 75-80 percent of their values for the NOAA/SESC data to come into

agreement with numbers from the international body that supervises the publication of solar data.

This cautionary note does not apply to the algebraic expression quoted earlier. That is a good approximation for the relationship between the smoothed values. But in using it in HF propagation programs to predict MUFs and signal strengths, it would be good to repeat the calculations with SSN values which are ± 25 percent of the calculated value; that would give

the user a better feeling for the propagation possibilities that may be found in practice.

But that's on a "clear day," magnetically speaking, "when you can see forever." If the earth's magnetic field is kicking up, the rosy scenario no longer applies. I've pulled together some experimental data on that point, albeit on long path, and I'll put it before you in the future so you can see that side of the propagation picture, too. WR



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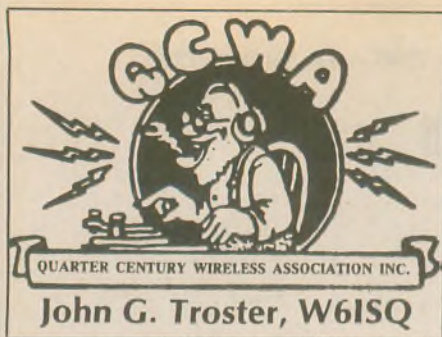
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QSL + TU K0ORB

Here at the top I want to QSL the card sent in by Bill McGrannahan, K0ORB, Vice Director, Midwest Division of the ARRL. Bill, you are my first fan response to this column. I appreciate your kind words and thank for taking time to write. 73 and 25.

Mid-winter rites in Palm Springs

My YF, Marguerite, KC6NFE, and I had the good fortune to attend the unofficial annual Mid-Winter QCWA Mini-meeting in Palm Springs, California, in February. This annual event is created and organized by Don Doughty, W6EEN, and co-hosted with Leo Myerson, W0GFQ. They are well-assisted by the able members and spouses of the Palm Springs Valley Club.

The event began Friday afternoon with a reception for about 140 QCWA members and family at the Doughty domain which showcases southwest living at its ideal — a handsome, indoor-outdoor-living home in Bermuda Dunes. Five acres to accommodate quite nicely (!) three 100 ft. plus antenna towers with multi-element beams. It was a warm winter evening, gracious hospitality. Don's YF, Phyllis, presented a mega-assortment of delicious hors d'oeuvres. They were tasty indeed, especially the crab dip! While the yard was full of admirers munching canapes and surveying the antennas, the shack was filled to capacity with other admirers studying the high-tech efficiency and engineering of Don's multi-multi contest station. Everyone I talked to had an interesting story to tell, and one can't help but wish it were possible to have longer get-acquainted chats with each of them.

A four-star luncheon meeting on Saturday garnered 150 QCWA members and guests, again a Doughty production par excellence. Leo started the festive QCWA mood with lilting, nostalgic piano tunes. Don's a great master of ceremonies, a natural, with wit spilling over to include the whole crowd. There was a big turnout from Arizona and from all parts of southern California. Don introduced Herb

John Troster, W6ISQ, presenting Leo Meyerson, W0GFQ, with enlargement of Leo's 1950 World Radio Laboratories QST ad. (Photo, W6ISQ)



Johnson, W6QKI, well-known former president of Swan Radio, who donated a 1935, plus or minus, Hallicrafter receiver to the QCWA/Leo Meyerson museum in Omaha. Accepting the receiver was Mr. Phil Kwiatkoski, museum curator, who spoke of plans for future operations of the museum.

You knew this was a big event when both director and vice-director of the ARRL Southwest Division fell out for the same party! Director Fried Heyn, WA6WZO, was there trying to get up a game of contract bridge, at which sport he is a fully commissioned life master. Well, actually, Fried came with Vice Director Art Goddard, W6XD, who was the speaker of the day.


Art's talk on SETI, Search for Extra Terrestrial Intelligence, sent all of us into outer space — literally. Not just kidding here, gang. He's the kind of speaker who holds your attention for his clearly organized information and wit in presenting it. So after describing that SETI was hoping to find and hear communication from somewhere amongst the uncountable

infinity of stars and universes "out there," in the likely form of radio signals, and describing the various professional groups and their stellar (sic) equipment, commissioned to accomplish these arcane goals, he ended by telling the assembled amateurs, you and I, that *we* would be the most probable and likely to first hear signals from outer space. Amateurs are on the air all over the world, every hour, hear more signals than any other group and, with their trained ear, are more likely to detect a signal that is "different" from anything usually, or ever, heard. How 'bout that for a reason to stay on the air all hours of the night or day? A sound millions of light years old — it's gotta sound different.

I had the pleasure of presenting Leo with a 65-year QCWA certificate sent by President Harry Dannals, and also an enlargement of Leo's World Radio Laboratory full-page QST advertisement of December 1950, signed by all QCWA members present. Leo was grateful enough to promise to check in to the local 2M net every Thursday night, in person, not by telephone!

Leo told us how he happened to get World Radio Laboratory started way back when. He said that he liked to build radios but when he ordered parts, it took many weeks for delivery. So he decided to get into the business in order to get more parts, faster. He asked his father for a \$500 loan to get the company started. His father said,

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Don Doughty, W6EEN, organizer and master of ceremonies at the Mid-Winter QCWA Mini-meeting in Palm Springs. (Photo, W6ISQ)

"Okay, I'll loan you \$1,000, but when your business flops, you'll work in the family grocery business." Leo never worked in the grocery business.

Leo's Palm Springs antenna is interesting. It is 600 feet of thin wire strung from palm tree to palm tree. In his house, he has pre-tuned antenna tuners for each band he operates. So he just switches bands by switching antenna tuners. Leo is what they call in Palm Springs a snowbird — that means someone who comes to Palm Springs to escape the snow where he really lives. An unofficial QCWA-designate pianist and organist, he is a pro, used to playing for crowds, having got his early piano experience playing improvised music for silent movie theaters back in Nebraska.

Don's already planning next year's meeting. He is thinking about adding lectures in a morning program. If you are going to be in the Southwest next February, Don invites you to send him a note at his *Callbook* address, requesting to be put on his computerized mailing list for the party and Mini-meeting. Palm Springs is a nice place to visit in the winter!

Chip Margelli, K7JA — one of us
Imagine my surprise, when reading through Chod Harris' *DX* magazine, to find a large photo of smiling Chip Margelli, K7JA, chief of Yaesu's service department and well-known DX-

peditioner and contesteer. Well, I've seen a lot of photos of Chip and have spoken with him on many occasions, but never before had I seen him wearing his badge of honor, his QCWA pin. That's correcto, folks, Chip is one of us! We appreciate that, Chip, and thank you for your PR from all of us, the Many, the Proud, the QCWA.

Sunday QCWA SSB Net

Have you ever checked in to the QCWA Sunday SSB Net at 2000Z on 14.347 MHz? What a turnout! And there in the MC cockpit you may find the incomparable Lou McCoy, W1ICJ, as I did, handling the net with all the expertise of an ex-ARRL communication traffic manager. Well, pretty close anyway, seeing as how he war

across the hall and war a injuneer.

I learned something a few weeks ago on the QCWA net that might be of interest to many of you. W2MM gave a fine suggestion to contact potential QCWA members. Using a Buckmaster, *Ham Call* CD-ROM disk, as advertised in *Worldradio*, print out the calls of all amateurs within a given Zip code of interest. Then contact those amateurs whose prefixes were issued 25 years ago. I presume all those with upgraded "new" calls would be candidates for a call. Thanks, W2MM, good suggestion. Any other suggestions for recruiting new members out there?

Until then, be one of us — the Many, the Proud, the QCWA. 73 & 25, de W6ISQ. WR



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If you want to get something out of an organization, put service into it. — Marge, N6JTJ



In a recent column I mentioned looking back through old logbooks and how it triggered reminiscing in my old age. I also made a short plea for you new amateurs to use those blank pages in your log books as diaries for notes of ham events, equipment changes, etc. You'll enjoy those pages when you become a coot, codger or geezer (I don't know which category I fit into) in your old age.

I have a file drawer containing a big stack of logbooks accumulated from 60 years at the CW key or the RTTY keyboard (sorry, very few pages with phone QSOs listed). So, every now and then I page through them and get a kick-start on reminiscing. It's oldster's fun and I usually wish I had written more about those good old days. This is also true when I browse through my airplane logbooks. I wish I had put more memory-stimulating remarks in those books, also.

I once kept a large flight planning map on which I traced all the airplane trips I made in the Cessnas I owned. It was quite a picture to see all the spokes that radiated out of Hector Field in Fargo. It, too, was a memory tickler but, alas, it got ruined in a business move and was tossed out with the waste paper. It was easy to keep up when I took a minute to mark each new trip as soon as I completed it. However, today it would take a long time to reconstruct, so I don't do it.

My column on logs brought this comment from WS1V, Clint Spaar, of

Westmoreland, New Hampshire. Clint says: "I just started keeping my log on computer, and you certainly can't add that personal touch. I do still fill out my QSL cards by hand versus computer labels."

Let that be a clue to the guys who write the programs for logging QSOs on a computer. Why not design the computer code so a person can add a bit of "diary-type" remarks to each contact? A long list of call signs is great for statistics, but it ain't much for memory shocking stuff. I have kept data like solar flux numbers and equipment changes, but I would like it better if I had kept more notes about hamfests, visitors, etc.

Cynosure stuff

I edit a newsletter called the *Cynosure*. It's a 24-page quarterly for my high school alumni association. Our school burned down in 1966 (I graduated in 1935) and was never rebuilt. Instead, two new schools were erected and put into operation. We have about 4,000 dues-paying members of the association and I have been making a list of all the alumni who are Amateur Radio operators. In a recent issue of the *Cynosure* I listed times for an alumni net which meets at 0900 on weekends. I put it down as 0090. Right away I received a phone call complaining about my lousy proof-reading. Then came more phone calls, letters and packet messages all asking me what time I meant when I said the net meets at 0090 Pacific time. If my readers can't figure it out, they'll have to wait three months for the next issue.

Russian packet

I recently found a very interesting packet "bulletin" message on my BBS. It was entitled: MIR @ AM-SAT. It originated with UA3CR @ RK3KP #MSK.RUS.EU, and it dealt with all the call signs held by the Russian MIR astronauts. There have been 26 different operators in the Russian space vehicle using derivations of the call sign U#MIR. Amateur Radio from the MIR space station began back in 1987, and in addition to Russian hams, there have been ops from England, France, Germany and Austria in that spacecraft, too. The message also included a list of MIR amateurs who will be circling the globe in the future. The forecast includes the year 1994.

The message also listed the following address for exchanging QSLs with the MIR folks: RV3DR, Serge Samburov, Space QSL Manager, Chief of Cosmonaut Amateur Radio Department, NPO "Energia," P.O. Box 73, Kaliningrad-10, Moscow Area, 141070, Russia. I can't remember how I sent my QSL card to U4MIR (I should have made a note in my logbook). I do remember, though, that it took about three years before the answer arrived through the ARRL regional system. Anyway, I got it!

More packet traffic

If you follow this column you know that I solicit packet traffic from readers. I enjoy swapping messages with hams around the world. I've recently traded messages with DK4IP @ DB0GE.SL.DEU.EU. It is always interesting to read the headers and

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note the path the message has taken. The last message from Paul in Germany, for example, made relays through five German stations, then hopped to 4X1RU.ISR.MDLE where it was sent, I believe, by satellite to N0GIB in South Dakota. After that it made a routine 2M relay to me. It never ceases to amaze me how great this packet system is getting, yet how lousy it works some of the time.

In the same day's packet mail was a message from G0RKJ @ GB7PLY. #44.GBR.EU. Rich, N7CXB, is another American living in the UK. It also came via the satellite gateway to the same station in South Dakota. It traveled, however, from GB7PLY to EI2HH.#WFORD.IRL.EU to EI6EH.#KELLS.IRL.EU where it must have boarded the satellite link to SD.

Tom Hagerman of Fort Pierce, Florida, N0DST @ KB4VOL. #WPBFL.FL.USA.NA, started reminiscing when he read a recent column in which I told of trips to St. Paul to get my ham ticket from the FCC office there. Tom goes me one better with this story: "I recall my first FCC test, too. It required a car trip to the edge of town, a bus into town, a street car ride many miles to downtown St. Louis, and then a long eight-block walk to the federal building. All that, alone, at 10 years old. It was kinda scary then!"

I complain quite often about packet messages that evaporate during the long trip to North Dakota. The state of the art should be better than what we are getting. After all, we put a lot of money and time into our hobby, and some days the packet relay system just barely makes it. Bruce Frahm, K0BJ, of Colby, Kansas, and I correspond via packet on a hit-and-miss schedule. Here's the opening line of Bruce's last message to me: "Bill, the path to you has let me down four times in the past few months. I've been having good luck with an old college buddy in Washington state through APLINK." What I gather from Bruce's message is that we're having an evaporation rate of four out of five tries! That's not good, is it!

I answer every message that comes into my BBS. If you don't hear from me after you mail me a packet message, you can blame evaporation, not me. I may be slow in answering QSL cards by postal mail, but I make a daily effort to answer all packet messages. If you want to see the routing that your packet mail takes to get to my shack, let me know and I'll put your message header in my return to you.

One side effect of looking at the header trail of relays is that you will

see how many computer clocks have lost or gained a day or hours. Note to SYSOPS: check your computer clock for the right time and date now and then.

New computer blues

I just bought a new 486-DX2 computer for my writing and desktop publishing. I should say I ordered two new computers but only kept one. The first one came with 4 megs of dead memory and the tower case not properly aligned. It was impossible to fit accessory boards into the slots, so back it went for a refund.

The second tower, from a different vendor, came with a Sony CD-ROM installed; however, it did not use a "caddy" to hold the compact disk. In computer use, CD caddies protect the disks from rough handling. In ordering the computer, I innocently assumed that all Sony CD-ROM machinery would use caddies (I've owned two external CD-ROM Sanyos that did use them), but I was wrong. So the CD-ROM player goes back, but I think I'll keep the computer. My old 386 just crawls when compared to the new speed demon.

Eavesdroppings

"I THINK IT'S TOO COLD OUTSIDE FOR MY ANTENNA TO WORK PROPERLY ... KEEP WELL, KEEP WARM, AND KEEP YOUR FINGERS LOOSE ... I'M NEVUS XXX NERVUS XXX NERVEOUS AS A CAT IN A ROOM FULL OF LOCKING CHAIRS WHEN I GET ON RTTY SO I DON'T TYPE TOO WELLL ... MY SNOWDRIFTS ARE SO HIGH THAT MY SNOWBLOWER JUST TUNNELS INTO THEM ... THE QRM SOUNDS REALLY GREAT HERE ... THE TREES ARE DOING A VERY FINE JOB OF HOLDING UP MY ANTENNA ... I SPENT THE LAST TWO HOURS TRYING TO RAISE DX ON A DEAD BAND ... I'VE GOT A TWO METER UNIT IN MY TRACTOR, ANOTHER IN THE SHACK AND ANOTHER IN THE BEDROOM, SO ONE DAY I MIGHT PUT ONE IN MY CAR ... MY WIND-POWERED TRACTOR IS DOWN FOR REPAIRS BECAUSE THE MAST BROKE WHEN I TRIED TO PUT

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Thanks to W0HAH, K4HXW, W7VFR, KI0E, and all those unsuspecting people I eavesdropped on. My packet address is W0LHS @ W0LHS.#SEND.ND. USA.NA and my postal address is 1514 South 12th Street, Fargo, ND 58103. 73 de Bill Snyder. DIT DIT. WR



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The AR-210 is built on a multi-layered PC board, using surface-mount technology. It has a 4.9 MHz CPU, is TAPR TNC-2 Upload compatible, supports TCP/IP KISS mode and a multi-taking BBS. It also incorporates a real-time clock with backup battery.

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Paul A. Scipione, AA2AV
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Bob Loe, N0AAA: a man for all seasons

I first met Bob Loe in person at the Dayton Hamvention two years ago, but his fine reputation preceded him. When I first saw Bob, my initial impression was that this distinguished-looking, white-haired gentleman was a US senator or a CEO of a Fortune 500 company. But underneath the handsome exterior there is a hard worker with a heart of gold.

