

AMSAT's Phase 3C satellite, seen here, is complete and awaits a June launch. The newest OSCAR carries four transponders, including a packet device. (Photo by Richard Daniels, W4PUJ)

P3-C ready for launch

Werner Haas, DJ5KQ/Translated by Don Moe, DJ0HC/KE6MN

After numerous launch delays, the new AMSAT Amateur Radio satellite P3-C is actually scheduled to be launched in the near future. Following a successful launch, it should receive the name OSCAR-13 in accordance with tradition. This article presents a collection of earlier articles to facilitate operation via the satellite.

AMSAT P3-C is a technically improved version of the successful OSCAR-10 satellite. It will be launched by an Ariane IV from the space center Kourou in French Guyana. Ariane IV is a new development and can transport a payload of four tons into orbit. It is approximately 11M taller (58.5M) than an Ariane II (47.4M) and has four additional booster rockets attached to the first stage. Two additional payloads will be launched simultaneously with P3-C: another weather satellite of the Meteosat series, as well as a communications satellite called Panamsat.

AMSAT P3-C is a spin-stabilized satellite, which can alter its orientation in space by means of a built-in, electrically controllable magnet system. This is operated by the on-board computer.

The navigational information required is supplied by two sun sensors, one earth sensor, and two further sensors for "up" and "down." These data are first processed by the sensor electronics module before being passed along to the on-board computer.

Just a short reminder at this point that the on-board computer controls the satellite completely autonomously. Action by the ground stations is only necessary under very special circumstances.

Subsequent to separation from the booster rocket, P3-C will assume an elliptical orbit with an apogee (highest point) of 35,800km and a perigee (lowest point) of 200km. The inclination (please turn to page 6)

HAM RADIO TODAY on Voice of Andes

HAM RADIO TODAY has joined the programming line-up from the Voice of the Andes, HCJB Radio. HCJB is an international broadcasting station that has been operating from Quito, Ecuador in South America since 1931. HAM RADIO TODAY is the program by Amateur Radio operators for Amateur Radio operators.

Program producer John Beck, HC1QH/WB0RXL, has been a ham for over 10 years. He will be covering a wide range of topics on the program, including news items from all areas of the world, construction hints, propagation news, equipment reviews (both new and old) and much more. Morse code, components, RTTY, AMTOR, packet radio and many other subjects will be covered.

HAM RADIO TODAY will be on the air each and every Wednesday, at the following times, to the following target areas (all times UTC):

South Pacific	0800	Europe	2130
	and 1030	North America	0230
Japan	1206		and 0630

(North America feed is actually Thursday UTC day, but local time is Wednesday evening.)

For more information, contact John E. Beck, Producer — HAM RADIO TODAY, c/o HCJB Radio, Box 691, Quito, ECUADOR, South America. TEL: International Access Code + 593 + 2 + 241-550 ext. 441

Recruiting seniors

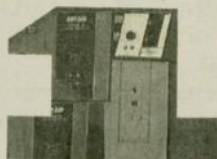
The ARRL will be sponsoring an innovative program toward new-ham recruitment later this year. The League hopes to utilize the expertise and knowledge of its dedicated volunteers and individual amateurs by combining their many strengths toward one specific goal: increasing our numbers by coordinating a new-ham recruitment structure responsive to the needs of amateurs at the grass-roots level.

This pilot program will be focused at (please turn to page 7)

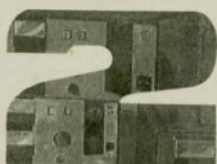
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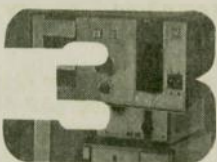
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Free video to clubs

The International Mission Radio Association (IMRA) announces the availability of a half-hour videotape about its work, *Making Contact*. The IMRA provides a daily (except Sunday), two-hour traffic net to help overseas missionaries of all denominations contact their family and friends in the States via Amateur Radio. The organization consists of 1,000 hams in 40 countries, and annually the net handles 12,000 pieces of traffic. 1988 marks the IMRA's 25th anniversary of service as a non-profit organization.

Making Contact details the work of the IMRA. Some of the highlights are:

- A former Navy Chaplain discusses the great benefits of Amateur Radio
- Earthquakes in Peru and Mexico City
- Missionaries themselves from the field

The half-hour program was professionally produced at St. John's University's \$3 million TV Center in New York. *Making Contact* aired on two national satellite systems and was viewed by millions.

The IMRA offers to loan a copy of the video to any ham who wishes to view it. Many clubs who have used it as a program at their meetings have enthusiastically received it. The tape is also available for purchase at \$10 a copy. Interested parties can contact Fr. Michael Mullen, C.M., WA2KUX, President of the IMRA, St. John's



James Grandinetti, KZ2P (left), during his October '87 visit to station BY1PK in Beijing, China. Standing next to him are (left to right): Zhang Yan Hong, a station operator; Huang Ali, guide; Tong Xiao-Yong, station manager; and Wang Hun, Deputy Secretary General of the Chinese Radio Sports Association. KZ2P's visit was a couple of weeks before Tong and Wang visited the ARRL and the United States.

University, Jamaica, NY 11439. Warren Mulhall, WA2BPV, chairman of the equipment committee, appears in the show to discuss another service — loaning rigs to get the missioner on the air. In its 25 years, the IMRA has provided \$50,000 worth of equipment, much of it donated by members. The IMRA is very grateful to hams for their kindness and seeks any equipment in good operating condition for those still in need.

Anyone interested in donating equipment can write to Warren at 16 Iroquois Rd., Manasquan, NJ 08736, with a description of the equipment and its condition. Warren will advise shipping instructions to New Jersey.

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We emphasize the positive aspects of this great activity, and desire your contributions dealing with dramatic, personal and

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PUBLISHER'S MICROPHONE

We first acknowledge those who have most recently joined the ranks of Worldradio's finest friends. Taking out Lifetime Subscriptions were:

Harry Jones, N2GTX, Dundee, New York; Brice Jensen, KB4SBY, Annandale, Virginia; Richard Mangum, WB7VMQ, Fremont, Nebraska; Ron Helliwell, N7IIU, Ogden, Utah; Merv Rennick, N9FXS, Dunlap, Illinois; Otto Julick III, Cayuga, Indiana; Thomas Siegel, AF0N, Columbus, Nebraska; and Scott Blixt, KA0JWC, Mason City, Indiana. And Dan Chapman of Porterville, California pointed out to us that when we recently listed him we neglected to mention his call which is N6MXG.

Gene McGahey, AL7GQ, Jackson, Mississippi wrote in to say: "From 'Day One' I have been with Worldradio, enjoying its readable style. Worldradio is the only publication providing columns covering all of my interests: QRP, 10-10 International, MARS, packet, mobile operation and emergency operations.

"I wish to thank you and each of the editors for the time, effort and devotion exhibited in the many articles written for WR each month."

Speaking of columns; we'd like to

add one about OSCAR. Any volunteers?

Russ Rennaker, W9CRC, Kokomo, Indiana, said, regarding our review of his *Radio Journal* in the March issue, "I have had more inquiries from that piece than from some of the ads in some well-known magazines."