What most of you probably don't know and will find somewhat curious is that, before becoming the chief of Navy/Marine MARS a few years back, Bob Loe had just retired from the US Army as a colonel after a distinguished 25-year career, including service in Viet-Nam as a Signal Corps officer. When I asked Bob how a career Army officer ended up as head of Navy/Marine MARS, Bob laughed and said that the Navy/Marine post was the only one available at the time and it was in the DC area where he and his family wanted to locate. To carry this bit of irony even further, I should mention that the chief of Army MARS, Bob Sutton (AAA9A), is a retired Air Force senior NCO! Only Ray Collins, the chief of Air Force MARS, is still affiliated with the same branch of service from which he retired.

Bob Loe took over a small MARS service in an era of unprecedented military budget cutbacks and has turned it into a vibrant, growing, dedicated service of more than 3,000 volunteer hams worldwide. Bob carried out a major reorganization of Navy/Marine MARS, revitalized the afloat network, established the system's first ever automated data relay network (MARS data system), served as chairman of the Joint MARS Chiefs Panel, participated in the National

Communications System Shared Resources (SHARES) high frequency radio program, chaired the annual MARS conference at the Dayton Hamvention several years, and established and maintained close relations with the Navy Wife-Line Association, US Navy League and Marine Corps League, and with the chief of Chaplains Office of the US Navy. All this on an annual budget of only \$200,000 and a staff of only a few active duty Navy personnel at his headquarters in the Maryland suburbs just outside Washington. That Bob was able to accomplish so much is a testament to both the 3,000 dedicated members of Navy/Marine MARS and Bob's strong and positive leadership.

Take Operations Desert Shield and Storm, for instance. After it became apparent that there would be a major build-up of US troops in Saudi Arabia and adjacent naval areas, Bob moved fast to beef up his afloat net into one that could also accommodate land-based two-way HF communications. By the spring of 1991, Navy/Marine MARS operators had handled more than 86,000 phone patches and in excess of 108,000 MARSgrams. Like the other two MARS systems, Navy/Marine MARS had made a major contribution to the health and welfare of American service persons and their family members back home during a time of war. Many of the innovations developed for the Navy afloat nets during the Persian Gulf War have remained in place since that time.

When Bob Loe retired from Navy/Marine MARS on 3 January 1993, he received the prestigious Department of the Navy Superior Civilian Service

Award from acting Secretary of the Navy, Sean O'Keefe and Secretary of Defense Dick Cheney. Secretary O'Keefe's award citation to Mr. Loe concluded by stating: "By his superb professionalism, personal initiative and loyal devotion to the needs of the service, Mr. Loe has reflected great credit upon himself and upheld the highest traditions of the Department of the Navy."

We couldn't say it any better ourselves, Secretary O'Keefe. Bob Loe is a classy guy in every way and we wish him a wonderful second retirement.

Dateline Kalamazoo, MI

In a follow-up to my MARS column in the August '91 *Worldradio*, Robb Adams, AAV5TW, WA9ZMO, will be given the Outstanding Service Award at the '93 Dayton Hamvention. Bravo to Robb for his outstanding service in running nearly 3,000 Desert Storm phone patches single-handedly, and to the folks on the Hamvention committee for selecting Robb for one of their three annual prestigious awards. I will have an interview with Robb in an upcoming issue of *Worldradio*.

Dateline Augusta, KY

Thanks to Harold Woodward, AFA2HM, WA4NUY, for his letter of 5 January commenting that I write too many columns about Army MARS and not enough on the other two MARS services. I agree, Harold, although I have official public relations responsibilities for Army MARS and don't hear nearly as often from Air Force and Navy/Marine MARS operators. WR

Silent Keys

Marshall Mosher, N6FTD

Marshall "Mo" Mosher, N6FTD, recently became a Silent Key. For three years he had been both blind and paralyzed as a result of a stroke, and he received his *Worldradio* on tape through the service provided by Tom

Carten, K1PZU. This was one of the highlights of the month and he listened to each issue the day he received it. As he felt that most Amateur Radio literature was over his head, he especially appreciated the non-technical, human interest stories of the magazine.


Though he was never very active, he did enjoy the few contacts he could make from his bed with the code key by his side (with his son, Jim, KA6QZQ, operating the rig) — it gave him a great sense of pride and accomplishment. —*Information submitted by Jim Mosher, KA6QZQ*

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The Youth Forum

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This is the sixth appearance of The Youth Forum, which means that this is the one-year anniversary of this column! Over the last year, I've received numerous letters and QSL cards from amateurs of all ages encouraging the active participation of young hams in our hobby.

Many of the letters contain common themes: a need for some kind of organization (or at least net) for young hams, higher visibility and more active participation in the hobby on the part of the younger licensees, and questions regarding the positive encouragement of *other* young hams to either get active or stay active. Many parents have written to me asking for suggestions on how to involve their children with Amateur Radio.

In looking over all the comments, questions and suggestions I've received, I've realized a common theme: All of the young hams were interested in a net or organization but didn't have the time or ability to successfully start one on their own.

Rather than start a *new* youth net, which I unsuccessfully tried to do several years ago, I will continue to encourage all of the people who are interested in a youth net to check in to the *Youthlink Youth Net* every Monday afternoon at 2300 UTC on 28.435

RE-USE PLASTIC CABLE TIES. IF THE TIE IS LONG ENOUGH, MAKE TWO WRAPS BEFORE CINCHING. WHEN NECESSARY TO CUT FOR MODIFICATIONS OR REPAIRS, THE REMAINING PIECE CAN BE USED AGAIN FOR A SINGLE WRAP IN THE SAME POSITION. —DAVID GUIMONT, WB6LLO; NSARC. SAN DIEGO, CA

MHz and at 2345 UTC on 14.26 MHz. I always listen very carefully for any stations who are unable to hear the net control, so please be sure to announce your presence on the net. I feel that if we try to combine our efforts to produce a successful net, we will get a better result than if we start several smaller nets which will compete with each other for check-ins.

As for a youth-oriented organization, I have about two dozen amateurs of all ages (but mostly youth) who have written to me requesting information about an organization. If you have any interest in such an activity, please send me a letter (my address is listed above in the header), and include your suggestions. From those ideas, we'll see what we can come up with. It has been suggested that some sort of a low-level clone of the 10-10 International organization be established with numbers given out to the members to exchange on the air and encourage net participation.

Needless to say, I don't expect to create an organization such as 10-10 International overnight, but with input from other young amateurs, we can establish the foundation for such a group. Other suggestions for which there is much support include that any youth-oriented group be free to hams of all ages, with the purpose to encourage young amateurs to become active participants in our hobby.

Speaking of encouragement, that brings us to my next subject: parent over-encouragement. When I started in Amateur Radio, some of my family members received their licenses at the same time, and two out of three kids in

my family were very excited about it. I've been asked questions at youth forums and in letters from parents who have a son or daughter who has his license (usually it was the parent's idea for the child to get licensed, and the child cooperated), but doesn't think Amateur Radio is fun. Some of the parents have asked what they can do to show their children that Amateur Radio is fun. In some cases, the parents are bribing their children to enjoy ham radio by purchasing more equipment, even after the children have stated that they don't enjoy the hobby.

What is the problem here? The problem is that if the kids don't think Amateur Radio is fun, maybe it isn't for them. Let's face it, Amateur Radio isn't for everyone, and many kids just don't see the attraction that a handful of other kids have found. Parents: Don't force your kids into your hobby. If they want to be involved, they will. Also, if you can find a license class starting up in your area, your kids might be more inclined to participate if there are other kids in the class, or if a friend of theirs wants to go with them and they get their licenses together.

After I published the Youthlink Youth Net information in the last column (see above for times and frequencies), I received word that young amateurs in northern California can check in to the Northern California Teen Net on Thursdays at 0300 UTC on 145.23— (PL 100.0 Hz).

If you are planning to attend the 1993 Southwestern Division Convention, slated for 17-19 September in Ventura, California, be sure to stop in at the youth forum. The exact time hasn't been established, but organizers expect it to be on Saturday, 18 September in the early afternoon. Keri Miller, N6TME, is in charge of the youth forum (the organizers had the common sense to put a very capable young ham in charge of the youth forum — a novel idea), and through this forum will show what young hams are currently doing in ham radio. She has found young hams who are involved in various aspects of our hobby, including transmitter hunting and amateur television, and they will be talking about their involvement in the hobby.

Don't forget to write to me with your ideas about youth involvement in Amateur Radio and what activities you have found beneficial! WR

ESTABLISH A HAM TESTING CENTER IN YOUR AREA

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OLD-TIME RADIO



Radio pioneers—the second generation

KEN, N7SQU, and JUDY ROUSH, N7TUX

Marconi, De Forest, Armstrong, Sarnoff! The very names conjure images of new realities to be discovered, frontiers to be conquered, fame to be won. But as we look ahead, are you able to look back and recognize the legacies of the second and third generations who implemented the revolution of communication?

The future of Amateur Radio is potent with possibilities; the probabilities remain uncertain. Yet the arrow of time extends itself along a continuum relentlessly stretching forward from a legacy inherited from the second generation of radio pioneers.

This story chronicles Ermon G. Lewis, KD7EL, a man whose love of radio has led him to instill in yet another generation a passion for the exciting world of Amateur Radio.

Ermon came into this world at a time when scientific discovery expanded knowledge and possibilities far beyond the wildest dreams of the founders of Taylor, Arizona. There was a world of clearing land, planting crops, worrying about hostile natives and roving bands of outlaws, rustlers and carpetbaggers.

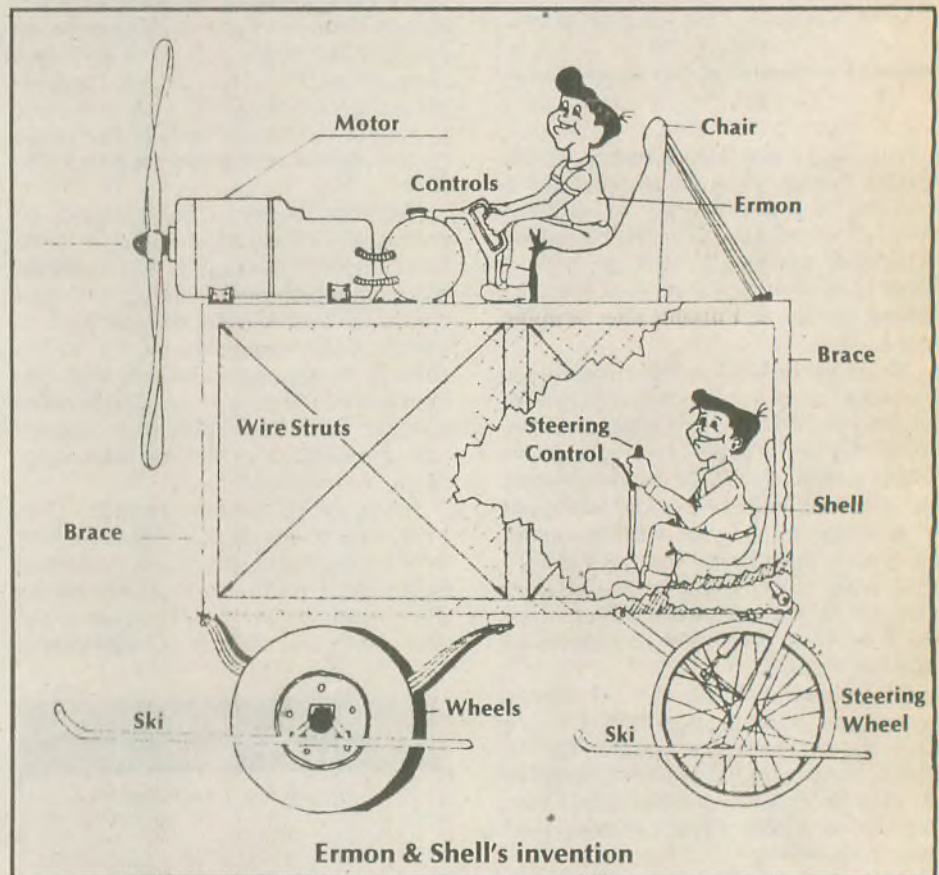
Their days were filled with hard work and concerns of survival, yet Ermon dared to hope, to dream, to expand. Aviation and radio had left the cradle but had barely learned to walk. The world had survived the "Great War" and as Ermon entered high school it was coping with the Great Depression. In spite of the difficult times Ermon loved science and especially aviation. He was enthusiastic, not because of his circumstances, but in spite of them. The first lesson he learned was that *tough times do not last; tough people do*. Tough people have dedication and they develop discipline along the way.

Lindbergh had crossed the Atlantic; the world remained electrified by his accomplishment and saddened by the kidnapping of his child. Ermon wanted to fly but Taylor, with its history of hard work and determination, remained poor throughout the depression years of the early 30s. Flight training, even pre-flight training, was far beyond the resources of any small,

rural school system. Ermon decided to overcome these limitations by learning on his own everything he could about aviation.

Most of us have dreamed of and built model airplanes. Ermon dreamed of building a real one. The limitations of the Depression remained and Ermon wanted to use his acquired knowledge of aviation *now*. As many of us are required to do, he modified his dream and decided to build instead a propeller-driven snowmobile.

On the outskirts of Taylor the community had built a rodeo ground complete with wooden bleachers. Ermon assembled used and spare parts to build the snowmobile; however, the propeller was a problem. It required a large, expensive piece of lumber that had to be shaped and pitched. Such a piece of lumber was beyond his means.



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Then one day, while visiting the rodeo grounds, he spotted just what he needed in the supporting structure of the bleachers. Ermon shaped and built his propeller.

Every pioneer must experiment and overcome defeat. When the propeller was attached to the engine and the machine revved up, it pulled the snowmobile directly forward into the ground. The pitch was wrong. So Ermon shaped and pitched another propeller, and another, and another, until the snowmobile lunged forward and the bleacher collapsed.

Circumstances change and experiments must change with them. The snow melted in Taylor before the

machine's first run. Ermon replaced the runners with wheels, and it was ready to roll.

The design required two operators and two seating levels. Ermon rode the top level controlling the speed of the craft, as a friend sat below steering the machine. It took several runs down the main street of Taylor before a major problem surfaced. During the intensity of design and construction Ermon had overlooked the necessity of a brake.

The citizens of Taylor adjusted to the noise. Mothers pulled their children off the street; farmers calmed their horses. The people adjusted. The chickens did not. The inevitable happened, and the now propeller-driven land mobile, lacking a means to brake, collided with a flock of chickens. Feathers, blood and chicken parts buried the operators and, much to the relief of the citizens, Ermon turned his attention to electronics and radio communication.

In 1932 Ermon built his first regenerative receiver. He was eager to hook it up and tune in the world but economic reality forced a delay. He had work to do—he had to remove the buds from the stored potatoes at home for spring planting. Putting the receiver aside, Ermon worked well into the evening de-budding the potatoes. Finally, his work completed, he connected the receiver. Tears still come to his eyes as he remembers the first signal he received: "This is Bill Hayes reporting that the Lindbergh baby has been found."

During the next six years Ermon designed and built radios. His friends and neighbors, remembering "the great chicken massacre," encouraged his interests. His self-education in electronics blossomed.

In 1938 Ermon G. Lewis became W6WJL and the town rejoiced. Women, children and chickens were safe. Ermon, with his enthusiasm, dedication and discipline began an illustrious career that would lead him into the communication industry.

Over the years Ermon read and read and read. He completed correspondence courses and attended every workshop his employer, Southwest Forest Industries, offered.

The winters in eastern Arizona can be harsh. The terrain is mountainous and the snow often reaches blizzard proportions. Ermon's employer ran logging trucks and a railroad. Operations continued summer and winter. Often trains and trucks were stranded because of the unpredictable winter weather.