We expected such. Harold Estok, W6JIP, San Diego, California, said, "Yes, Worldradio does cover the world! In the September issue you printed my request for info about time-signal stations outside the USA. I've received replies from hams from all over the USA, Canada, Australia, New Zealand and details on Soviet stations from a ham in Poland. Really, I was overwhelmed!

"Thanks to Worldradio and to all of you who took time to write, make copies of data from various publications and spend postage to get the information to me."

In the California lottery last week, three of the winning numbers were: 10-15-20. Should that inspire any of you in states that have lotteries to play 40-20-15-10-6-2 and you win \$9 million, kindly don't forget where you got the idea.

For the many QRPers reading Worldradio we'd like to mention *The Five Watter*, which just had its 10th

anniversary as the journal of the Michigan QRP Club. They have many members who live elsewhere than Michigan.

It's only five bucks to join, plus a one-time \$2 fee. Send to 5346 W. Frances Rd., Clio, MI 48420. Last issue had a 6V6 xmr and a diagram for a one-transistor job. Listen for me please.

Amateurs who served on submarines should contact Howard Weinstein, K3HW, for info about their SVARA.

Roy Neal, K6DUE wrote, "Since you're looking for suggestions, I'll suggest that you could use a guest column. It should tackle the many ills and good points of our service.

"There are plenty of concerned hams who can write, including ARRL directors, people like me or Barry Goldwater, Dave Sumner, etc. The main thing is . . . the columns will have to be pithy, tough and hard-hitting to be any good."

OK, Roy, you're first, hihi. It does say, in the box above, "Its pages are open to all."

Joseph Fairclough, president of The Radio Club of Junior High School 22 (New York City) WB2JKC said, "You might like to know that we use your paper daily in class and it's THE BEST!"

Leonard Maxwell, WB7WUO, Billings, Montana would like to see an article about a conical antenna that would operate from 80 to 10M. Any takers?

Always enjoy hearing from Billings, as it was from there and Casper, Wyoming that I operated 6M (with a Sixer) in late '50s and early '60s. When the band opened, it was like what would happen today regarding Albania.

Do we have a new breed in Amateur Radio? Just think about how much better people act toward each other in contests now, and what an improvement it is over a few years back.

—Armond, N6WR

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(I used the money I saved on postage for the QSL cards!).

And my FT-747GX is loaded with other features. The receiver works from 100 kHz straight through to 30 MHz, and it's a fantastic shortwave broadcast receiver. I can use all twenty memories for that alone! Plus it's got dual VFOs. A noise blanker. Split frequency operation for the pile-ups. And scanning up the band helps me check out openings as they happen.

I just put in the optional crystal oven, and next month I'm going to pick up the FM board. I can't wait to tell my buddies I worked England on a repeater!

And with the money I saved when I bought my FT-747GX, I got

a second ten-meter antenna for satellite work on the high end of the band. I use my personal computer to tell me what satellites are going by, and the computer even sets the frequencies on the radio for me.

Now my friends are getting FT-747GX rigs, too. I knew they'd figure out my secret weapon sooner or later. But now I'm setting the pace!

Thanks, Yaesu. You've made a rig that makes sense."

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“They laughed when they saw my radio.
Then they saw my logbook.”



Phase 3C

(continued from page 1)

tion (angle referenced to the equator) is 10°.

Since this orbit is not stable and the inclination must be changed to approximately 57°, the 400 Newton rocket motor will be ignited following an orientation phase, thereby altering the orbit and achieving the desired attributes. The apogee remains the same, but the perigee will be raised to 1,500km, and the inclination will then be around 57°. The orbital period will be nearly 11 hours.

It will take 45 to 60 days to accomplish these maneuvers with the satellite, so that a release for general use could be expected, at the earliest, one and a half to two months following the launch. Please track the general beacon of the satellite in Mode B (145.812 MHz). Three hours after separation, it will start transmitting telemetry data at 400 bit/s. Occasionally the telemetry data will also be transmitted in CW or RTTY.

Payloads of the P3-C satellite

The P3-C satellite is equipped with three transponders, as well as the RUDAK digital communications experiment.

1) The U Transponder (also known as Mode B)

The U transponder is a linear translator with a bandwidth of 150 kHz. Its input frequency range is 435.420-435.570 MHz. The output occurs in the range 145.825-145.975 MHz. An inversion of the sidebands occurs.

Additionally, the U transponder contains a general beacon on 145.812 MHz. This beacon provides information to the users and transmits in 400 bit/s, CW or RTTY; a schedule remains to be determined. A second beacon (EB = engineering beacon) on 145.985 MHz sends only in 400 bit/s

and is primarily provided for use by the command stations.

The maximal output power of the transponder is 50W PEP. The user needs to provide a 21.5dBW EIRP signal on the uplink to the satellite for the transponder to achieve a 20dB signal-to-noise ratio on the heard signal. This corresponds to a transmitter power of 10W into a 12dBic antenna on the ground. For reception on 2M, an antenna with more than 10dBic gain should be used.

All antenna gain figures refer to a right-hand circularly polarized antenna. In the case of linearly polarized antennas, 3dB more gain is required. At a receiver noise figure of 5dB and a bandwidth of 2.4 kHz, the engineering beacon should provide signals with at least 17dB signal-to-noise ratio.

If the transmit power of 100-500W EIRP is insufficient to hear the signal perfectly well, a good preamplifier should be installed before the receiver at the ground station.

2) The L Transponder and RUDAK

The L transponder is likewise a linear translator with a bandwidth of 290 kHz. The input frequency range is 1269.620-1269.330 MHz. Output is between 435.715 and 436.005 MHz. The general beacon (GB) transmits on 435.651, providing general information in 400 bit/s PSK, CW or RTTY. The schedule will be announced later.

The maximal output power of the L transponder is 50W PEP. On the uplink, the user needs to provide 28.8dBW EIRP, corresponding to 3W into a 24dBic antenna or 50W into a 12dBic antenna.

For reception, a 70cm antenna with gain greater than 13dBic should be used. (Rx noise figure: 3dB @ 2.4 kHz.) All antenna gain figures refer to right-hand circular polarization. In a

properly functioning receiving station, the GB beacon should deliver signals with at least 17dB signal-to-noise ratio. A good quality preamplifier is likewise highly recommended.

RUDAK

RUDAK is an independent data channel, which is decoupled from normal operation on the transponder. An impairment of the various operating modes is suppressed, since RUDAK uses a separate receive and transmit channel.

The same ground station transmit power level and receiver considerations apply as for the L transponder. The input channel is on 1269.710 MHz at 2400 bit/s DPSK. The output channel is on 435.677 MHz at 400 bit/s. Briefly, the functions of RUDAK are as follows:

Digital messages can be exchanged between two or more participants on the one channel. In our case, short information blocks with a specific format are transmitted by each participant and recognized by the satellite (packets). 2400 bit/s is the rate used and, as tests have proven, can be sent reliably using a normal FM transmitter along with a small accessory module.