With the true spirit of the pioneer and experimenter, Ermon developed two-way radio communications for the company's trains and trucks. He then turned his attention to the logging



Beth, KA7AKK, and Ermon, KD7EL, Lewis (Photo by Judy Roush, N7TUX)

camps and permanent supply sites. These great accomplishments benefited an entire mountain region. But, more important to Amateur Radio, he shared with anyone willing to learn, everything he had learned. Before retiring in 1982, he taught basic electronic and communication theory and practice to Apache Indian technicians. He earned the friendship of tribal leaders and members alike.

In 1951 he became W7MIO and in 1983, KD7EL (KD7Ermon Lewis). He earned a community college teaching certification and taught both Amateur Radio and basic theory for several years. He coddled, coached, prodded and encouraged class after class of new operators. In many respects he is one of the great Elmers of Arizona.

His wife, Beth, KA7AKK, teaches at his side. She too is an Extra Class operator who shares all she has learned. Beth prefers to operate on the Novice bands. Her eyes sparkle when she discovers a fledgling operator struggling to make his or her first QSO. Her code is near perfect and, like Ermon, she recruits, teaches and in-

tegrates new operators daily.

This year, Beth, KA7AKK, is the president of the Kachina Amateur Radio Club; Ermon is a past-president. The club has a reputation of being an open, friendly, supportive club that believes in recruiting, helping, educating and befriending all hams in the area. This, too, is a legacy being formed by this generation.

The legacy of the second and third generations of radio pioneers is one of enthusiasm, dedication, and discipline. Ermon and Beth are excellent examples of that legacy. It is our responsibility to build on the foundation they have laid. Within all the possibilities that lie ahead let us hope they are filled with great Elmers who care and share, encourage and build. Thank you, KD7EL and KA7AKK. WR

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Take care of number one!

Whether you're operating radios in the emergency operations center or setting up a packet station on the fireline, you must take care of yourself first. The last thing a search coordinator or incident commander needs is to launch a rescue for rescuers.

Having the appropriate clothing, equipment, food and water are important, and so is having some common sense! Don't expect your mom to check your equipment before you leave for the search. There are also some 1990s issues we didn't have to consider 20 years ago.

Two areas of concern are infection control and hazardous materials. If you're working as emergency communicator at a hospital there are some precautions you need to take. At a minimum I would recommend having rubber gloves, some coveralls and then washing well after you finish. An emergency room paramedic told me they're not going to check if you have experience in infection control. He said police officers and other medical personnel have this training, and he assumed other emergency workers do also.

This is a good topic for an in-person training session. Call your county health department or ask an *experienced* emergency room nurse to spend some time and give you some suggestions. Get trained before you find yourself in the situation. If you're making the assignments, add a line to your briefing checklist and ask if they're prepared for the situation.

Hazardous material is also a frightening scenario. Again, these responses require some advanced training. When we get to the "do not cross" line with our ARES jumpsuit, carrying our radio gear and displaying our ID card, the policeman isn't always going to check our training and equipment.

Heck, we're part of the emergency response so we must be qualified—our

card says so. A fire battalion chief once asked if my radio was certified for use in explosive environments. I didn't know, which probably meant the radio wasn't. We discussed what this means to other responders. All the fire department gear was certified—meaning there were no open switches or contacts that might generate sparks and ignite explosive materials (natural gas, propane, gasoline fumes, etc.).

Some of the chief's concerns include volunteer communications responders as well as media people and bystanders who might be carrying cell phones and pagers. Very few "consumer" electronics are certified for hazardous areas. His firemen have enough to worry about without the fear that some "certified" volunteer will enter a peripheral or downwind area and trigger an explosion or fire.

It's a valid area of concern and another topic for an in-person meeting. After all, my emergency card says "bearer of this pass is a state official or a member of an emergency response organization and authorized access to restricted emergency or disaster areas." There's no small print saying "except hazardous material or infectious hazard areas."

Be careful! You're a valuable resource—take care of yourself. Don't take unnecessary risks. An unnecessary risk is responding to an assignment where your training might be non-existent but assumed.

Hazardous materials

The Department of Transportation published a little orange book called an Emergency Response Guidebook. The cover says it's for first response to hazardous materials incidents.

It contains some great information on identifying and responding to vari-

ous material spills. Do *not* use this book as your only training, however. This is what you would use at the scene to look up placard numbers and determine safety measures. For example, if a tanker truck overturned on the highway and you happened upon the scene, you could look up placard number 1327 and discover the contents were "hay or straw." The response guideline (32) would tell you the contents are flammable.

Yet another tanker identified with placard number 1230 would contain methanol or methyl, or wood alcohol. Response guideline 28 lists the material as poisonous and advises that it's flammable and vapors may travel to a source of ignition and flash back. The guideline also indicates a half mile evacuation in all directions if tank, rail car or tank truck is involved in a fire.

This book is just a guide. It's small enough to carry with your response gear. You can order a copy from J. J. Keller & Associates, 145 W. Wisconsin Ave., P.O. Box 368, Neenah, WI 54957-0368. The cost is \$7.50 each. To order, send a check (which covers shipping) and specify you want product #140RS.

If you happen upon an accident (whether you have the guide book or not) be sure to relay any placard numbers. If there is a hazardous material involved, the response can be initiated sooner for what's involved. The placard may have a large four-digit number or may say something like "blasting agents" or "corrosive." Relay what the placard says to the reporting agency—it's important information.

SAR books

Some of you have asked about SAR and emergency response materials. Three excellent sources come to mind.

The National Association for Search and Rescue maintains a good collection of materials and has classroom instruction stuff as well. Contact their bookstore in care of NASAR, P.O. Box 3709, Fairfax, VA 22038.

Another source is the Emergency Response Institute, 4537 Foxhall Drive NE, Olympia, WA 98506. ERI has all kinds of emergency response textbooks as well as instruction materials. You might check out their fundamentals of SAR or the SAR management materials—they're first rate.

You can also contact Wilderness Technologies Corp., at 13170-B Central Ave. SE, Suite 270, Albuquerque, NM 87123. Among their offerings are an excellent map reference program and a resource location program. Both these programs I would call a "must" for any SAR group. You can also get a nifty resource tracking system called "SARCARD." This fits with Incident

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Value of planning

It's been pointed out in many training classes and during evaluations that one problem with volunteer response groups is their leadership. Usually these leaders are great folks, having been involved in search and rescue for many years. They're just not managers.

Volunteer groups often vote or appoint someone to leadership who has been a great responder; someone whose field rescue (or flying or hiking or communication) skills are top-notch. Yet effective management isn't something you get by majority vote or because you outlasted the competition! Management skills can be learned just like learning to communicate or render first aid. (And some people will be better than others.)

A most overlooked skill is that of planning. When you're headed out the door it's too late to begin planning your initial response. Planning is what you do before you respond and what you do during your "initial response" for your "extended response."

Let's look at a possible scenario. Your group has agreed to provide communication between two agencies. Your mission statement includes what's expected and states some operational limits (like addressing hazardous materials and infection risks). You've pre-planned a response of five communicators who would set up two initial stations (two people each) and a net control (one person at home).

Both agencies know what you'll provide on initial callout and once you've got five people responding, you're set to plan what happens after this four-hour period. Once your people are on scene, they determine that this situation could continue for three days and involve 10 people per day. You can now plan a response by time periods—say 12-hour shifts or six shifts, five persons per shift.

There is often insufficient pre-planning and no continuation planning. Most of the time we (volunteers) get away with this because our emergencies don't last long. We can call everyone, work hard, find the lost person and go home. Oops, the search goes into its second or third day. We're all tired and have no resources—everyone got tired the first day (about half of us just sitting around waiting for an assignment). Now what happens?

Future columns will explore some elements of planning and the effects on efficiency. There are a couple of things you can do right away. First, develop an initial response plan with the agencies that will be calling you. Decide on the most likely scenarios and plan appropriate (and agency acceptable) responses. You'll know what they expect, the agencies will know what you're going to support, and your people will know what to plan by way of training and equipment. (Hint, you can't plan to respond without knowing what your resources are, including people, equipment, experience and training.)

Second, use the old "what if" game and plan some worst-case responses. What if the jet aircraft with 400 people crashes into the Great Salt Lake? What if the refinery explodes? What if a train with hazardous materials derails? What if a once-in-a-century storm hits the East Coast? What if the power goes out for a week? If you've discussed worst-case scenarios and planned accordingly, the "little" stuff won't cause you to panic and make mistakes.

I appreciate your training suggestions, materials, input and questions. Drop me a line and let's hear what you've got on your spring and summer agenda. 73 from Salt Lake City! WR

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Although the mountain of articles, books and papers devoted to designing and honing the low-power transmitter might indicate otherwise, a QRP station's ability to receive is every bit as important as its ability to pump a few watts into a good skywire.

Yes, there is still the occasional Neanderthal thinker who suggests that QRP stations should reply only to the loudest signal on the band, "because the guys with the weaker signals will never hear you." That's nonsense, of course. And having the proper gear to pluck even a weak signal from the bedlam—regardless of your output power—can add to the challenge and enjoyment of QRP operations.

The active audio filter, as a station accessory, has long been a staple of the receiver-improvement crowd. Oak Hills Research, the Big Rapids, Michigan, kit manufacturer and parts distributor, is offering a new filter in kit form, dubbed the SCF-1A, which utilizes a switched capacitor concept.

Developed by Samuel Ulbing, N4UAU, the filter was featured in the October 1992 issue of *QST* magazine. Four chips and 10 diodes in matrix configuration form the backbone of the SCF-1A. Intricacies of the design function are detailed in Ulbing's article. Observations here are, for the most part, empirical: How easily does the kit go together? How well does it work?

First, here's a primer on use of the SCF-1A. Plug the filter's patch cord into the headphone jack of a receiver or transceiver; next, plug your headphones into the filter itself. Now, by simply turning a front-panel rotary switch, you've got the ability to filter

out the QRM surrounding signals both big and small. The switch steps you through a series of -3dB bandwidths ranging from 108 Hz at the filter's narrowest, upward: 230 Hz, 383 Hz, 459 Hz, 574 Hz, and finally to 2,440 Hz at its widest. The filter is capable of beautifully isolating one signal from a raucous pileup.

I fired up the soldering iron and began assembling the SCF-1A midway through a rainy Saturday afternoon, and by mid-evening I was happily using it to sort out CW signals in the fury of the ARRL International Contest. It worked the first time, and worked well—testimony to both the quality of the fundamental circuit design and the kit's parts and instructions.

There was T32AF on 7.030 MHz, picking off one stateside CW signal after another in the contest. For about a half hour I put myself in the T32's shoes. He'd finish one contact, then sit back and try to pick out one of what sounded like 100 stations calling him. I'd listen for the weakest signal in the bunch and then put the filter through its paces. After a little practice I'd have the weak one virtually "all by itself" in a narrow passband of the filter.

One caution, though. At the 108 Hz setting, you'd better have the station you're aiming for tuned to a CW pitch that falls within the filter's narrow skirt. Otherwise, it's "Goodbye, station." Occasionally I found myself clicking the filter back up to the 230 Hz bandwidth so I could fine-tune before narrowing to 108 Hz. Ulbing recommends bandwidths from 230 Hz to 459 Hz for casual CW reception;

2,440 Hz for SSB. I concur.

I would not want to copy CW for long periods at the 108 Hz setting, as the nature of audio in that narrow a corridor takes on the characteristics of listening to the radio through a soda straw. The "ringing" attendant to many active audio filter designs is not apparent in the SCF-1A. There is some hiss at the most narrow settings, but the filter's ability to "pop out" weak signals, as well as to totally isolate the big ones, is quite nice and well worth the small price of lost fidelity. Loss of signal strength through the filter is negligible, making it ideal for weak-signal work. The SCF-1A is as effective on SSB as it is on CW. Oak Hills' specifications show attenuation rising to 30dB just 150 Hz outside the filter's passband. Believe it.

The SCF-1A is first a very good audio filter, and second a great kit for anyone, especially QRPers, who'd like to take the plunge into solid-state homebrewing. There are no coils to wind, no unusual tools or test gear required. There's just one adjustment to make when you're finished putting it together: setting a PC board-mounted potentiometer so the CW pitch you're most comfortable with allows the incoming signal to fall within the filter's narrowest passband. The adjustment tool can be your thumb.

The dual-sided circuit board is silk-screened, with each component's position outlined in white on the green background. Although some of the printing is slightly blurred on the PC board I received, the printed instructions that accompanied the board contain a large template in black and white showing the parts positions. The combination of the two makes assembly a snap and almost foolproof.

Instructions are written in a clear, thorough and straight-forward manner, giving even the neophyte builder enough information to get the job done, but not so much that the project loses its homebrew feel. While the PC board is just 3 3/8 inches by 2 1/8 inches in size, the parts aren't shoehorned into place. There's enough elbow room to prevent inexperienced builders from suffering claustrophobia. Yet the filter rests comfortably in an off-white cabinet that's only 4 3/8 inches wide, 4 1/8 inches deep and 1 1/8 inches high.

The only element of the Oak Hills kit design I question concerns a 35 in. long piece of RG 174/U coax used to connect the filter to a receiver or transceiver. The filter-end of the coax is soldered directly to the unit's PC board and comes out of the cabinet through a rubber grommet on the back panel. From there it leads to the receiver or transceiver's headphone jack. The grommet is much larger

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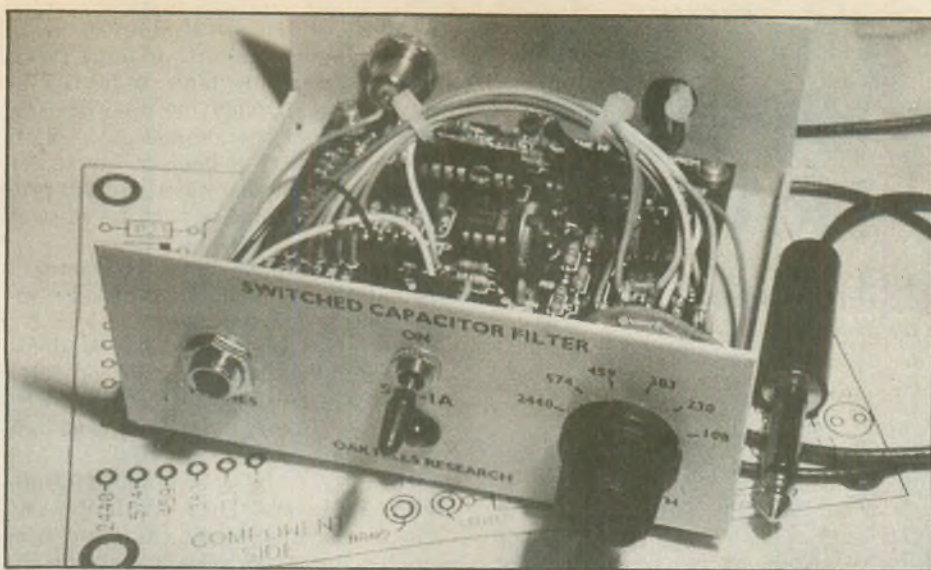
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than the coax, allowing the coax to move freely. If the filter is jostled frequently, or the coax is accidentally given a good yank, the disconnection of the coax at the PC board could be the unhappy result.

I believe a phono jack on the filter's back panel would have been a better way to go, allowing for a patch cord to be plugged not only into the receiver or transceiver, but also into the filter. This would reduce the risk of a poor coax connection and also allow the operator to use various sized phono plugs to patch into any given receiver's headphone jack. The kit comes with a 1/4 in. phono plug, which is just fine for most receiver or transceiver headphone jacks. Many receivers, though, have miniature headphone jacks, so adaptors have to be used to get them wedged to the SCF-1A.

The filter's front and back panels come with first-rate lettering to mark the controls, input and output. A black cover completes the enclosure. Although this filter is definitely a homebrew project, the finished product will in no way detract from the appearance of even the most polished, commercially-stocked radio shack. The SCF-1A comes complete, right down to the little rubber feet for the bottom of the cabinet. Just add a well-regulated 12V power source, and you're up and running. Current drain is on the order of just 50mA.