Following processing in the satellite, the blocks are retransmitted back to earth at 400 bit/s PSK. Firstly, this technique has proven itself to be very satisfactory for telemetry transmission from OSCAR-10, and secondly, the necessary hardware is already available for ground station support.

Since all ground stations transmit in an uncoordinated manner, the likelihood exists that the transmitted blocks overlap and are hence garbled upon arrival at the satellite. The block must therefore be repeated by the ground station. For this reason, the

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data rate to the satellite was chosen six times higher than the retransmit rate. The statistical throughput on both links is thereby effectively equally high. Many packet radio stations worldwide can make contact via the satellite.

Detailed information will be provided shortly in a RUDAK handbook, which can be obtained from Hanspeter Kuhlen, DK1YQ, Finkenstr. 11, D-8011 Aschheim, West Germany. He is responsible for the realization of the RUDAK project on Phase 3-C.

Mode JL

For users of the L transponder who are not active on 23cm, there is an experimental secondary input available on 2M in the SSB subband from 144.425 to 144.475 MHz, with a bandwidth of only 50 kHz. This input should be left for use by stations in East Block countries, since they may find it very difficult to generate the necessary transmitter power on 23cm in order to participate in regular Mode L operation via the 23cm input.

Western users should only use the 23cm input. Thanks to overlapping output frequencies, mixed QSO's on separate inputs with a common output are readily possible. The originally planned frequency of 145.95 (± 25) kHz became impossible to use due to the many FM stations which do not observe the bandplan and thereby interfere with satellite communications worldwide.

3) The S Transponder

The S transponder is a hard-limiting transponder with its input on 70cm, output on 13cm, and with a bandwidth of 36 kHz. The transmit power is 1W.

Due to the relatively high power consumption, operation via the S band transponder must be restricted to designated occasions. On the uplink to the satellite on 70cm, the S band transponder requires 21.5dBW EIRP for 10dB signal-to-noise on the return signal. This corresponds to a transmit power of 10W (70cm) into a 12dBic antenna. On the receiver side, an antenna with gain of more than 25dBic (1M parabolic disk) should be used.

The S band transponder can be operated in both beacon and transponder modes. The transponder mode can only be turned on when the satellite is configured for Mode U.

An operating schedule, detailing when each transponder is turned on, will be released in time for general satellite use. As in the past, time values will be provided in MA units (mean anomaly). The duration of an orbit is divided into 256 segments and MA Zero is exactly at perigee. One MA unit, therefore, corresponds to approximately 2.6 minutes.

AMSAT-DL wishes all users of the satellite much pleasure with P3-C and good DX.

—AMSAT-DL Journal, No. 3/4-88 □

Bike trek follow-up

A year ago, (April 1987, page 6), Worldradio ran an article about Hartley Alley, NAOA's upcoming bicycle trek, in which he would ride from Boulder, Colorado to his 50th high school reunion in Lynn, Massachusetts. Here is an update.

"Operating 2M bicycle mobile," writes Alley, "I made a total of 105 radio and eyeball contacts with fellow Amateur Radio operators on this trip. Hams provided me with radio companionship, especially on those long, lonely wide-open spaces in Colorado and Nebraska.

"They gave me on-air advice as to the best motels and restaurants, and the safest bicycle routes in and out of their towns. They picked up the tab for some 26 dinners, often arranging to get a bunch of amateurs together to meet me in a banquet-like setting.

"On rest days, hams drove me around town on errands and on tours. One ham even drove me 60 miles to Omaha to buy some hard-to-find film.

"Radio amateurs arranged for 15 newspaper interviews, two radio shows and one TV appearance. They re-soldered my coax, bandaged a cut finger, and found me a big-time bike shop when my bicycle had big trouble.

"On three occasions, hams on bicycles joined me and pedaled in front of me to help break the wind. Hams on local nets and packet bulletin boards alerted other hams further along the route of my progress.

"Amateurs even handled communications when at last, after 2,238 miles, I arrived at my old hometown high school that I hadn't seen in 50 years."

Alley traveled an average of 40 miles per day, for 56 days. During that time, he had only one flat tire and three days of rain. Temperatures ranged from 5° (April 1) to 89° (April 20). Best scenery? "Indiana and New York," says Alley. □

Recruiting

(continued from page 1)

non-hams aged 50 and over within the metropolitan Tampa/St. Petersburg, Florida area. If successful, this will be the benchmark on which nationwide recruitment programs are built.

Extensive data on the target area has been compiled and evaluated showing that approximately one-fourth of the population within the Tampa/St. Petersburg area is within the target age group. More than two dozen media outlets and senior-oriented organizations have been contacted and are initially receptive to the program.

ARRL-affiliated club leaders, ARRL Volunteer Examiners, registered ARRL instructors, Field Organization Leadership Officials and others in and near the target area have been contacted and are expected to play a major role developing this coordinated new-ham recruitment program.

ARRL Headquarters staff working on this pilot program attended the Orlando Hamcation and visited Hillsborough and Pinellas Counties, Flori-

da in mid-March, to research prior recruitment efforts in the target area, discuss options with interested amateurs and meet with representatives of senior-oriented organizations and agencies. Specific courses of action were to be mapped afterward.

Implementation of the program is expected to begin in the June-August time frame and continue through early 1989. □

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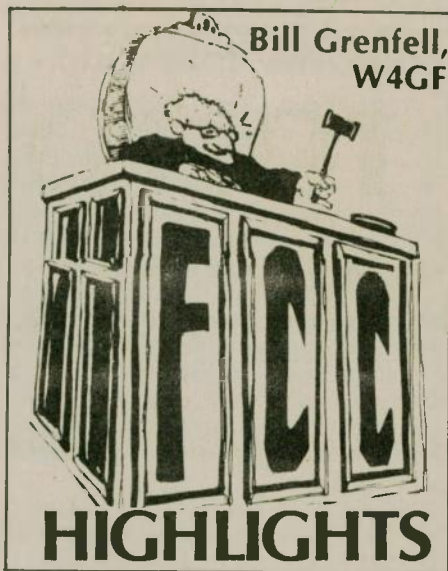
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United Parcel Service (UPS) of America has filed comments in support of the FCC Docket 87-14 proposal to allocate the 220-222 MHz portion of the 220-225 MHz band for use by Land Mobile Services.

"UPS states they have included in their long-range plans design and implementation of a nationwide private land mobile network to improve the efficiency of their package delivery service. The big question is whether the FCC will accept the comments since they were filed six months late." A Report and Order and Docket 87-14 is forecast to be released on March 31, 1988. (W5YI, 03/01/88, 02/01/88)

Another firm, TV Answer, Inc. has proposed creating a return 200 MHz pushbutton radio link between a consumer watching their TV set and a video programmer or station (on one of frequencies 216.25, 218.25 and 220.25 MHz) which would allow the viewing public to immediately respond to inquiries and make decisions based on televised options. The comment period on the TV Answer proposal, RM6196, was extended by the FCC to February 29, 1988, and the reply comment deadline was moved to March 15, 1988.

Commenting on the TV Answer petition, Radio Telecom & Technology, Inc. (RTT) "... would utilize spectrum adjacent to a TV channel and the unused blanking interval when no picture is visible. They say the 'T-NET' system, as they call it, carries more

data, and would allow the use of ASCII keyboard responses. Thus, no additional RF spectrum is needed.