I ran the test unit off both a battery and an Astron power supply. Both worked fine, making the filter ideal for portable operations as well as home use. Ubling says the filter can be built from scratch for "under \$50." So Oak Hills' \$69.95 price tag seems quite reasonable, given that a nice looking



The SCF-1A switched capacitor active audio filter kit by Oak Hills Research, minus its top cover.

cabinet is part of the package and the need for parts shopping is nil. For more information about the SCF-1A, or for the Oak Hills Research catalog, call 800/842-3748. The mailing address is 20879 Madison St., Big Rapids, MI 49307.

Catalog of the month

In April, we put forth the suggestion that burgeoning homebrewers invest 10 or 15 minutes each month to order catalogs from parts houses. The long-term goal is compiling your own reference "library" that will cut a lot of time and frustration from parts hunting. This month's recommendation is the catalog from All Electronics of Van Nuys, California. As its name implies, there's a little bit of everything in its 60-plus pages. It's free and can be yours by dialing 800/ 826-5432.

The company's mailing address is P.O. Box 567, Van Nuys, CA 91408.

Contest time

QRP Amateur Radio Club International's Hoot Owl Sprint-CW is on 30 May from 2000 to 2400 local time, no matter where you are. It's a fun—and quick—contest offering the added opportunity to increase those QRP Worked All States and DX totals. WR

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Grass roots input

Replies from the last traffic column indicated an overwhelming desire of you, the individual ops who make the NTS work, to be heard. Over the years I have harped on traffic procedures which I feel are important to strengthen the system. This should be a dialogue rather than a monologue. Let's take a grass roots survey, then, and see what you think about the NTS. Here's your chance to kick or praise the system and get your thoughts on record. I will not use your name/call, unless you advise differently. Your input should be the most important response of all, as you do the actual traffic handling. So what do you think?

Mail your answers to me (Geri Sweeney 4728 Neptune Dr., Alexandria, VA 22309). I'll correlate them and publish them in upcoming columns. We might learn some NTS history. Traffic handlers, who have been passing traffic for years, may be able to explain why we do some of the things we do (name/call or call/name). After review, we (ops out in the field) may even want to recommend some changes, or make appropriate changes in our own behavior. So, let the dialogue begin.

Questions from *Worldradio* readers:

1) Which procedures do you believe make a big difference in traffic handling?

2) What's the best thing that's happening in your area? Is it some new innovation (perhaps trying to make a PBBS a 24-hour net with the SYSOP as NCS, handing out certificates to those who check in, pick up, and deliver the NTS traffic)? Is it the bunch of outstanding ops on CW or SSB nets? Is it one person who is making a difference?

Readers in the FL/5RN area might want to tell about how and why they started their unique interchange of traffic. It seems to be working well even though it's not on the routing map. I feel that our NTS procedures were established to give us a rational approach to passing traffic. Often

times we (in the field) innovate even better ways for short or long term. These changes are never reflected in the "official" policy because it's impossible to get any change through official channels. I've been trying to get discussion going on one particular procedure now for years with no idea of what its status may be.

3) Do you have any "characters" who deserve mention as really interesting traffic handlers?

One reader mentioned the Wednesday night "Geriatric bunch" on 5RN which used to read, NCS: Gil/W5RB/OK (93 years old, the rest all over 75 years old); Pat/W4QAT/AL; Louis/W5WZ/MS (the youngest); Bud/W4KIX/FL; and Dick/W5RIT/AK. The reader mentioned that he "personally found it very satisfying to have this much talent and experience accessible to me. And they are a cast of characters in the truest sense of the word."

I quite agree 4RN has its share of mature traffic handlers. While age may cause some numbers on CW to sound unusual (I'm thinking of a nine that generally has six or seven dahs before the arrival of the dit), the savvy behind the fist is usually the best found on nets.

This same reader mentioned that the CW folks in South Dakota have a fine group, and larger than most would expect, given the low population density of the area. Tom, KØERM, is the manager. You might want to just check in occasionally and say hello (0100Z on 3.650 MHz). Fellowship is part of traffic handling. It turns out that the WV CW traffic net meets on the 4RN frequency. This works because they are at different times. VA and WV CW nets both meet at 7 p.m. EST. On the nights I go to 4RN (7:45 p.m.), I move to 3.567, tune, and check in to the WV net if they are still running.

4) How is traffic dealt with in your area (local, sectional nets or PBBS)?

How is traffic correlated with emergency agencies based on preparedness or actual emergency events from the past?

This would be a good question for STMs. If I get enough feedback, I may be able to come up with a map showing NTS activity.

5) If I had my choice of stations to work with at any time, my favorite operator would be _____ . Why?

6) If I had the authority to do so, I would make it punishable by an FCC fine to (pet peeve/practice).

I can't resist being first with an answer: CW NCS, who insist on a response before they tell you what to do — instead of N4GHI up 5, or N4GHI QNX, or N4GHI anything, it's N4GHI (pause); before they will pursue what it is they want you to do, you have to let them know you are still there and paying attention. I am often tempted to respond, "I'm still alive, well, and listening." But, believing more strongly in "least is best," I do not.

7) "What are the characteristics of a good NTS station?"

The replies I received from the last column indicate your interest in hearing from one another and from section traffic managers. One reader not only sent a few questions (as above), but suggested this may open Pandora's Box. We eagerly await your comments.

Counting book traffic

My current crusade is to make a correction to the new way of listing books on nets as one for one. Rather than try to pad our net traffic count, we should decide what works best for the net. In the last column I mentioned that the timing for NCS would be off if books were listed one for one. That is, if you list 15 pieces of traffic for a destination, NCS will assume about two minutes per and consider you have about 30 minutes of traffic for that destination. If it turns out to be a book of five, you have about 10 to 15 minutes of traffic — a third to half the time. Knowing how long a station will be off frequency is crucial for the NCS so that he won't have some stations waiting too long. The general rule is, all things being equal, let the station with the least traffic go first.

Since this was written, another situation arose. One night on 4RN, the Florida station checked in with 17 pieces of traffic for EAN. I was the

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EAN TX. A few other stations checked in with a few pieces, each for EAN. NCS now looks to what appears to be about 27 pieces of traffic to clear in 45 minutes. Thus, he requested another station to help. As it turned out, the Florida 17 was a book of five plus two individual messages. Fifteen minutes later, I was finished with nothing to do. Sometimes we do need to send two stations on to the following net, but it should be because of need rather than inaccurate information. Let me know what you think.

National NTS chairman?

It was good to read in *Section Leader* (a newsletter from the ARRL), about what the VRC (volunteer resources committee) is pursuing in regard to traffic. It mentioned that an item on its agenda for a meeting of 27 March will address whether we need a national chairman for the NTS. What do you think? You will probably conclude that you would need more information. You may ask, what powers would the chairman have? Could he make instant changes in procedures? Would this eliminate bureaucratic red tape, or add another layer? Is it a budget ploy or a power play to add another title? Would he listen to us in the field?

The VRC requests your input no later than 20 March. Since I'm writing this for the May issue, 20 March will have passed. My feelings are that the job of the VRC (or area chairman) should be to gather information on an issue, put it into a reasonable statement (pro and con), and then ask us in the field to vote on it. How does one take a vote of traffic handlers? I have suggested in the past that polls and/or votes could go to all ORS or PSHR members. These traffic handlers care enough to send in a monthly traffic report and are on file at the ARRL HQ.

The networks

Jim Hatherleg, WA1TBY, editor of *The Networks* newsletter, had another great issue for March/April. I wanted to pass on some of the tips that members of EMRI (Eastern Mass./Rhode Island) gave (jamming, packet, originations certificate, how to book traffic, MARS stations, and NCS strengths and weaknesses), but space doesn't permit. Also included was a great historical perspective on some traffic handlers back in the 1930s, who were in the Presidential Range (Pinkham Notch area of New Hampshire). I will include it in a later column. If your region or section has a training or information newsletter, I would enjoy

reading it and passing on some of this information.

Hershey Fun Field Day

This event is being sponsored again this year. From six schools (three meets) last spring, it will jump to 20 schools (10 meets), this year. Each school runs a track-and-field meet with another school. Scores are exchanged via Amateur Radio "real time." It's a natural for traffic handlers.

Silent Key

Paul Wells, W4LQF, 82, became a Silent Key in February. He was a ham for over 50 years and a regular on the VA Phone Net. He was the spirit of the 36th Signal Company and for years has coordinated their reunions via Amateur Radio messages. When veterans died, he continued to send radio messages to their widows, making them feel they were still a part of this great group. Paul was an excellent traffic handler and a great humanitarian.

Valentine's Day message

Florida to Pennsylvania: Dear darlings thank you so much for the wonderful Valentine's message x Miss you both and think of you often love.

Traffic handlers are appreciated! wr

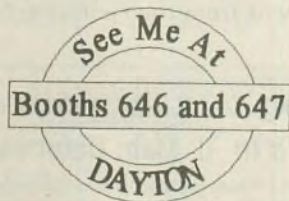


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DX Contest calendar for May

ARI (Italian) DX Contest — 1, 2 May
 CQ M (Russian) DX Contest — 8, 9 May
 WTD World Telecommunications Day — 22, 23 May
 CQ WW WPX CW Contest — 29, 30 May

ARI International DX Contest

This is a worldwide event in which you may work amateurs in all countries: "Everybody works everybody." The '93 contest begins at 2000 UTC, 1 May and ends at 2000 UTC, 2 May. The six regular DX contest bands, 10, 15, 20, 40, 80 and 160M will be used, but *no* WARC bands. Classes of operation are single-op CW, single-op SSB, single-op mixed and multi-op, single TX, mixed. Italian stations will send RS(T) plus a two-letter abbreviation for their province. Contesters in other countries will send RS(T) and a progressive serial number beginning 001. For complete rules send SASE to K4IIF or directly to the ARI HF contest manager, P.O. Box 14, Broni 27403 (PV), Italy. For information on free software for the Italian contest send an SASE to N4ZC. The world high scores in each class in the 1992 ARI Contest were:

Single-op, CW — UA6LTI, 1,014,717 points
 Single-op, SSB — S79CK/D, 2,629,697 points

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Single-op, mixed — RH0E, 3,104,720
 Multi-op — EZ6L, 3,189,917

The top scores in each class for the US and Canada were:

W/K
 Single-op, CW — K6NA, 22,650
 Single-op, SSB — KB0C, 15,012
 Single-op, mixed — K2SX/1, 199,251 VE
 Single-op, CW — VE2UJ, 6,554
 Single-op, SSB — VE3GLX, 103,280
 Multi-op — no entries

The CQ M Contest

The CQ M Peace to the World Contest is sponsored by the ET Krenkel Central Radio Club in Moscow and is held each year on the second full weekend in May. This year's contest will begin at 2100 UTC 8 May and conclude at 2100 UTC 9 May. The six bands, 10, 15, 20, 40, 80 and 160M will be used with the following categories:
 A: single-op, single band (mixed only)
 B: single-op, multi band (CW, SSB and mixed)
 C: multi-op, multi band, single TX (mixed only)

The exchange is RS(T) + QSO number, i.e. 5/9/001 or 5/9/9/001. QSOs in the same "R-150-S" country count one point; between different countries, two points; and between different continents, three points. Multipliers are the countries on the "R-150-S" list and your own country may be worked for multiplier credit. For complete rules send an SASE to K4IIF or directly to CQ M DX Contest, P.O. Box 88, Moscow, Russia. We had hoped to have the results of the 1992 contest for you, but governmental reorganization in Moscow seems to have affected the Central Radio Club's operation in some way and information has been hard to obtain.

World Telecommunications Day

We have not received an official announcement from the sponsors, but if

there is to be a WTD event this year it will begin at 0000 UTC, Saturday, 22 May and finish at 2400 UTC, Sunday, 23 May and will include separate phone and CW contests. It will be a "work the world" type contest on 10-160M with no WARC bands.

CQ WPX CW Contest

This popular event runs for 24 hours, 0000 UTC Saturday, 29 May to 2400 UTC Sunday, 30 May. Complete rules can be found beginning on pg. 44 of CQ magazine for February (disregard the table of contents which indicates pg. 52).

Bermuda contest results

The contest committee of the Radio Society of Bermuda announced the following 1992 winners from the five countries which are eligible to participate in the Bermuda Amateur Radio contest each year:
 USA — Rick Wells, WX2T
 Canada — no winner in '92
 UK — Betty Jackson, G0NYL
 Germany — Gerd Moller, DL6LAM
 Bermuda — Ken Geistfeld, VP9MN

Other Bermuda winners were:

Bermuda YL — Rose Spershott, VP9LP
 Bermuda CW — Luigi Esposito, VP9MNV
 Bermuda Novice — Paul Wilmott, VP9MNU

Would that all contest sponsors were as prompt in reporting their results as Rose, VP9LP, of the Radio Society of Bermuda. She makes the writing of a contest column much easier.

Contesting from overseas — the Carribean

Dave, K8CMO, provided the following interesting account of a trip to St. Kitts for the 1992 ARRL CW DX Contest weekend:

"On Saturday, 8 February, WA5Y and N5IMW left to prepare for the contest on the following weekend, flying from Miami to Antigua and St. Kitts on British West Indies Air. K8CMO departed on Wednesday, 12 February, traveling via San Juan with connections to St. Kitts on American Eagle Airlines. WA5Y carried a Kenwood TS-430 and power supply and a Cushcraft A3 tri-band beam packed in 6 in. PVC pipe with end caps. He also carried an 80M dipole with MFJ antenna tuner. K8CMO brought an Ameritron AL-80 amplifier and dipoles for 40 and 160M.

"The first step in preparing for the contestpedition was securing the license, for which the cost was US \$25. Applications are sent, with copies of US licenses, to Mr. Christian Dove,

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Every year there is at least one contest operation by ZF2JI on Grand Cayman. In the 1992 CQ Worldwide phone, operators included (left to right) Larry Shapiro, KJ6HO; Rick Samoian, WB6OKK; and Paul Playford, W8AEF. Others were Glenn Myers, WB4TIN, and John Ataway, K4IIF. The QSL manager is Chris Williams, KG6AR.

Police Headquarters, Basseterre, St. Kitts, West Indies; 809/465-2241. The normal licensing procedure provides for the issuance of a call with the local prefix before the stateside call, i.e. V47/K8CMO. However, there have been instances when special visitor calls were issued for contest operations. For example, V47MO.

"The group found the Sun 'n Sand Beach Village to be perfect for Amateur Radio purposes, as it features 18 individual cottages or villas, each with two bedrooms, a large living room area, a well-equipped kitchen and two bathrooms. Reservations can be made by phone (809/465-8037 or FAX 809/465-6745). Upon arrival, local amateurs Joel, V44KAI and Ebbie, V44KAS were helpful in raising the antennas.

"In addition to making 3,211 contacts on CW during the contest, the group enjoyed the sights and restaurants on St. Kitts, which, they indicate, is not so commercialized as many of the Caribbean islands."

Africa

Carl, K3RV/EL2CX, writes that Liberia is *not* the place for a contestpedition at this point in time. Quoting his letter: "As you know, I was active as EL2CX while stationed at the American Embassy in Monrovia. Unfortunately, a civil war erupted in early 1990 which ultimately engulfed the entire country. I was forced to evacuate in the summer of 1990 but did have the opportunity to return for brief visits during 1991 and early 1992.

"The country is essentially devastated. In fact, at this time the fighting has resumed and it is unsafe to visit Liberia under *any* circumstances.

Even the relief organizations that were bringing food and medical aid to the people have departed for their own safety. Additionally, there is no government in control and there hasn't been since mid-1990. The country is partitioned by the warring factions, and issuance of radio licenses is not high on their priority list. Having said this, it is probably possible to find someone who will issue a so-called license for a nominal fee, but it will have very little official value. Corruption in Liberia is widespread and there are many con-artists who will attempt to take advantage of foreigners. A handful of foreign relief workers have operated there during the past two years either by signing EL/home call or making up their own EL call sign. Licensing by mail is not feasible at this time because: 1) There is nobody in charge to write to; and 2) The postal service in Liberia is virtually non-existent.