"According to RTT, the T-Net system is more spectrum efficient because it does not make demands on spectrum that is in demand by non-broadcast services." (ARRL Letter, 02/15/88, 01/01/88, 02/29/88)

During February, the ARRL Interference Reporting System (AIRS) received 279 reports of non-amateur-to-amateur interference and forwarded appropriate cases to FCC's Treaty Branch, Washington, D.C. Included in these reports were continuing problems with commercial fishing beacons on 160M and non-amateur F1B transmissions on 80M. (ARRL Letter, 02/29/88)

FCC's Docket 87-389 proposes to place radiation limits on a proliferation of low-power radiating devices which, over the years, have been placed in operation without the need of FCC licensing. It proposes amendment of its Part 15 Rules "... to classify RF devices into two broad categories: intentional radiators such as hand-held transceivers, cordless phones and garage door openers; and unintentional radiators such as receivers, VCR's and computers.

"A third category of incidental radiation devices would remain under present rules which state: if such equipment causes interference, it is the operator's responsibility to eliminate it." The unintentional radiator

limits would range from 30 μ V per meter at 1.7 MHz to 500 μ V/meter at and above 960 MHz.

The ARRL comments are to emphasize the following points: "Amateur frequencies are not to be utilized by intentional radiator devices; permitted field strengths for unintentional radiators should not exceed present maximums; and rules should be enacted requiring RFI resolution information, including identification of a manufacturer's representative, to be included in the equipment user's manual." (ARRL Letter, 02/15/88)

Beverly Baker has been appointed Deputy Chief of the FCC Private Radio Bureau. The newly appointed PRB Chief is Ralph Haller, N4RH. (ARRL Letter, 01/15/88)

"An increasing number of candidates who have passed the Novice exam requirements are bringing their original Form 610 completed by their examiners to a VEC test session. This is in violation of Rule Section 97.28(g) which states 'within 10 days of the administration of a successful examination for the Novice Class operator license, the examiner shall submit the candidate's application to: FCC, Gettysburg, PA 17325.'"

A Technician candidate must have proof (license or copy) he has passed the Novice exam elements before taking the Tech. elements, or take and pass the Novice elements administered by the same three VE's who are (please turn to page 16)

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 March 1, 1988.

For more information about call sign assignment in the Amateur Radio Service, see Section 97.51 of the FCC Rules, or write to the FCC, Consumer Assistance Branch, Gettysburg, PA 17326.

Radio District	Group A Am. Extra	Group B Advanced	Group C Tech./Gen.	Group D Novice
0	WF0I	KE0TJ	N0IYF	KB0BXF
1	NQ1C	KC1IL	N1FMX	KA1RQK
2	WE2J	KE2ET	N2HYG	KB2FDZ
3	NN3P	KD3GT	N3GAF	KA3STB
4	AB4GN	KK4XW	N4SEK	KC4DPW
5	AA5EP	KG5HU	N5MDW	KB5FLM
6	AA6HC	KJ6DU	N6RNS	KB6WBL
7	WK7D	KF7HR	N7KOB	KB7EAU
8	WB8S	KE8QJ	N8JFK	KB8ECJ
9	NX9L	KE9IX	N9HFS	KB9AEY
N. Mariana Is.	AH0E	AH0AD	KH0AJ	WH0AAH
Guam	KH2G	AH2BY	KH2DG	WH2ALL
Johnston Is.	AH3A	AH3AC	KH3AB	WH3AAC
Midway Is.		AH4AA	KH4AD	WH4AAF
Palmyra, Jarvis Is.	AH5A			
Hawaii		AH6IW	NH6OL	WH6BWX
Kure Is.			KH7AA	
American Samoa	AH8C	AH8AD	KH8AF	WH8AAV
Wake Wilkes Peale		AH9AD	KH9AD	WH9AAH
Alaska		AL7JQ	NL7NB	WL7BQP
Virgin Is.	KP2T	KP2BL	NP2CI	WP2AFY
Puerto Rico		KP4OR	WP4NG	WP4HTW

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Worldradio is a two-way communication. Send in Amateur Radio information and news. Share your knowledge with your fellow amateur and Worldradio reader. We are most interested in your comments and suggestions. We would appreciate being placed on the mailing lists of amateur club bulletins.

SPECIAL EVENTS



The Marconi Radio Station in Ballybunion, Ireland. Towers are made of wood. It was from this station that the first east/west transatlantic telephony transmission was made to Louisberg, Nova Scotia, in March 1919. Ballybunion members of the Irish Radio Transmitters Society (EI2X, EI5FG, EI8FT, EI5BHB and EI6AH) have announced that Ballybunion now has a housing development called "Marconi Avenue." (Photo submitted by Bill Davis, WB6UWB)

International Marconi Day

Amateur stations in England, Ireland, Canada, Newfoundland, Italy and the United States will honor Guglielmo Marconi, the great Italian inventor who first conceived the idea of using electromagnetic waves for signaling. The International Marconi Day (IMD) celebration is scheduled for April 23, the Saturday nearest to Marconi's birthday.

GB4IMD in Cornwall, England, will

operate from Poldhu Cove where Marconi carried out his first trans-Atlantic transmission. EI2IMD will be on from where Marconi carried out his first Irish experiments in Crookhaven. In the United States, K1VV/IMD will be at the Cape Cod South Wellfleet site of first USA to Europe contact in 1903.

The Society of Newfoundland Radio Amateurs (SNRA) will operate VO1-IMD at Signal Hill in St. Johns, from the exact spot where the first trans-Atlantic signals were heard by Marconi on December 12, 1901, from Poldhu. The Sydney ARC of Nova Scotia will establish VE1IMD at the Marconi Museum in Glace Bay from the site of first east/west trans-

Atlantic transmission. IY4FGM will be operating from the Marconi birthplace in Bologna, Italy.

Frequencies: SSB — 3.770-3.780, 7.070-7.080, 14.270-14.280, 21.250-21.260 and 28.530-28.540. A special award is offered to amateurs who work any five of the six International Marconi Day stations. Send award claims to: Cornish Radio Amateur Club, P.O. Box 100, Truro, Cornwall, UNITED KINGDOM TR1 1XP.

— NeW5YI Report

Greek Amateur Radio society turns 30

In celebration of their 30th anniversary, Radio Amateur Association of Greece (RAAG) — a sister society of the ARRL — will be operating from their official club station, using the call sign SX1RAAG.

This operation will start April 30, at 0000 UTC, and conclude at 2400 UTC, June 30. Special QSL cards will be sent via the Bureau to all amateurs completing two-way QSO's with SX1RAAG. This will be an all-band operation (except 17 and 12M).

— ARRL Letter

North-O-Ree III

The Schenectady (New York) ARA will operate K2AE from Saratoga Spa State Park on May 14, for Region II, Eastern Cluster, Boy Scouts of America, during their "North-O-Ree III." Operation will last from 1300Z to 2000Z, on 14.330 and 28.360 MHz.

For commemorative QSL, send QSL and SASE to Kenneth Martin, Jr., WB2STS, 2 Union St., Schenectady, NY 12305.

Holland Land Office

The Genesee Radio Amateurs (GRAM) will operate W2RCX on May 14, 1300-2200Z at the 18th century Holland Land Office site to celebrate GRAM's 25th anniversary. Suggested frequencies: 3.913, 7.213, 14.313, 21.313, 28.313 and 147.225+ MHz.

For QSL, send QSL and SASE to GRAM, P.O. Box 572, Batavia, NY 14020.

Uniontown's 50th

The Uniontown ARC will operate W3PIE May 14-15, 1700-0300Z both days, to commemorate the 50th anniversary of UARC/W3PIE. Suggested frequencies: lower portions of the

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20/40/80M General phone bands; 28.333 Novice phone band (conditions permitting); 2M FM simplex on 146.55; and 6/2M, 220/432 sideband.

For certificate, send QSL and large SASE to: Uniontown ARC, c/o John Cermak, Box 433, Republic, PA 15475. □

Lewis & Clark

The St. Charles ARC will operate WB0HSI on Saturday, May 21, and Sunday, May 22, 1300Z-2100Z, as part of the Lewis and Clark Rendez-

vous. This special event station will transmit on 7250, 14325, 21350, 28410 and 146.67, as propagation and QRM permit.

For certificates, send a large SASE to the St. Charles ARC, P.O. Box 1429, St. Charles, MO 63302-1429. □

U-505 submarine

The DuPage ARC will operate from the U-505 submarine at the Chicago Museum of Science and Industry on Armed Forces Day and the day after (May 21-22), 1600-2300 UTC. The call

will be W9DUP with operation on phone: 7.25, 14.30, 28.4 and 145.25/144.65 MHz.

For special QSL, #10 SASE to DARC, P.O. Box 71, Clarendon Hills, IL 60514. □

HB0/DA1WA 1988

It's springtime again, and that means that the Wiesbaden ARC (West Germany) will be making their annual DXpedition to the Principality of Liechtenstein to give other operators (please turn to page 14)

YAESU

ICOM

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FT-767GX



IC-781



TS-940S

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Receivers

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FRG-9600 60-905 MHz	699.95	Call \$

VHF

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FT-211RH FM Mobile 45w	389.95	Call \$
FT-290R All Mode Portable	599.95	Call \$
FT-23R/TT Mini HT	344.95	Call \$
FT-209RH FM Handheld 5w	389.95	Call \$

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FT-711RH FM Mobile 35w	449.95	Call \$
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IC-28A FM Mobile 25w	469.00	Call \$
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VHF

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TM-221A Compact FM 45w	439.95	Call \$
TM-2530A FM Mobile 25w	479.95	Call \$
TM-2550A FM Mobile 45w	499.95	Call \$
TM-2570A FM Mobile 70w	599.95	Call \$
TH21-BT FM HT	279.95	Call \$
TH-215A, 2m HT Has It All	379.95	Call \$
TH-25AT 5w Pocket HT NEW	349.95	Call \$
TM-721A 2m/70cm, FM, mobile	649.95	Call \$

UHF

TS-811A All Mode Base 25w	1229.95	Call \$
TR-851A 25w SSB/FM	749.95	Call \$
TM-421A Compact FM 35w	449.95	Call \$
TH-415A 2.5w 440 HT	399.95	Call \$
TH-41BT FM HT	399.95	Call \$
TH-45AT 5w Pocket HT NEW	369.95	Call \$
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VE exam schedules