"During the lulls between heavy fighting, there are a few hotels which open intermittently. The best hotel in the country is the Hotel Africa which is also a good QTH for Amateur Radio. However, it has recently been in the center of heavy fighting. The other hotels that have been open include the El Meson (downtown) and the Ambassador (on the beach), both of which also function as brothels. Commercial power is very erratic, but these hotels have generators, when they are in working order.

"When the fighting eventually subsides and air service resumes, it will be possible to fly to Monrovia from Abidjan, Conakry or Freetown. The best option by far is the Air Ivoire service from Abidjan. As I was admitted as a diplomatic visitor, I am not sure what passport/visa requirements will apply. Travel to upcountry Liberia from adjacent countries by road is not recommended, as all of the border areas are controlled by rebel forces and foreigners have been taken hostage in the past.

"There is a travel advisory issued by the Department of State urging all travelers to avoid Liberia. Additionally, all foreigners working/living in the country have been urged to depart and most have done so. I suggest that you refer to *Time* magazine dated 30 November which had a page on the ongoing conflict in Liberia."

Next month's column will have information on operating from Lichtenstein (HB0), some of the Caribbean islands and possibly from a rare African island as well. Maybe we'll even surprise you. We'll also have some interesting DX contest results from Japan. See you next month! 73, John, K4IIF/ZF2JI.

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CONSTRUCTION

The rebirth of "Tiny Tim" Simple 500W 10 - 80M linear amplifier

E.C. VAN DER EECKEN,
K6OGH

Having experienced a couple of sunspot cycles during my ham career, and the marginal contacts during the low point of the cycle, I have come to the conclusion that a low-power (500W) amplifier might be a handy station accessory, especially during the low points of the cycle like the present.

I decided on a unit similar to one featured in 73 many years ago (August of 1971). The article described a small linear called "Tiny Tim" which met all the requirements I had already decided on.

The design should incorporate readily available tubes, have no bias supply and be capable of being driven to full output with 20 to 30W of drive (most present-day exciters can handle this). It had to be built using readily available parts, i.e., materials found at swapmeets, in the junk box, etc., with a circuit the average ham could duplicate.

For starters, I located an old TV power transformer with a 580VAC and a 12.6V center-tapped winding. I had my doubts as to the current handling ability of the 12.6V winding so, to play it safe, I scrounged a filament transformer with two 6.3VAC windings which I hooked in series. The 811s

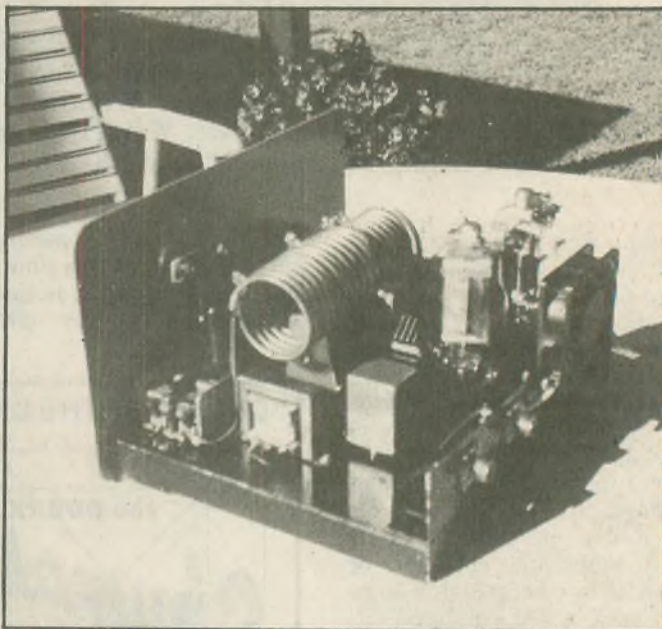
draw 4A of filament current per tube, so a bit of "overkill" is better than frying a transformer.

The power supply consists of a voltage doubler circuit with the following components: six 150uF/325VDC

capacitors hooked in series; a 330K/2W equalizing resistor across each capacitor; a diode network consisting of six 1000PIV/2A diodes with a 220K/2W resistor; and a .01/1kV disk capacitor across each diode. This combination yields 1695VDC with no load and about 1500VDC under load. (Voltage doublers don't have very good voltage regulation.)

If you are fortunate enough to find a transformer with a secondary voltage of 750-800V, you can use a full-wave bridge circuit in the power supply. You won't have as much plate voltage as with the voltage doubler, but the 811s will work fine with 1200V on the plates.

The RF deck parts layout is fairly straightforward, the 811As are vertically mounted toward the rear of the



"Tiny Tim," showing 811 tubes, fan, antenna changeover relay and loading capacitor, plate current meter and associated shunt. Plate tuning capacitor is below the coil; input and output connectors are on the back apron.

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chassis with a 12V fan providing cooling air. (The original Tiny Tim used no forced air cooling and the tubes were mounted horizontally to conserve space which was at a premium. Such is not the case in this configuration.)

I have built two versions of the "Tiny Tim," the other version has the tubes mounted horizontally. This was necessary due to the limited height of the enclosure. If you decide to go this route, be sure to mount the tubes with the filaments in a vertical plane in case the tube elements sag and short out. Again, this may seem rather extreme, but better safe than sorry. Mine has operated for extended periods with no problems.

This version uses a chassis measuring $11\frac{3}{4} \times 9\frac{3}{4} \times 1\frac{3}{8}$ inches. The cabinet measures $12\frac{3}{4} \times 10\frac{1}{2} \times 7\frac{3}{4}$ inches high. The front panel mounts to the chassis using the power switch and transmit switch mounting hardware, and the whole unit slides out of the enclosure for any necessary maintenance or, heaven forbid, any repairs!

The pi-net consists of a 150pF plate loading capacitor, a handwound coil for 10 through 80 using $\frac{3}{16}$ in. copper tubing (if available, $\frac{1}{8}$ in. would be better). The antenna tuning capacitor measures 550pF which is marginal, a better choice would be a dual broadcast type with two 365pF sections in parallel for a total of 730pF. Economy was a factor in my case, so I used what was on hand.

The plate choke is wound on a $\frac{1}{2}$ in. PVC form (the kind of rigid PVC used in sprinkler system risers) long enough to accommodate four inches of #26 Formvar wire close-wound ($5\frac{1}{4}$ inches is fine). The filament choke is also a homebrew unit consisting of 28 bifilar turns of #14 Formvar or Nyclad wire close-wound on a $5\frac{1}{4}$ in. length of ferrite rod, $\frac{1}{2}$ in. diameter.

In addition to the output indicating circuit using a 0-1A meter, if available, use a 0-500mA meter for plate current. I only had a 0-300mA meter, so I wound a shunt to make it read 500mA full scale. I redlined the dial at 375mA, which is about maximum loading for this plate voltage.

As a suggestion to newcomers to the art of homebrewing, procure the following parts initially: transformers, capacitors—both variable and power supply types—tubes and sockets, coils, switches and relay. With these in hand, you will be able to decide on an enclosure and chassis that will be of sufficient size. The power supply is built separate from the RF deck, so the preceding applies here also.

It's a good idea to draw a full-size layout for parts placement before drilling any holes or mounting any components. It may take a little longer, but it's easier to build it right the first time rather than rebuild it. (I've done it both ways, HI!)

Another word of caution is in order here. Depending on the source of your power supply capacitors, if unsure as to their condition, I would suggest applying a lower voltage than the rated value when testing them initially; then gradually increase the voltage until they are able to stand the rated value. This is known as "forming" and may prevent a capacitor blowing out and scaring you out of your wits, not to mention the possibility of zapping a few more components.

Depending on your choice, the coil combination used in the pi-net may be mounted as mine, i.e., in a horizontal

Parts list

- J1, J2 coax connector chassis mount (SO-239)
- F1, F2 5A fuse-plug in assy.
- Z1, Z2 parasitic suppressor, 100-ohm/2W carbon resistor assembled inside $2\frac{1}{2}$ turn coil of #16 enam. $\frac{1}{2}$ in. dia., $\frac{3}{4}$ in. long.
- C1 500pF 20kV TV-type high voltage (doorknob)
- C2 150pF variable
- C3 550pF variable (see text)
- C4, C5 .001uF 2kV ceramic
- CR1 1N34A diode
- S1, S2 single pole, single throw toggle switch
- S3 single pole, six-position rotary switch
- K1 relay 3 pole, double throw 5A contacts, 110V coil
- RFC1 4 in. close-wound #26 Formvar on a $5\frac{1}{4}$ in. PVC form $\frac{1}{2}$ in. dia. (see text)
- RFC2 2.5mH RF choke
- RFC3 28 bifilar turns #14 Formvar or Nyclad wire close-wound on $\frac{1}{2}$ in. dia. $5\frac{1}{2}$ in. long ferrite rod
- M1 DC 0-1A; or 0-500mA if available (see text).
- R2 25 k Ω pot
- R3 22K $\frac{1}{2}$ W
- R4 470 ohm
- R5, R6 30-ohm 10W (full-wave bridge only)
- T1 power transformer 350mA secondary, and 12.6V 4A filament (or two 6.3V 4A windings)
- L1 $7\frac{1}{2}$ turns $\frac{3}{16}$ in. copper tubing, 2 in. inside diameter

Coil band taps—all taps measured from end of C2

- 10M $2\frac{1}{2}$ turns
- 15M $4\frac{1}{2}$ turns
- 20M $9\frac{1}{2}$ turns
- 40M $17\frac{1}{2}$ turns
- 80M all of coil plus 1000pF capacitor

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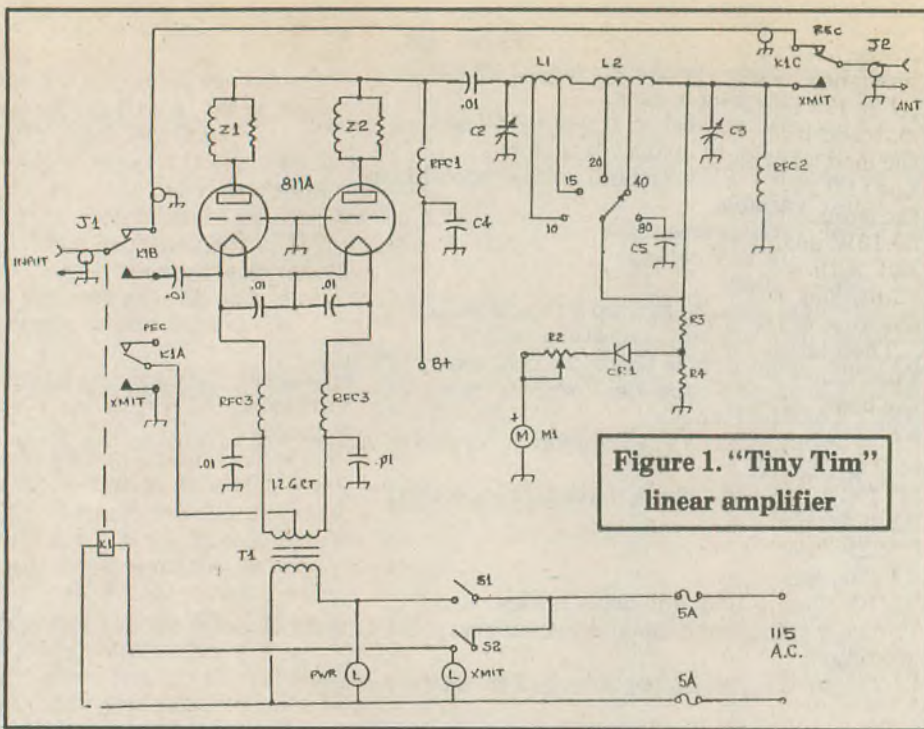


Figure 1. "Tiny Tim" linear amplifier

antenna relay switch S2, and center the output meter using R2. Switch your exciter momentarily to tune, and swing plate tuning capacitor C2 for the most output indication on the output meter. Repeat with antenna loading capacitor C3, and again with C2 until you have peaked the output. Keep plate current under 375mA.

To check for proper operation of the tank circuit for efficiency on each band, antenna loading capacitor C3 plates should be considerably less than fully meshed. If not, this can be easily corrected by changing the band tap so as to add one more turn to the tank coil.

After loading the linear on your favorite band, carefully loosen the set screws on the C2 and C3 knobs and rotate the knobs so the markers are vertical. This will give a reference for future tuneups.

I am very fortunate to be a personal friend of Russ Covington, WA6VLI, the designer of the original Tiny Tim, and prior to re-configuring the design we had a few discussions and a few

plane, or you may choose to mount both vertically, in which case, allow clearance from any metal of one coil diameter to prevent de-tuning effects.

Check all wiring at the relay and power plug with an ohmmeter for possible shorts before applying power initially. To check the pi-net for any possible shorts, lift RFC2 from ground and check both C2 and C3, holding one probe on the ungrounded side and the other probe to ground, and while rotating each capacitor, check for any plates touching the stators which will cause the ohmmeter to deflect, indicating a short, which must be corrected before proceeding.

Keep in mind that the voltage levels in Tiny Tim are not what the name might lead one to believe; they are lethal! So exercise all proper safety

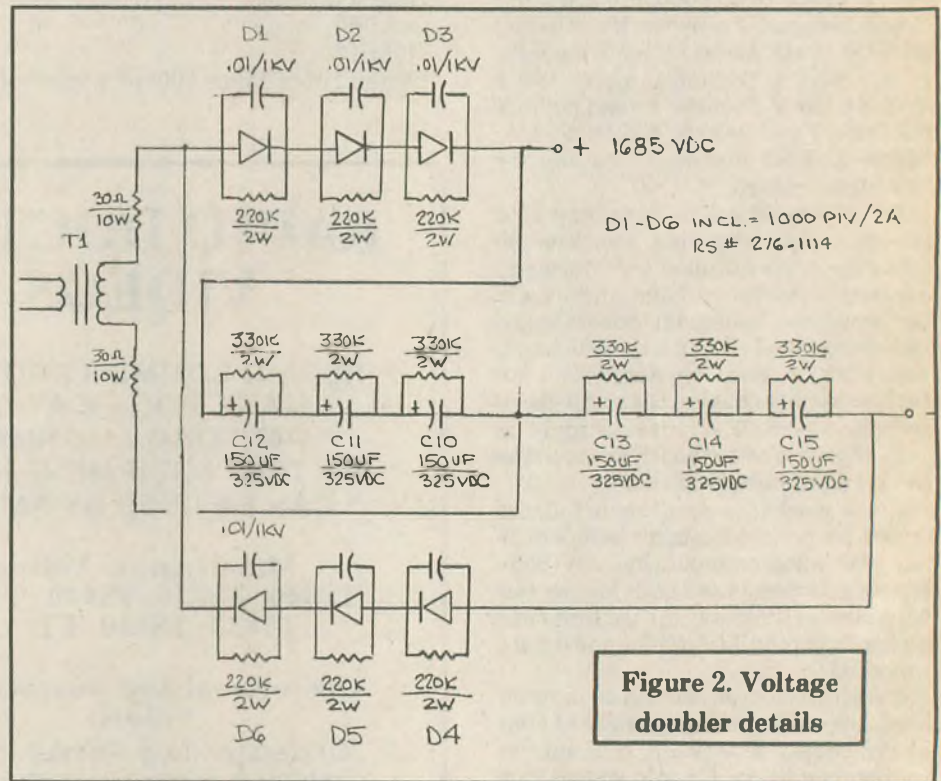


Figure 2. Voltage doubler details

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precautions when working on the unit, kill all power and discharge power supply capacitors before doing any work.

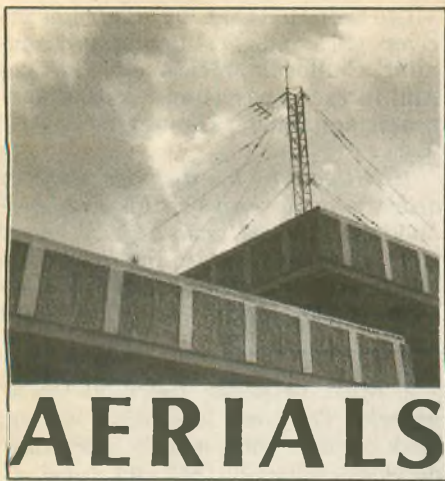
Tuneup procedure

Load your exciter into a 50-ohm dummy load with linear amplifier relay switch S2 off. Note that the antenna relay is still active with S2*on, even when the linear AC power switch is off. After normal exciter loading, turn on

more before actual construction started. His junk box was a great source for many of the parts!