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Date	City	Contact	Notes	Date	City	Contact	Notes
Alaska				May 27	Kansas City	NC0M (913) 262-0631	p/r pref
May 4	Anchorage	KL7HFQ (907) 243-2221	w/i	May 27	Topeka	NA0F (913) 828-3317	p/r pref
May 7	Fairbanks	AL71F (907) 474-0842	w/i	Maine			
May 7	Juneau	KL7KD (907) 789-0292	w/i	May 21	So. Portland	KD2EU, 7 Rocky Hill Rd., Scarborough 04074	
May 18	Eagle River	KL7HFQ (907) 243-2221	w/i	May 25	Augusta	N1BCF (207) 623-4249	
California				Maryland			
Apr 30	Eagle Rock	WB6PSY (818) 710-1705	w/i	Apr 30	Cumberland	KQ8E (304) 289-3576	
May 28		N6JFG (213) 258-9127		May 14	Frederick	N3RO (301) 845-2670	limited w/i
May 7	Burbank	W6JEP (818) 848-9340	w/i OK	May 24	Catonsville	N3ECR (301) 922-4747	w/i
May 7	Concord	WW6H (415) 254-5090	w/i only	May 29	Howard Co. Frgrds.	K3RMX (301) 578-8527	
May 7	San Diego	(619) 465-EXAM	p/r by 4/27	Massachusetts			
May 14	Apple Valley	K6BET (619) 244-6080	w/i OK	May 14	Wellesley	ND1Z (617) 533-6822	p/r by 5/7
May 14	Long Beach	WB3KMZ (619) 240-2025		May 21	Melrose	NC1V (617) 665-6061	w/i
May 14	Los Altos Hills	NN6Q (213) 420-9480	p/r pref	Michigan			
May 14	San Marcos	KG6XF (408) 255-9000	w/i only	May 7	Dearborn	(313) 676-6248	
May 14	Santa Barbara	(619) 465-EXAM	p/r by 5/4	Missouri			
May 15	Sunnyvale	KB5AH (805) 966-6620	p/r pref	May 7	Camdenton	WA0E (314) 346-2944	p/r pref
May 18	Eureka	W6NLG (408) 255-9000	w/i only	May 7	Independence	K0IXC (816) 373-8976	p/r pref
May 19	Fountain Valley	KB6FIW (707) 442-9245	w/i OK	Nevada			
May 21	Chula Vista	N6ISY (714) 775-6095	p/r; some w/i	Apr 30	Henderson	NK7N (702) 565-0242	w/i only
May 21	Fullerton	(619) 465-EXAM	p/r by 5/11	New Jersey			
May 26	Long Beach	K6EW (714) 529-0717	w/i OK; limit 40	May 7	Alpine	NZ2T (201) 348-0575	w/i OK
May 28	El Cajon/Escondido	KA6HOQ (714) 897-6331	w/i OK	May 14	Cranford	N2XJ (201) 635-7686	w/i OK
		NF6X (213) 434-8278		May 14	Pennington	AA2F (609) 737-1723	w/i OK; call
		(619) 465-EXAM	p/r by 5/18	May 19	Bellmawr	WA2VQG (609) 546-7710	w/i OK
Colorado				New York			
May 7	Pueblo	WB0YES (303) 948-2291	limited w/i	May 19	Rockland	K2SK (914) 623-5551	w/i OK
May 14	Denver	W0IJR (303) 366-9689	p/r pref	North Carolina			
May 21	Estes Park	WB0NUL (303) 988-7222	w/i pref	May 21	Raleigh	WM4P (919) 834-5001	
May 23	Boulder	N0BWS (303) 530-1872		Ohio			
Connecticut				May 14	Beavercreek	Francis Swope (513) 426-6699	w/i OK
May 14	Ridgefield	N1AWJ (203) 438-7889	p/r pref	May 21	Cincinnati	KI4QJ (606) 341-3952	limited w/i
Delaware				June 4	Mentor	K08O (216) 256-0320	25-day p/r
May 21	Wilmington	AWARE, 3208 Concord Pike 19803	w/i OK	Oregon			
Florida				Apr 28	North Bend	WA7PHI (503) 756-6846	some w/i
May 3	New Port Richey	AA4FG (813) 849-1224	p/r pref	May 7	Portland	Randy (503) 649-5066	w/i only
May 9	Ocala	NT4B (904) 237-5783	w/i	Pennsylvania			
May 21	Fort Myers	NE3Q (813) 574-8124	p/r	May 7	Erie	W3CG (814) 665-9124	w/i OK
May 21	Melbourne	(407) 724-6183	w/i OK	Tennessee			
Georgia				May 21	Memphis	WD4LFD (901) 386-4375	2-day p/r
May 7	Atlanta	N4ODI (407) 927-6296	w/i	Texas			
May 8	Atlanta	WA4ZJJ (404) 461-8542		May 9	Brady	WD5H (915) 597-2561	7-day p/r
May 14	Atlanta	WB2YAD (404) 962-9582	w/i	May 14	Austin	KF5NB (512) 272-8233	w/i only
May 22	Atlanta	KI4RD (404) 469-6430	w/i	May 14	Midland	KT5G (915) 694-9450	w/i OK
Idaho				May 14	San Antonio	NS5I (512) 681-0702	w/i
May 14	Boise	W7JMH (208) 343-9153	w/i OK	May 26	Houston	NZ5V (713) 497-8750	w/i OK
Illinois				May 28	San Benito	WA2VJL (512) 399-0328	Novice only
May 11	Leonore	Don Selbrede (815) 223-2848		Vermont			
May 14	Belleville	WA0LIS (618) 397-7235	w/i OK	May 21	Montpelier	WB1AJG (802) 433-6172	p/r pref
May 14	Decatur	Bill Lowe (217) 262-3327		Virginia			
May 14	Dixon	KS9O (815) 652-4537	w/i OK	May 7	Middletown	NC4B (703) 869-5241	30-day p/r; some w/i
May 14	Oak Forest	NF9N (312) 448-9432	w/i OK	May 14	Portsmouth	AA4AT (804) 484-2857	w/i OK
May 15	Danville	Betty Collins (317) 793-3573		May 14	Woodbridge	Don Ross (703) 670-3414	
May 17	Aurora	N9AKE (312) 892-1252	w/i OK	May 21	Richmond	Tim Ferrell (703) 590-5226	
May 21	Bloomington	Denny Chestney (309) 662-1230				WU4G (804) 798-5191	w/i
May 21	Godfrey	KF9F (618) 466-2306	w/i OK	West Virginia			
May 21	Loves Park	Gene Melton (815) 874-6867		May 10	Fairmont	KU8C (304) 366-0132	7-day p/r
May 26	Chicago	W9WBY (312) 929-6550		Wisconsin			
Indiana				May 7	Fox Point	KB9G (414) 351-5311	w/i OK
May 7	La Porte	Allen Short (219) 326-6872					
May 7	New Castle	Peggy Coulter (317) 288-0481					
May 7	South Bend	NI9Y (219) 255-4455	w/i OK				
May 14	Hammond	Mike Kasrich (219) 962-5512					
May 15	Evansville	Blanche Elpers (812) 424-9182					
May 21	Rushville	KI9R (812) 372-5006	10-day p/r				
Kansas							
May 7	Parsons	WA0B (316) 421-3445	p/r pref				

MFJ multi-mode data controller



MFJ shatters the 6 mode barrier and the price barrier with the MFJ-1278 and gives you . . . Packet, RTTY, ASCII, CW, WEFAX, SSTV and Contest Memory Keyer . . . 7 digital modes . . . for an affordable \$249.95

Amateur radio's newest multi-mode data controller -- the MFJ-1278 -- lets you join the fun on Packet, RTTY, ASCII, CW, Weather FAX, SSTV and gives you a full featured Contest Memory Keyer mode . . . you get 7 modes . . . for an affordable \$249.95.

Plus you get high performance HF/VHF/CW modems, software selectable dual radio ports, precision tuning indicator, 32K RAM, AC power supply and more.

You'll find it the most user friendly of all multi-modes. It's menu driven for ease of use and command driven for speed.

A high resolution 20 LED tuning indicator lets you tune in signals fast in any mode. All you have to do is to center a single LED and you're precisely tuned in to within 10 Hz -- and it shows you which way to tune!

All you need to join the fun is an MFJ-1278, your rig and any computer with a serial port and terminal program.

You can use the MFJ Starter Pack to get on the air instantly. It includes computer interfacing cable, terminal software and friendly instructions . . . everything you need to get on the air fast. Order MFJ-1282 (disk)/MFJ-1283 (tape) for the C-64/128 and VIC-20 or MFJ-1284 for the IBM or compatible, \$19.95 each.

Packet

Packet gives you the fastest and most reliable error-free communications of any amateur digital mode.

With MFJ's super clone of the industry standard -- the TAPR TNC-2 -- you get genuine TAPR software/hardware plus more -- not a "work-a-like" imitation.

Extensive tests published in *Packet Radio Magazine* ("HF Modem Performance Comparisons") prove the TAPR designed modem used in the MFJ-1278 gives better copy with proper DCD operation under all tested conditions than the other modems tested.

Hardware DCD gives you more QSOs because you get reliable carrier detection under busy, noisy or weak conditions.

A hardware HDLC gives you full duplex operation for satellite work or for use as a full duplex digipeater. And, it makes possible speeds in excess of 56K baud with a suitable external modem.

Good news for SYSOPs! New software lets the MFJ-1278 perform flawlessly as a WORLI/WA7MBL bulletin board TNC.

Baudot RTTY

You can copy all shifts and all standard speeds including 170, 425 and 800 Hz shifts and speeds from 45 to 300

baud. You can copy not only amateur RTTY but also press, weather and other exciting traffic.

A high performance modem lets you copy both mark and space for greatly improved copy under adverse conditions. It even tracks slightly drifting signals.

You can transmit both narrow and wide shifts. The wide shift is a standard 850 Hz shift with mark/space tones of 125/2975 Hz. This lets you operate MARS and standard VHF FM RTTY.

You get both the American Western Union and the international CCITT character sets, Autostart for unattended reception and selectable "Diddle".

A receive Normal/Reverse software switch eliminates retuning and Unshift-On-Space reduces errors under poor receiving conditions.

ASCII

You can transmit and receive 7 bit ASCII using the same shifts and speeds as in the RTTY mode and using the same high performance modem. You also get Autostart and selectable "Diddle".

CW

You get a Super Morse Keyboard mode that lets you send perfect CW effortlessly from 5 to 99 WPM, including all prosigns -- it's tailor-made for traffic handlers.

A huge type ahead buffer lets you send smooth CW even if you "hunt and peck".