This is a great little linear which meets all the criteria mentioned at the beginning of the article. I hope you have as much fun building this jewel as I have. Any questions may be directed to me, but please provide an SASE. I will endeavor to answer all to the best of my ability.

WR



KURT N. STERBA

Reading is dangerous to my health. I'm looking at an article in a magazine in which the writer strings out various levels of SWR and attaches "power loss in dBs" to them.

There is no mention made of the frequency at which these SWRs are found, nor is any mention made of the feedline length or the type of feedline.

I digress. Some gentle readers have written in saying that I just keep going over the same material. Yes! That's because the same drivel keeps coming out, so I keep trying to steer folks in the right direction.

Another reader said that he was going to write me a letter saying I keep hitting the same notes, but then he listened to an antenna discussion on 75. He wrote the letter all right, but instead said, "Keep up the effort. It is still needed."

Another reader wondered if I was just making these things up in order to have a "straw man" to hit.

Hey! To paraphrase the famous movie line, "I don't have to make up no stinking articles."

You know that Lil always acts so hoity toity because she's English. Well, I looked in one of the books she just got from Hemel, Hemstead, Hertfordshire, etc., and it was BAD.

One entire page was devoted to showing various VSWR levels and for each level was "proportion of power transmitted (percent)."

It got down to 19 percent at 1:20. Again, absolutely no mention was made of what the frequency was, the length of the feedline or what kind of feedline.

I wish I could get one of the big gongs that they used to hit at the beginning of those snooty J. Arthur Rank movies. I'd hit that gong and then say, "The only loss from SWR is in the feedline, and how much loss can there be in nearly lossless feedline?" (100 feet, RG-8 foam, 20M, SWR=20; dB loss from SWR, 3dB.)

Now, let us face toward Florida and

take three deep bows as we quote from *Reflections* by Walt Maxwell, W2DU, published by the ARRL, pages 4-10.

"In 175 feet of RG-8 at 4 MHz, the matched-line attenuation is 0.5dB. If the load were perfectly matched to the line (1.0 SWR), the 100W delivered by the transmitter would be attenuated to 89.13W during the travel to the load. But with a 3:1 mismatched load the additional one-way line attenuation (because of the SWR) is 0.288dB."

Then follows the explanation for all this. That's why you pay your \$20 for the book. After all those numbers, you will read: "The 5.72W difference between the power absorbed in the matched load and the 3:1 mismatched load (0.288dB) is insignificant. It actually amounts to less than 1/12 of an S-unit."

Okay, did you get that "one-twelfth" of an S-unit? (Hey, Bob, what did you do over at your station? Instead of your usual S9, tonight you're down to S8 plus about 5 and 91/100dB.)

Plus, in his example Maxwell used a feedline of 175 feet. I don't think there are many 175 ft. feedlines being used on 75. From the conversations you hear there, I think the feedline only reaches as far as the bars (used for an antenna) on the cell window.

Sadly, there are a couple of blips in

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AO, YOC, and NEC/Yagis require a math coprocessor; MN and YO come with both coprocessor and noncoprocessor versions. All programs include extensive documentation. Inquire about commercial licenses. Add 7.25% CA, \$5 overseas. Visa, MasterCard, U.S. check, cash, or money order. For IBM PC, 3.5" or 5.25" disk.

Brian Beezley, K6STI
507 1/2 Taylor, Vista, CA 92084
619-945-9824, 0700-1800 Pacific Time

The ARRL Antenna Compendium, Volume 2, page 145. The gain of an eight wavelength wire on 20M, it is my sad duty to relate, is *not* 19.5dBd. Closer to half of that is correct, and the typical quarter-wave vertical is *not* an end-fed antenna—it's a center-fed antenna. The high current is right there at the feedpoint. It is the center of a dipole that goes one quarter-wave vertically and the other half of the dipole which is made up of the ground and or ground radials.

One writer said, "120 radials is enough for a ground-mounted vertical. Any less is a compromise."

Well, woe is me. I ran out of wire after laying down only 119. Now I'm stuck with a totally inferior station.

An advertisement for an antenna company quotes someone using their particular brand of beam. We are told that with only 100W their station, at any distance near or far, in comparison with stations running amplifiers and conventional antennas, beat them by from one to three S-units.

Let's see now, three S-units, that's 18dB. And since that's with a 10dB power disadvantage, we realize that such an antenna is obviously 28dB better than their competitors. Whoopee!

Have you noticed that people on the East Coast are much smarter than people on the West Coast?

Sure they are! There's an antenna manufacturer (let's call them The Atlantic Co.) whose gain figures for the same number elements and boom length are far higher than the three antenna makers from states bordering the Pacific.

Must be those western guys are just spending too much time on their surfboards to really pay any attention to antennas. Too bad. Especially when they have that computer guy out there to help them. I'm just baffled why anyone would buy, let's say, a four-element Yagi with a mere 8.5dB gain from one company when there is another antenna with so very much more claimed gain.

Amusing what shows up in one particular periodical. Just appearing in the latest issue are verticals, each nine feet in length, for each of the bands, 40 to 10, at \$100 apiece!

Naturally, it's claimed that the per-

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formance is "incredible."

The word "revolutionary" is used. Do all these guys just pass around the same book of adjectives? Of course, they are "unique," but what's the difference between these and a mobile antenna?

Let's see, I could buy three of those separate antennas for 20, 15, and 10 for \$300 or I could buy a Mobile Mark HW-3 (20-15-10) from AXM in Garden Grove, California, for \$69.95.

For those who lived through the Depression, that \$230 difference still looks pretty big. How much difference in performance would there be?

Well, in the ARRL DX Contest in early March, with the AXM I made 17 contacts in 20 minutes once. More about that next month. I do have some new antenna configurations to toss out for you to try. Also, many absolutely brilliant letters have arrived from readers, and we'll be sharing them with you.

I've been told that *Aerials II* has arrived. (\$11 and \$2 shipping and handling. California, please add 86¢ tax.) And in each book is an 8 x 10 photograph, suitable for framing.

(KNS goes by his disguise name in order to avoid hams in his neighborhood gawking at him as he, with emery cloth, puts the final tuning touches on the tips of the elements of his four-element 80M Yagi.) WR

How big is "big"?

Minimal mismatch with 75-ohm coax

Dear OM Kurt,

Well, you did it. You printed my letter in the March issue of *Worldradio*—you know, the one about "invisible" antennas. Now everyone (from ghost writers to poltergeists) wants to know about invisible antennas. It will be especially scary when Halloween comes around and goblins start inquiring too.

I read your column religiously (to scare off the demons) and agree with most everything you ramble on about. One thing I have not read in your column, at least not recently or it would have come to my feeble mind, is about coaxial cables. This is a subject on which I have some expertise (you know, an expert is someone more than 50 miles from home, carrying a briefcase), and it ruffles my feathers a great deal to hear so much misinformation bandied about on the bands.

Most recently, I received a local radio club newsletter where the technical chairman for the club advised readers to "never use 75-ohm coax, as this will give you a big mismatch and reflections in a 50-ohm system."

I'm not sure how big "big" is, but a 75-ohm line terminated in a 50-ohm load will only have an SWR of 1.5:1, which doesn't sound very big to me. Probably the author of this article didn't realize two important facts:

1. 75-ohm coaxial cable, for a given diameter and dielectric material, actually has less transmission loss than 50-ohm cable. (Fifty ohms was settled on as "standard" for two-way systems because it represents a good compromise between attenuation, which is minimized at 75 ohms characteristic Z, and power handling ability, which is maximized at 30 ohms characteristic Z. Most all "receive-only" systems, where attenuation is the only relevant parameter and power handling is unimportant, use 75-ohm transmission lines exclusively for this reason.)

2. Most antennas aren't 50 ohms, anyway. They only look like a 50-ohm load because they employ matching networks adjusted this way. Most of these networks could easily be retuned or redesigned to match to 75 ohms; then, if a 75-ohm feedline were used, the SWR would be 1.0:1.

Surely there's nothing wrong with using 50-ohm coaxial cable, and I happen to sell lots of it. The good stuff is pretty good, and even a lot of the newer RG8X "mini 8" cables are pretty high quality and can effectively be used up through at least the HF spectrum. RG213/U (the mil-spec replacement for RG8/U, which is now technically obsolete, having been deleted from MIL-C-17) is very good cable, and RG217/U, Belden 9913 etc. can be put to good use right up through the UHF bands.

Using 50-ohm cable is handy, and our wattmeters and SWR bridges will offer reasonably accurate indications when used in 50-ohm systems. Using a 50-ohm wattmeter (most of which are only 50-ohm open transmission lines coupled to square-law detectors and are calibrated in watts as a function of E^2/R) in a 75-ohm system will yield inaccurate readings, unless these meters are first modified. But, other than this reasonably minor instrumentation adjustment, I cannot think of any explanation as to why 75-ohm lines and antennas should be shunned.

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CONTESTS

Aren't they "tuned" to be 50-ohm sources? Not at all! Modern-day HF rigs have internal ATUs which will generate as much power into 75 ohms as 50. Modern-day VHF rigs mostly use hybridized "brick" amplifiers with feedback and ALC loops and are actually very low-impedance sources capable of driving almost anything. But their "SWR protection" circuitry will reduce drive to their PAs if much reflected power exists, so the reflected power sampling circuit will need to be modified to reference to 75 ohms, rather than 50, to allow them to produce full output. This is about a 60-second modification in most of my rigs. (Although, getting the covers off the rigs can take a lot more time than this!)

What about our receivers? Aren't they "tuned" to be 50-ohm terminations? Hogwash! I measured the input match to every rig I own (a lot of them) and most are horrible 50-ohm terminations. Typically, especially the VHF rigs are optimized for maximum sensitivity which corresponds to minimum noise figure, and that tune point is a far departure from a good 50-ohm match. They can all be retweaked for maximum sensitivity over a broad range of impedances. (Don't transmit into your receivers to check input SWR, kids. I use a low-level signal generator, 20dB directional coupler and a microwattmeter to make these measurements.)

So much for the theory of hams having to use 50-ohm feedlines. They work, and they're convenient. But if you can get hold of half a mile of 75-ohm "hardline" as cable TV surplus, and you don't use it simply because it's not 50 ohms, well, it's your money going down the tubes.

Lots more can be written about transmission lines. Most hams don't even seem to know why coaxial cable was invented or why we use it. The background info is interesting and educational—and will lead amateurs to make more intelligent decisions. But maybe that's not such a great idea. After all, if you know *too* much, you won't be buying those 9dB gain omnidirectional antennas that are only a half wave long, and their manufacturers will go out of business, causing more unemployment and greater strife. Forget everything I said.

STEVEN KATZ, WB2WIK
Canoga Park, CA

WR

Here I lean on the box
Smile'n like the sly old fox!
Feel'n great and really swell
Now I got your QSL!

F. Sakemiller, W9PRV

Nevada QSO Party

Sponsored by the Frontier Amateur Radio Society, the party will be from 0000Z 8 May until 0600Z 9 May.

Operation: A station may be worked once per band per mode; one phone contact and one other type mode per band.

Exchange: Exchange signal report and state, province, or country (Nevada stations also give county).

Frequencies: 6 through 160M. Modes: CW, SSB, RTTY, SSTV, packet.

Scoring: Count one point for phone QSO and two points for other mode QSOs.

Non-Nevada stations multiply by state, province, or country total.

Awards: Certificates to top score each state, province, or DXCC country, General and above, Novice and Technician.

Logs: Send logs no later than 15 June 1993, to Jim Frye, NW7O, 4120 Oakhill Ave., Las Vegas, NV 89121.

Oregon QSO Party

Sponsored by the Central Oregon Radio Amateurs ARC and the Central Oregon DX Club, the party will be from 0000Z 1 May until 2400Z 2 May.

Operation: A station may be worked once per band per mode, mobiles as they cross county lines. No repeater QSOs. Oregon stations may contact other Oregon stations for QSO and multiplier credit.

Exchange: Oregon stations give serial number and county. Other stations exchange serial number and state, province, or country.

Frequencies: (+ or - 10 kHz): CW: -1.810, 3.540, 7.040, 14.040, 21.040, 28.040. Phone: -1.860, 3.850, 7.230, 14.250, 21.300, 28.400.

Scoring: Count two points per phone QSO and four points per CW QSO.

Oregon stations multiply QSO points by state, province or country total.

Logs: Send logs no later than 1 August 1993 to: Bill Sawders, K7ZM, 19821 Ponderosa St., Bend, OR 97702.

Michigan QSO Party

Operating periods for this contest will be from 1800Z 15 May to 0300Z 16 May, and 1100Z 16 May to 0200Z 17 May, 1993.

Exchanges: RS(T), QSO#, QTH, county for Michigan; state or country for non-Michigan.

Scoring: Multipliers are counted only once. *Michigan stations:* - one point per QSO multiplied by (states + countries + Michigan counties) on phone. Each CW contact is two points per QSO. Alaska and Hawaii count as states. VE counts as a country. Maximum multiplier is 85. Five points for each W8MB contact. *Non-Michigan stations:* - QSO points multiplied by Michigan counties. One point for each Michigan phone QSO and two points

for CW contact. Five points for each club station contact with W8MB/W8MB/mobile. Maximum multiplier is 83. VHF-only entries: same as above except multipliers per VHF band are added together for total multipliers. No repeater contacts are allowed.

Suggested Frequencies: CW: -1.810, 3.540, 3.725, 7.035, 7.125, 14.035, 21.035, 21.125, 28.035, 28.125. Phone: -1.855, 3.905, 7.280, 14.280, 21.380, 28.580. VHF: -50.125, 145.025, 146.52.

Awards: Michigan: plaques for high/multi-operator/single transmitter score; high Michigan score; high Michigan (upper peninsula) score; high aggregate club score and high VHF-only entry (minimum of 100 QSOs); and high Michigan mobile score. Certificates for high score for each county (minimum of 50 QSOs). Non-Michigan: high out-state plaque and certificates for high score each state and country.

Logs: A log and summary sheet is requested showing the scoring and other pertinent information, name and address in block letters and a signed declaration that all rules and regulations have been observed. Michigan stations include club name for combined club score. Party contacts do not count toward the Michigan Achievement Award unless one fact about Michigan is communicated. Members of the Michigan QSO Party committee are not eligible for individual awards. Decisions of the contest committee are final. Results will be final on 31 July 1993 and will be mailed to all entries that have sent in an SASE. Mailing deadline is 1 July 1993. Send logs to Mark Shaw, K8ED, 27600 Franklin Road, Apt. 816, Southfield, MI 48034.

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California

THE VALLEY OF THE MOON ARC is holding its semi-annual hamfest on 1 May from 8 a.m. at the Sonoma Developmental Center in Glen Ellen. Features include a "ham" and egg breakfast, swapmeet, special event station, novice antenna building, ATV and packet radio demonstration and VE exams with registration at 10 a.m. Admission is free. Swap spaces are \$10. Breakfast is \$5. Talk-in on 147.47 simplex and 145.35 (-600) repeater. Contact Darrel, WD6BOR, at 707/996-4494.

Colorado

THE PIKES PEAK RADIO AMATEUR ASSOCIATION will hold a ham radio and computer swapfest on 15 May from 8 a.m. to 4 p.m. at the City Auditorium in Colorado Springs. Features include refreshments, ham gear, computers and electronics, and VE exams at 9 a.m. Admission is \$3. Table (8 ft.) including space and one chair is \$10. Talk-in on 146.97/146.52. Contact Doug Paris, N4TGO, at 719/495-9346.