You can store entire QSOs in the message memories, if you wanted to! You can link and repeat any messages for automatic CQs and beaconing. Memories also work in RTTY and ASCII modes.

A tone Modulated CW mode turns your VHF FM rig into a CW transceiver for a new fun mode. It's perfect for transmitting code practice over VHF FM.

An AFSK CW mode lets you ID in CW.

The CW receive mode lets you copy from 1 to 99 WPM. Even with sloppy fists you'll be surprised at the copy you'll get with its powerful built-in software.

You also get a random code generator that'll help you copy CW faster.

Weather FAX

You'll be fascinated as you watch WEFAX signals blossom into full

fledged weather maps on your printer. Other interesting FAX pictures can also be printed -- such as some news photographs from wire services.

Any Epson graphics compatible printer will print a wealth of interesting pictures and maps.

Automatic sync and stop lets you set it and leave it for no hassle printing.

You can save FAX pictures and WEFAX maps to disk if your terminal program lets you save ASCII files to disk.

Pictures and maps can be printed to screen in real time or from disk on IBM and compatibles with the MFJ-1284 Starter Pack.

You can transmit FAX pictures right off disk and have fun exchanging and collecting them.

Slow Scan TV

The MFJ-1278 introduces you to the exciting world of slow scan TV.

You'll not only enjoy receiving pictures from thousands of SSTVers all over-the-world but you can send your own pictures to them, too.

You can print slow scan TV pictures on any Epson graphics compatible printer. If you have an IBM PC or compatible you can print to screen in near real time or from disk with the MFJ-1284 Starter Pack.

You can transmit slow scan pictures right off disk -- there's no need to set up lights and a camera for a casual contact.

You can save slow scan pictures on disk from over-the-air QSOs if your terminal program lets you save ASCII files.

The MFJ-1278 transmits and receives 8.5, 12, 24, and 36 second black and white format SSTV pictures using two levels.

Contest Memory Keyer

Nothing beats the quick response of a memory keyer during a heated contest.

You'll score valuable contest points by completing QSOs so fast you'll leave your competition behind. And you can snag rare DX by slipping in so quickly you'll catch everyone by surprise.

You get iambic operation with dot-dash memories, self-completing dots and dashes and jamproof spacing.

Message memories let you store contest RST, QTH, call, rig info -- everything you used to repeat over and over. You'll save precious time and work more QSOs.

You get automatic incrementing serial numbering. In a contest it can make the difference between winning and losing.

A weight control lets you penetrate QRM with a distinctive signal or lets your transmitter send perfect sounding CW.

More Features

Turn on your MFJ-1278 and it sets itself to match your computer baud rate. Select your operating mode and the correct modem is automatically selected.

Plus . . . printing in all modes, threshold control for varying band conditions, tune-up command, lithium battery backup, RS-232 and TTL level serial ports, watch dog timer, FSK and AFSK outputs, output level control, speaker jack for both radio ports, test and calibration software, Z-80 at 4.9 MHz, 32K EPROM, and socketed ICs. FCC approved. 9x1 1/2x9 1/2 inches. 12 VDC or 110 VAC.

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Special Events

(continued from page 11)

that rare HB0 prefix.

Liechtenstein is located between Switzerland and Austria, and is very difficult to find on any map. To help you out with your beam headings, swing them toward 47.2° North and 9.6° East.

Operations will commence May 26 and continue until June 4. Modes of operations will include: SSB, CW, RTTY and 2M FM. All contacts will be verified by QSL via the QSL bureau. — John J. Parrish, Jr., DA2AL/SV-FJA/KA8DYT

Samuel F.B. Morse

A special event Amateur Radio station using the call sign N3EKZ will be on the air May 28 to commemorate the 144th anniversary of the telegraph message "What Hath God Wrought," transmitted on an experimental line from Washington to Baltimore.

Members of The Bay Area Amateur Radio Society will commemorate this event on the following suggested CW frequencies (MHz): 7.030, 7.105, 21.030, 21.105 and 14.030.

A special commemorative certificate

Cordless Phone - Link?

Feeling tied down to your microphone?

American Lightwave introduces a fantastic kit that converts your cordless phone into a remote link!!

Phone Link . . .

- Use your rig from the kitchen, garden, garage
- Easy to build . . . one evening assembly time
- Easily connects to your rigs mic and speaker jacks
- No mods to radio or telephone system . . . just plug in
- VOX operation
- MADE IN THE USA

KIT PL-A . . .

High quality glass epoxy board with doc . . . \$10

KIT PL-B . . .

Complete kit - board, parts, doc [less cabinet] . . . \$30

FREE shipping in the continental USA

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Madison Heights, MI 48071-0684

or call 313-548-4440

COD only . . . add \$3

will be offered for an amateur contact (QSO). Accurate shortwave reception reports will be accepted in lieu of a two-way contact from non-hams.

Amateurs send your QSL card,

shortwave listeners send details of the QSO, along with a large SASE, to The Bay Area Amateur Radio Society, P.O. Box 805, Pasadena, MD 21122-0805 for this special award. □

Armed Forces Day 1988

The annual Armed Forces Day Communication Test is set for Saturday, May 21, and marks the 39th anniversary of this event which emphasizes a continuing climate of mutual assistance and warm esteem between the military and Amateur Radio communities. The traditional military-to-amateur crossband operation and broadcast of the Secretary of Defense message are the featured highlights and include operations in CW, SSB, RTTY and packet radio.

These tests give both Amateur Radio operators and shortwave listeners (SWL) the opportunity to demon-

strate their individual technical skills. Special commemorative acknowledgment (QSL) cards will be awarded to those Amateur Radio operators achieving a verified two-way radio contact with any of the participating military radio stations.

Interception of these contacts by SWL's are not acknowledged by QSL cards. However, anyone who receives and accurately copies the Armed Forces Day CW and/or RTTY message from the Secretary of Defense can qualify to receive a special commemorative certificate from the Secretary.

Crossband contacts

The military-to-amateur crossband operations will be conducted from 1300 UTC, May 21 to 0245 UTC, May 22.

Military stations participating in crossband operations

AAE ^o HF/MARS Radio Facility Fort Sam Houston, TX	NAV HQ Navy-Marine Corps MARS Radio Station Cheltenham, MD	NMN Coast Guard Communication Station Portsmouth, VA
AAG Army HF/MARS Radio Facility Presidio of San Francisco, CA	NPG Naval Communication Station Stockton, CA	NZJ Marine Corps Air Station El Toro, CA
AIR 2045th Communications Group Andrews Air Force Base Washington, D.C.	NPL Naval Communication Station San Diego, CA	WAR HQ Army MARS Radio Station Fort Meade, MD
NAM Naval Communications Area Master Station LANT Norfolk, VA	NMH Coast Guard Radio Station Alexandria, VA	

Military stations will transmit on the below listed frequencies and announce the specific amateur band frequency being monitored.