THE WESTERN COLORADO ARC will hold its annual hamfest on 1 May from 9 a.m. to 2 p.m. in Liff Auditorium at Mesa State College. Features include seminars and VE exams. Talk-in on 146.94. Call 303/242-6035 for information.

Illinois

THE CHICAGO ARC will hold a hamfest on 30 May from 8 a.m. to 3 p.m. at DeVry Institute of Technology in Chicago. Features include free flea market set-up and parking, and VE exams. Admission is \$3 in advance and \$4 at the gate. Indoor table space available at \$1.50 per foot in advance. Talk-in on 147.255+ 107.2, 444.825+. Contact CARC, c/o Dean Woodman, NB9Z, 1501 Ashland, Evanston, IL 60201-4001, or W9CAF packet on 144.930. Info available at 312/666-1606; 312/545-3622.

Iowa

THE CENTRAL IOWA RAS will hold Hamfest '93 on 15 May at the Marshalltown Community College in Marshalltown. Features include a kitchen to pick up lunch, hot coffee, soft drinks, rolls, etc., tailgating space, plenty of parking and VE exams. For more info, contact Peter Gavagan, NØSMF, P.O. Box 477, Green Mountain, IA 50637; 515/474-2324 evenings.

Louisiana

THE BATON ROUGE ARC will sponsor a hamfest and the ARRL State Convention on 1-2 May at the Great Hall in Baton Rouge. Features include vendors, flea market, forums, displays, ladies' activities, prizes, Saturday night banquet and VE testing. Admission is \$3. For more info, contact Herb Ramey, KB5AQ, BRARC, P.O. Box 4004, Baton Rouge, LA 70821; 504/346-0000 days or 504/654-6087 eves.

Maryland

THE ANTIETAM RADIO ASSOCIATION will hold a hamfest on 16 May from 8:30 a.m. to 3:30 p.m. at Hagerstown Junior College Athletic and Recreation Center. Features include tailgating, indoor tables, prizes and VE exams. Admission is \$5, children under 12 admitted free. Tables are \$20 in advance and \$25 at the door. Vendor set-up time is 7 a.m. Talk-in on 146.34/146.94. Contact Fred Bailey, N3HTN, at 301/416-8079.

Michigan

THE INDEPENDENT REPEATER ASSOCIATION will hold their 13th Annual Hamfestival on 22 May from 8 a.m. to 4 p.m. at the Wyoming National Guard Armory in Grand Rapids. Admission is \$4, kids under 12 admitted free. Tables are \$4 each. Vendor set-up time is 6 a.m. Talk-in on 147.160. Contact Tom or Kathy Werkema, KA8YSM/KB8KZH, at 616/698-6627.

THE WEXAUKEE ARC will hold its annual Swap 'N Shop and Eyeball QSO on 15 May from 8 a.m. at the Cadillac Middle School in Cadillac. Talk-in on 146.98. Contact Dan Schmidt, KE8KU, Wexaukee ARC, P.O. Box 163, Cadillac, MI 49601; 616/775-0998.

Minnesota

THE PAUL BUNYAN ARC will hold its annual hamfest on 2 May from 8 a.m. to 3:30 p.m. at the Moose Club in Bemidji. Features include a pancake breakfast, lunch, dealers, flea market and VE exams. Talk-in on 146.13/73. For more info, contact Roben Beyer, P.O. Box 524, Bemidji, MN 56601; 218/751-4801.

Missouri

THE PHD ARA will sponsor the 1993 PHD KC Midwest Amateur Radio Convention on 22 May from 8:30 a.m. to 4 p.m. at the KC Market Center in Kansas City. Features include free parking, refreshments and indoor exhibit space. Display space is \$100 per booth. Vendor set-up is 21 May. For more info, contact Chuck Miller, WAØKUH, PHD ARA, P.O. Box 11, Liberty, MO 64068-0011; 816/781-7313 or 816/792-7313.

New York

THE METRO 70cm NETWORK will hold a giant electronic flea market on 2 May from 9 a.m. to 3 p.m. at Lincoln High School in Yonkers. Features include free parking, door prizes, food, free coffee and VE exams. Admission is \$5, kids under 12 admitted free. First table \$15, each additional table \$10, or bring your own table at \$1.50 per foot, minimum \$10. Vendor set-up time is 7 a.m. Talk-in on 440.425 PL 156.7; 223.780 PL 57.0; 146.910, 443.350 PL 156.7. Contact Otto Supliski, WB2SLQ, Metro 70cm Network, 53 Hayward St., Yonkers, NY 10704; 914/969-1053.

THE SOUTHERN TIER ARC is holding a hamfest on 1 May from 8 a.m. to 4 p.m. at Marvin Park Fairgrounds in Owego. Features include seminars, ARRL forum, vendor exhibits, indoor and outdoor flea markets, refreshments, tailgating and VE testing. Admission is \$3 in advance and \$4 at the gate. Tailgating is \$2 extra. Tables are \$15. The Banquet is \$18 per person in advance. Talk-in on 146.16/76 or 146.52/52. Contact STARC, P.O. Box 7082, Endicott, NY 13761-7082.

THE ROCHESTER ARA is sponsoring the 1993 Rochester Hamfest and Computer Show 22-23 May from 8:30 a.m. to 5:30 p.m. Saturday and 8:30 a.m. to 1:30 p.m. Sunday at the Monroe County Fairgrounds in Henrietta. For more information, contact the Rochester ARA, 300 White Spruce Blvd., Rochester, NY 14623; 716/424-7184.

North Carolina

THE DURHAM FM ASSOCIATION will hold their annual hamfest on 29 May from 8 a.m. to 3 p.m. at the South Square Mall in Durham. VE exams will begin at 9 a.m. at Githens Middle School. Talk-in on 145.45 and 147.225. For more info, contact Terry Murphy, AB4VJ, P.O. Box 61971, Durham, NC 27705-1971.

Ohio

THE 20/9 RADIO CLUB is holding a hamfest on 23 May from 8 a.m. to 3 p.m. at the Canfield Fairgrounds in Canfield. Features include outdoor flea market prizes, free parking, refreshments and handicap parking and facilities. Admission is \$3 in advance and \$4 at the gate. Inside tables are \$8 per 8 ft. table. Vendor set-up time is 6:30 a.m. Talk-in on 147.315+, 443.225+ or 223.500 simplex. Contact Don Stoddard, N8LNE, 42 S. Whitney Ave., Youngstown, OH 44509; 216/793-7072.

THE ATHENS COUNTY ARA will hold its 14th annual hamfest on 9 May from 8 a.m. to 3 p.m. at the City Recreation Center in Athens. Features include free paved outdoor flea market space. Admission is \$4 and in honor of Mother's Day, YLs and XYLs will be admitted free. Talk-in on 145.15+. Contact Carl J. Denbow, KA8JXG, 63 Morris Ave., Athens, OH 45701-1939.

THE HENRY CO ARC, DEFIANCE CO ARC and FULTON CO ARC are sponsoring the NW Ohio Tri-County Hamfest on 16 May from 8 a.m. to 4 p.m. at the Fulton County Fairgrounds. Features include outside flea market spaces, prizes, VE exams and camping spots for \$10 per unit. Admission is \$3 in advance and \$4 at the door, with children under 12 admitted free. Inside tables are \$10, outside flea market spaces are \$3 per vehicle space. Vendor set-up times are Saturday evening and 6-8 a.m. Sunday. Talk-in on 147.195+. Call 419/335-1684.

Oregon

THE KENO ARC is holding the second annual South Central Oregon Hamfest on 1 May at the Klamath Falls National Guard Armory in Klamath Falls. Features include exhibitor booths, flea market tables, laser and special event demonstrations, food concessions and VE exams. Tables (10 ft.) are \$10 each. For more info, contact South Central Hamfest c/o Sue Buzzard, N7QZH, P.O. Box 294, Keno, OR 97627, or call Tom Hamilton, WD6EAW, at 503/883-2736.

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Rhode Island

THE RHODE ISLAND AMATEUR FM REPEATER SERVICE, Inc. will hold their annual spring auction and flea market on 15 May from 8 a.m. to 3 p.m. at the VFW Post 6342 in Forestdale. Coffee, donuts, food and beverages available. Flea market spaces are \$5 each. Auction begins at 11 a.m. Talk-in on 146.76. Contact Rick Fairweather, K1KYI, 106 Chaplin St., Pawtucket, RI 02861; 401/725-7507 between 7 and 8 p.m.

Tennessee

THE MIDDLE TENNESSEEDXARC will sponsor the Murfreesboro, TN Hamfest on 8 May from 8 a.m. to 4 p.m. at the Rutherford County Agriculture Center in Murfreesboro. Features include DX forums, DXCC QSL checking, concessions and VE exams at 9 a.m. Vendor set-up times will be available Friday evening and before opening time on Saturday. Talk-in on 144.63, 145.23. Contact Jerry Sartain, KC4ALG, 475 S. Fawn Ct., Murfreesboro, TN 37129; 615/890-9358.

Texas

THE KEY CITY ARC will sponsor the ARRL West Texas Section Convention and Hamfest 1-2 May from 8 a.m. to 5 p.m. Saturday and 9 a.m. to 3 p.m. Sunday at the Abilene Civic Center. Features include free parking, wheelchair access and VE exams. Admission is \$6 in advance and \$7 at the door. Tables are \$5 each. Talk-in on 146.160/760. Contact Peg Richard, KA4UPA, 1442 Lakeside Dr., Abilene, TX 79602; 915/672-8889.

Washington

THE STANWOOD-CAMANO ARC will hold their second annual electronic flea market and swapmeet on 1 May from 9 a.m. to 3 p.m. one mile south of Stanwood on Pioneer Highway. Features include free parking, prizes, food and commercial tables. Admission is \$3 at the gate. Tables are \$15 in advance, \$20 at the gate. Vendor set-up time is 7:30 a.m. Talk-in on 145.19 repeater or 147.57 simplex. Contact Mark, WA7UGB, SCARC, P.O. Box 941, Stanwood, WA 98292; 206/387-1097.

THE YAKIMA ARC is sponsoring the annual Washington State Section Hamfest on 15 May from 8 a.m. to 5 p.m. at Selah Middle School Gymnasium in Selah. Features include packet forum, classes, potluck picnic, RV parking and VE exams at 10 a.m. Swap tables are \$8 per 8 ft. table (or space). Vendor set-up times are 5-9 p.m. Friday and 7 a.m. Saturday. Talk-in on 146.66, 444.800 and 146.52 simplex. Contact KF7ZS, Yakima ARC, P.O. Box 9211, Yakima, WA 98909-0211; 509/697-8080.

West Virginia

THE TRIPLE STATES ARC will hold their 16th annual Wheeling Hamfest and Computer Show on 16 May from 8 a.m. to 3 p.m. at the White Palace-Wheeling Park in Wheeling. Features include free flea market space, ATV demos, seminars and forums, free parking, free overnight RV parking, two restaurants and a computer section. Admission is \$2 in advance and \$3 at the door, with kids 17 and under and women admitted free. Talk-in on 146.91. Contact TSRAC, Box 240 RD1, Adena, OH 43901; 614/546-3930.

Wisconsin

THE MANCORAD RC will sponsor a hamfest on 8 May from 8 a.m. at the Manitowoc County Expo Center. Features include a flea market, refreshments and VE exams. Admission is \$2 in advance and \$3 at the door. Eight-foot tables

are \$3, with electric outlet \$8. Vendor set-up times are Friday night until 11 p.m. and Saturday morning at 6 a.m. Talk-in on 146.01/61. For more info, send SASE to Mancorad RC, P.O. Box 204, Manitowoc, WI 54221-0204, or call Red at 414/684-9097 days or Ron at 414/793-4733 evenings.

Volunteer news service

LINDA REEDER, N7HVF

The *Amateur Radio News Line* is heard weekly on information nets nationwide. The service is supported by donations from amateurs who want to see it continue.

News Line was brought about during a discussion over ice cream between Jim Hendershot, WA6VQP, and Bill Pasternak, WA6ITF. This was back in 1976 when there was only one repeater subband on 2M, 146-148 MHz, and hams from all over the country were petitioning the FCC for more space. Jim wanted to do a news cast strictly about repeater deregulation and how it was going to affect the Los Angeles area. Bill Pasternak said he would help, since he already had experience in writing *The Looking West*

column for *73* magazine. Another ham, Wayne Rankin, WA2MPG, had a recording studio in his home and said they could use it. So they went to the Santa Barbara hamfest and interviewed many people.

Jim called his news cast *The West Link Amateur News*. "*West Link*" came from a project that Jim was working on which never materialized. Several years later they had to change the name because there was a newsletter called *The West Link Report* which had nothing to do with this news service and was a money-making project as well.

The name was changed to *The Amateur Radio News Line*. His first news cast was aired 27 September 1976. It was 33 minutes long and was aired on the 220 band. Since there were no repeaters on the 220 band back then, Wayne Rankin aired it upon the mountaintop on Contractors Point so that they could reach more people. The people loved it and wanted more.

About a year and a half later Jim got married and, since he was planning to move to northern California, he asked Bill if he would take over the news service. Bill said he would if he could find some help, which he found from his good friend Bill Orenstein, KH6QX, an NBC broadcast engineer running the public address system for the *Tonight Show*.

As time went on, the service grew. Now there are over 50 reporters; the service has representatives from all over the world, and the *News Line* is quick at getting the latest news stories.

If you enjoy this service and would like to see it continue, you may make a contribution care of Dr. Norm Chalfin, K6PGX, P.O. Box 463, Pasadena, California 91102. The money goes toward phone bills and maintaining equipment such as cart machines, tape machines and E-mail—all of those things which make it possible for the *News Line* to bring this service to you. WR

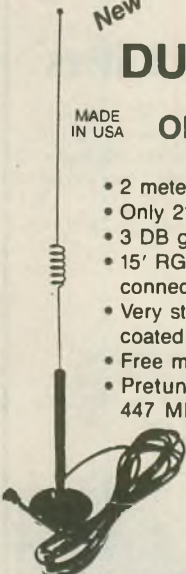
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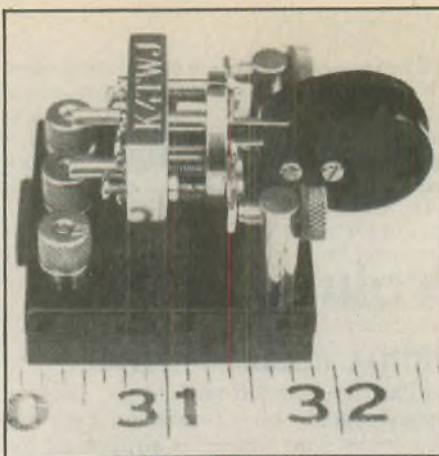
NEW PRODUCTS

Information in "New Products" is supplied by the manufacturers to acquaint *Worldradio* readers with new products on the market.

G4ZPY mini paddle

G4ZPY announces the new miniature three-in-one Twin Paddle. G4ZPY, distinguished manufacturer of hand-crafted paddles and keys, responds to numerous requests for a portable paddle with the new three-in-one miniature twin-lever paddle.

Although the three-in-one is perfect for home station use, it is especially designed for QRP, mobile and backpacking applications. This pocket-size paddle consists of a highly polished brass mechanism assembled with chrome screws and fitted with tiny oval black fingerpieces. This design gives the three-in-



one the same feel as G4ZPY's full-size and popular VHS Iambic paddle.

Elongated tubes/adjustments on the rear provide separate tensioning for dot-and-dash levers, while gap/travel of each arm can be set to preference via contact screws with lock nuts. As an extra feature, your call is professionally engraved atop the yoke's rear plate at no additional cost.

The three-in-one paddle's base consists of two layers; the lower layer is a rubber magnet for securing the paddle to a transceiver's metal cabinet or a metal plate attached to an auto's gearshift lever. Additionally, a length of black tape and velcro fasteners are included for knee-strapped mobile operation. The three-in-one paddle can also be quick-attached to G4ZPY's own miniature iambic electronic keyer for stand-alone operation

with a transceiver lacking an internal keyer.

G4ZPY's miniature paddle measures 1.5 x 2.0 x 2.0 inches, and weighs only 150 grams. It is built to very exacting standards, is quite rugged, and delightful to use. The US introductory price is £70 including postage and insurance. Orders accepted via telephone or mail; payments via Visa, Master Card, and international money orders with dollar-to-pound conversion established in the exchange.

For more information on G4ZPY paddles and keys, contact G4ZPY Paddle Keys International, 41 Mill Dam Lane, Burscough, Ormskirk, L40 7TG England (telephone 011 0704 894299). Please include an SASE and two IRCs for brochure. In US, brochures (only) are also available from K4TWW, Dave Ingram, 4941 Scenic View Drive, Birmingham, AL 35210. Please include an SASE with two stamps for reply.

Comet Miracle Baby

Comet Antenna has introduced the newest addition to their extensive line of multi-band antennas, the CH-32 Miracle Baby mini HT Antenna for 2M/70cm.



The CH-32 has surprising performance, is only 1.75 inches tall, has a black matte finish, and a BNC connector. It is designed with a pivoting head, absorbing shock and protecting the radio's connector from damage.

The CH-32 meets the modern operator's need for a small, compact antenna that easily works nearby repeater systems and is useful

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Thousands of Radio Amateurs are using K-COM filters to eliminate telephone RFI even with full legal limit power output! Designed by Pete Krieger, WA8KZH, an active amateur with over 26 years experience in the telephone industry. Fully assembled, each filter comes with complete installation instructions and informative technical bulletin. K-COM manufactures filters in your choice of 3 - 30 Mhz or 500 Khz - 3 Mhz. Please specify desired range when ordering.

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CQ how-to videos

CQ Communications, Inc. has released a series of videotapes about getting started in Amateur Radio. These how-to videos cover the basics of getting on the air (*Getting Started in Ham Radio*); putting your computer on the air (*Getting Started in Packet Radio*); using Amateur Radio satellites for worldwide communication (*Getting Started in Amateur Satellites*); and working DX or contacting distant stations (*Getting Started in DXing*).

These network quality videos are produced by CQ Communications, Inc., publisher of CQ magazine under the direction of three-time Emmy winner and former CBS News producer Rich Moseson, NW2L. The series is ideal both for home use by individuals and for use by clubs as program material, appealing to the new ham and old-timer alike.

Each tape in CQ's Getting Started series retails for \$19.95 and runs for approximately 50 minutes. They are immediately available through Amateur Radio dealers or directly from CQ Communications, 76 North Broadway, Hicksville, NY 11801; 516/681-2922; FAX 516/681-2926.

Townsend kits

Townsend Electronics, Inc. now has a complete line of kits covering all the HF bands. One of the features of these kits is that they are made in a modular fashion. For instance,



you can purchase the case and hardware kit and add each unit as you wish. A typical transceiver would take the case and hardware, transmitter, receiver, VFO, S-meter and filter kits. There is also room in the case to add other features such as an electronic keyer.

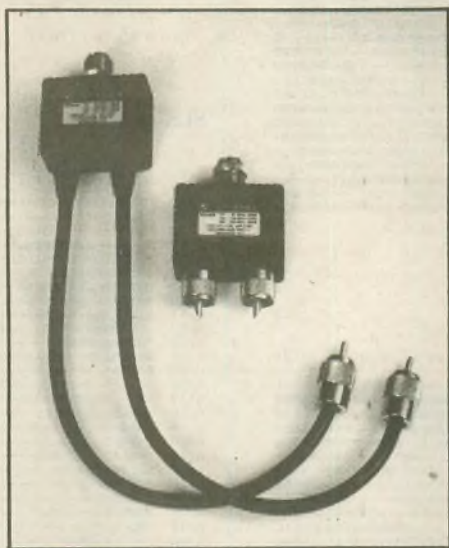
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This line of kits includes digital readout kits, antenna tuners, active antennas, crystal calibrators, speech processors, pre-amps, and others. Especially useful for those of us with older analog gear are the add-on digital readouts. They can be used with virtually any analog superhet receiver or transceiver or even for older WWII surplus gear.

The catalog is free for the asking, but if you want one by first class mail, send a dollar to: Townsend Electronics, Inc., P.O. Box 415W, Pierceton, IN 46562, and you will get one by return mail. This catalog also includes many publications from England, and their radio mounts.

Daiwa duplexers

Daiwa's DX10 series duplexers cover 1.6-150 MHz (250W CW/500W PEP) and 400-460 MHz (200W CW/400W PEP). Insertion loss is less than 0.1dB. The DX10D comes without cable and has two PL259 con-



nectors. The DX10M is supplied with cable and two PL259 connectors. The DX10N also comes with cable and has one each PL259 and N connector. Superb quality. Competitively priced: DX10D, \$27.95; DX10M, \$36.95; DX10N \$37.95.

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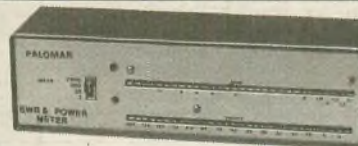
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VE exam schedules

As a service to our readers, Worldradio presents a feature listing those VE exams, times and locations which are sent to us. Please remember that our deadline for publication is three months in advance. For example, if your VE group is scheduling an exam for September, please have the information to us by mid June.
Worldradio, 2120 28th St., Sacramento, CA 95818.

Please mark the envelope "VE Exams."

List the location, any information examinees should have (advance registration, etc.) and the name and telephone number of a person to contact for further information.

p/r=pre-register

w/i=walk-in

Date	City	Contact	Notes	Date	City	Contact	Notes
Alabama				Kansas			
June 5	Dothan	George, WA4MZL 205/793-4580	p/r pref.	June 3	Great Bend	WA0PSF 316/792-5363 days, 316/792-4249 eves	w/i OK
Arizona				Maryland			
June 12	Tucson	Joe, K7OPX 602/886-7217	w/i only	June 21	Annapolis	Ed, W3DEQ 410/647-0370	p/r pref.
June 26	Tucson	Micki 602/883-8305	pr;	June 17	Baltimore	410/426-8255 ID #3937	w/i OK
Arkansas				June 6	Landover	Freddie, NG3G 202/546-9348	
June 19	Mountain Home	Gerald, WM5W 501/430-5123	p/r	June 19	Laurel	WB3GXW 301/572-5124 after 6 p.m.	p/r pref.
June 12	West Memphis	Gene, AB5BL 501/739-4029	w/i OK	Massachusetts			
California				June 7	Cambridge	Bob, N1KDA 617/593-1955	
June 12	Anderson	916/347-0373	w/i OK	Missouri			
June 6	Chico	W6YKU 916/342-1180	p/r pref.	June 5	Antonia	Jim, WA0FQK 314/942-2268	no w/i
June 6	Concord	Gene, WW6H 510/254-5090	w/i	June 13	Granite City	Eric, NF0Q 314/946-0948	p/r pref.
June 12	Cottonwood	Christopher, N6WMF 916/347-0373	w/i OK	June 24	Seneca	Les, AA0GY 417/781-4331 (d), or 417/776-8420 (e)	w/i OK
June 19	Culver City	Walt, KM6MQ 714/373-6077	w/i only	June 19	Valley Park	Dave, N0DN 314/225-1952	p/r only
June 5	Cupertino	408/243-8349	w/i OK	Nevada			
June 20	Eureka	707/826-0767	w/i OK	June 12	Reno	WS2Z 702/851-1176	w/i
June 26	Fairfield	Jerry, AA6NO 916/662-0801	w/i only	New Jersey			
June 6	Fallbrook	Marv, K2VIV 619/723-0469	w/i OK	June 19	Bayonne	Bob, N2IYY 201/435-5953	w/i OK
June 8	Fremont	KJ6EP 510/791-6818	w/i only	June 17	Bellmawr	WA2VQG 609/546-7710	w/i
June 24	Long Beach	W6LRF 714/847-6370	w/i OK	June 12	Cranford	24-hr. hotline: 201/377-4790	
June 12	Modesto	W6XK 209/883-2968	w/i	June 9	Fort Monmouth	MARS 908/532-5354	w/i
June 5	Novato	415/883-9789	w/i OK	New York			
June 5	Ontario	Harry, KM6LO 818/810-0442	w/i OK	June 19	Albion	Bob, WA2QDV 716/798-0976	w/i
June 19	Redwood City	408/255-9000	w/i OK	June 5	Carmel	Mike, AJ1J 914/644-5546	p/r pref.
June 26	Ridgecrest	Lloyd, WA6KZV 619/375-7245	w/i	June 16	Lancaster	Chuck, WD2AIK 716/937-3592	p/r only
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June 19	Stockton	Ed, N6XMA 209/952-5996	w/i only	June 12	Leicester	Larry, WB4PLA 704/683-1400	w/i OK
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June 12	Willits	Don, WA6ACX 707/459-3980	w/i only	June 5	Cincinnati	Herb, WA8PBW 513/891-7556	w/i OK
Colorado				June 5	Mentor	Scott, KO8O 216/256-0320	
June 3	Denver	Glenn, W0IJR 303/360-7293, 24-hr. voicemail	w/i OK	Oklahoma			
June 5	Sterling	Blaine, WA0JTB 303/522-5787	w/i OK	June 18	Pawhuska	KY5J 918/337-4335	w/i OK
June 19	Westminster	AA0BZ 303/421-2795	p/r	Oregon			
Connecticut				June 9	Medford	503/488-2691	
June 23	Milford	NB1M 203/933-5125	w/i	June 9	Medford	Dale, N7IXS 503/772-6865	p/r
June 23	Shelton	WJ1T 203/283-1044	w/i pref.	Pennsylvania			
Florida				June 19	Beaver	KF3V 412/843-6560	p/r
June 7	Dunedin	Marv, WC2G 813/938-7810	p/r or w/i	June 5	Erie	W3CG 814/665-9124	w/i
June 19	Melbourne	WB9IVR 407/724-6183	w/i OK	June 19	Hermitage	WM3H 412/347-5960	w/i
June 22	New Port Richey	Marv, WC2G 813/938-7810	p/r or w/i	June 17	Lancaster	Carl, WQ3P 717/898-0611	w/i OK
June 12	South Miami	Ross, AC4KZ 305/233-7462	w/i OK	June 3	Levittown	K3TX 215/946-1040	p/r pref.
Georgia				June 19	McKeesport	WB3M 412/672-0915	p/r
June 26	Dalton	Bert, N4BZJ 404/673-2214	p/r only	June 4	Nazareth	John, WX3C 215/767-4778	w/i
Idaho				June 16	Oakdale	KC3RJ 412/279-8756	p/r
June 12	Boise	W7JMH 208/343-9153	w/i	June 3	Philadelphia	ND3Q 215/482-0386 or	p/r pref.;
Illinois				Rhode Island			
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Indiana				June 19	Columbia	Ray, N4WR 803/345-3373	w/i OK
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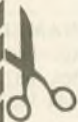
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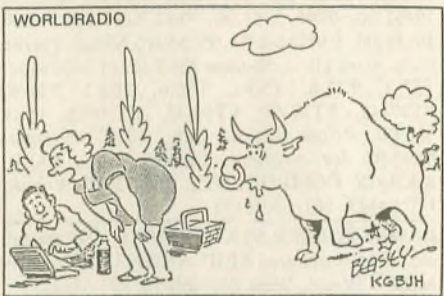
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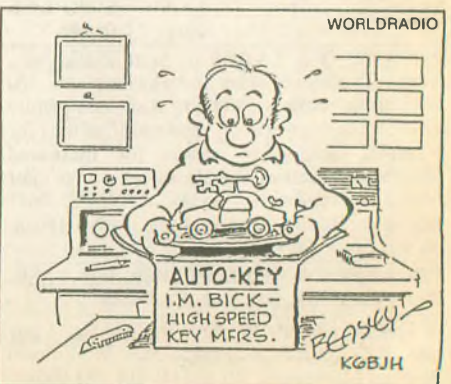
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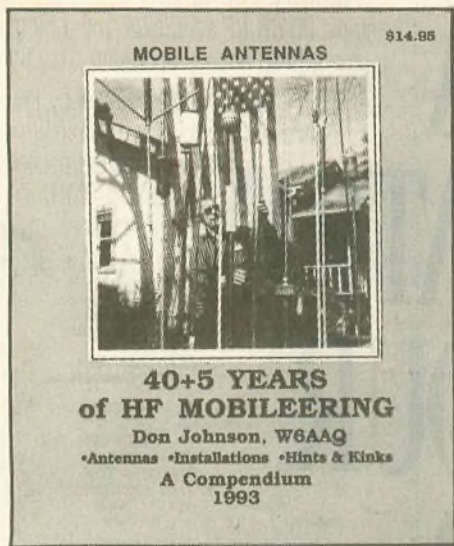
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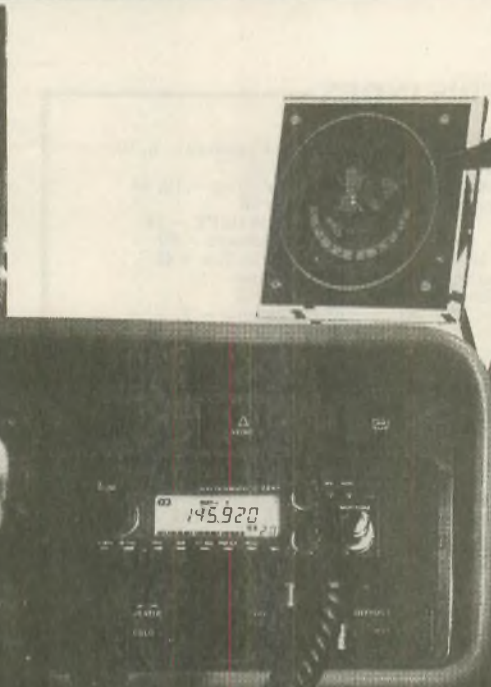
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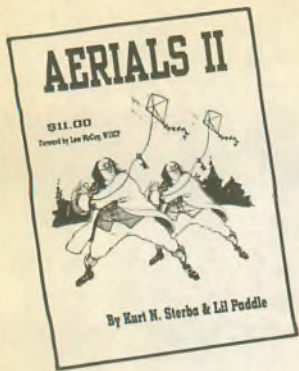
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Northwest Amateur Radio Club, November 1947

First row: Pete Clark, Marshall Sherill, Armand Beloian, Tom Drury, Bob Schaeffer, Leslie Laird, Dave Clark, John Landeck, Chuck Haliday. Second row: Al Knodell, E.A. Beane, Geo. Schaefer, R.R. Hamilton, Ed Ellifrit, Howard Sayers, F.E. Martens, P.B. Korneke, Ken Hedrick, Rex Munger, Walt Wolfgram. Third row: Jim Thompson, Al Hines, Ed Hamel, Ed Holm, Frank McDonnell, Clarence Grimm, Henry Batchter, Jr., Clyde Woehrman, Walter Borowski. Fourth row: J.W. Ashton, Ray Marshall, James Campbell, Henry Behrends, H.H. Leighton, R.E. Thompson.

A ham radio friend referred me to *Worldradio* when I asked him if the old Northwest Amateur Radio Club still existed in the Chicago area.

My late brother, Walter E. Stafford (Ernie or Walt), was a member and left among his possessions a movie of a Northwest ARC Field Day in 1939. Actually, as I re-read the label on the film can, it says Northwest Amateur Radio Club, UHF Club, W9VHG, 1939.

I've shown it and find it in excellent

condition. Perhaps it would be of interest to relatives of the men of the club, if relatives can be found, or to any Chicago area club that would like to see what went on in the "old days."

There is about 300-350 feet of the 16mm film and it probably could stand some editing to prune some of the less interesting stuff. And, of course, it could be dubbed to video tape. My brother was a much better than average photographer who took

the hobby seriously and produced interesting footage for the most part. He used good equipment, too—Bell and Howell camera.

Some may recognize names or faces in the photo, if it would help in locating still living members or relatives and friends of the members of the club. Interested parties could contact me and make arrangements for sending the film to them: Sidney Stafford, 447 Herondo St., #206, Hermosa Beach, CA 90254.



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