Freq. (kHz)	Emission	Station	Freq. (kHz)	Emission	Station
4001.5	LSB	NPG	13927.5	RTTY	NPG
4010	CW	NPG	13975.5	CW	NPG
4015	CW	NMH	13986.5	RTTY	AIR
4018.5	LSB	WAR	13992.5	RTTY/CW	WAR
4025	LSB	AIR	13994.5	USB	AAE
4028.5	LSB	AAE	13997.5	CW	AIR
4033.5	LSB	AAG	14375	USB	NPG
6970	CW	NPG	14385	USB	NPL
6988	RTTY/CW	AAG	14389.5	USB	NAV
6995.5	CW	AIR	14400	USB/RTTY/CW	NAM
6997.5	CW	WAR	14403.5	USB	WAR
7301.5	LSB	NPG	14408	USB	AIR
7315	LSB	AIR	14440	RTTY	NMH
7346.5	LSB	NMH	14480	USB	NZJ
7358.5	LSB	AAE	14488.5	USB	AAG
7365	CW	NPG	14665	RTTY/CW	AAE
7372.5	RTTY	NAV	20937.5	USB	NMH
7375	RTTY	NZJ	20992.5	PACKET	AAE
7382.5	RTTY	NPL	20994.5	USB	WAR
7393	USB/RTTY/CW	NMN	20998.5	CW	NPG
10259.5	CW	NPG	21460	USB	NPG
			27992.5	USB	AAE

Receiving test

The CW and the RTTY broadcast will be special Armed Forces Day messages from the Secretary of Defense to any Amateur Radio operator or SWL desiring to participate. A 10-minute tuning call will precede each transmission. The CW broadcast will be transmitted at 25 wpm beginning at 0300 UTC, May 22. The RTTY broadcast will begin at 0345 UTC, May 22, and transmitted 60 wpm using 170 Hz shift. Both the CW and RTTY broadcast will be transmitted from the following stations on the listed frequencies:

Transmitting station Frequency (kHz)

AAE 4018.5, 6988, 9990
HF/MARS Radio Facility
Fort Sam Houston, TX

AAG 4021.5, 7309.5, 13994.5
HF/MARS Radio Facility
Presidio of San Francisco, CA

AIR 6995.5, 13997.5
2045th Communications Group
Andrews Air Force Base
Washington, D.C.

NAM 4005, 7393, 14400
Naval Communication Area
Master Station LANT
Norfolk, VA

NAV 7372.5, 14389.5
HQ Navy-Marine Corps
MARS Radio Station
Cheltenham, MD

NPG 4010, 7365, 13975.5
Naval Communication Station
Stockton, CA

WAR 4028.5, 6997.5, 14403.5
HQ Army MARS Radio Station
Fort Meade, MD

Submission of test entries

Transcriptions of the CW and/or RTTY receiving tests should be submitted "as received." No attempt should be made to correct possible transmission errors. The time, frequency and call sign of the military station copied — as well as the name, call sign and address of the individual submitting the entry — must be indicated on the page containing the test message. Entries must be post-marked no later than May 28, 1988, and submitted to the respective military commands as follows:

Station copied

Address

AIR Armed Forces Day Test
2045CG/DOJM
Andrews AFB
Washington, D.C. 20331-6345

AAE, AAG, Armed Forces Day Test
WAR Commander, USAISC
ATTN: AS-OPS-OA
Fort Huachuca, AZ 85613-5000

NAM, NAV, Armed Forces Day Test
NPG Naval Communication Unit
Washington, D.C. 20397-5161

'Sams Day'

The Clairemont Repeater Association (CLARA) will be holding a tribute to Samuel F.B. Morse on April 27, 0700-2200 Pacific time. Samuel F.B. Morse III will be part of the operating team and will be control operator for the day. The call will be W6FZZ and will use the moniker of "Sams Day."

Sam can operate up to 50 wpm and will be looking forward to many QSO's. We will monitor 25 kHz above the low end of the bands and choose those that propagation will allow. Local QSO's can be obtained on VHF association repeater on 145.220 down with 1A PL.

QSL to Gus L. Bogard, WM6J, 21391 Fleet Lane, Huntington Beach, CA 92646 for special event QSL card. Please indicate your number. □

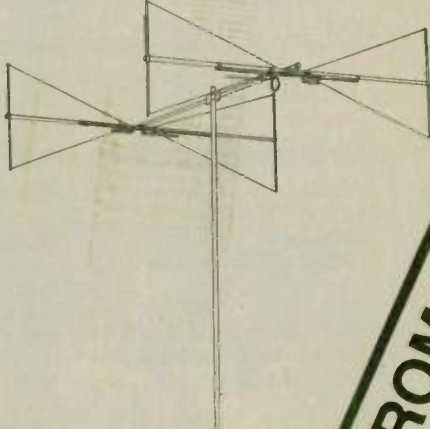
Gotcha!?

We hope you enjoyed our "April Fool" article last month — "The invisible antenna," page 14. □

•••••DON'T FORGET•••••
INCLUDE FIRST AND LAST
NAMES with call signs.

The HF5B "Butterfly"™

A Compact Two Element Beam
for 20-15-12-10 Meters.
Operates as a dipole
on 17 meters.



HF ANTENNAS FROM BUTTERNUT

Butternut Verticals

Butternut's HF verticals use highest-Q tuning circuits (not lossy traps!) to outperform all multiband designs of comparable size!

Model HF6V

- 80, 40, 30, 20 15 and 10 meters automatic bandswitching.
- Add-on kit for 17 and 12 meters available now.
- 26 ft. tall

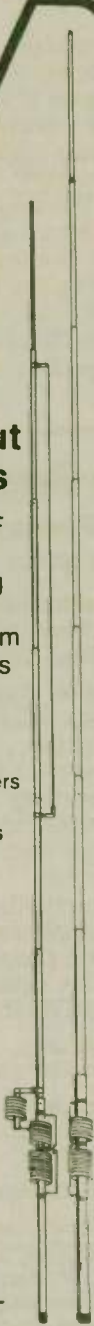
Model HF2V

- Designed for the low-band DXer
- Automatic bandswitching on 80 and 40 meters
- Add-on units for 160 and 30 or 20 meters
- 32 feet tall - may be top loaded for additional bandwidth.

For more information see your dealer or write for a free brochure

BUTTERNUT ELECTRONICS CO.

405 East Market
Lockhart, Texas 78644



FCC Highlights

(continued from page 8)

administering the Tech. examination. (FCC, Gettysburg, 02/09/88; W5YI, 03/01/88)

The Cerritos, California FCC office telephone number has been changed to: (213) 809-2096/public number and (213) 865-0598/recorded information. The address is: 18000 Studebaker Rd., Rm. 660, Cerritos, CA 90701. (ARRL Letter, 02/03/88)

FCC figures for the period October 1, 1986 through September 30, 1987 show growth/reduction in the amateur operator classes as follows: Technician +6.36%, Extra +5.99%, Novice +4.64%, Advanced -0.04%, General

-2.08%; Total +2.1%.

Such FCC figures for the period January 31, 1987 to January 31, 1988 are: Technician +9.51%, Extra +6.58%, Novice +1.63%, Advanced +0.63%, General -1.43%; Total -2.64%.

"Gauging the success of Novice Enhancement depends upon what objective you had in mind, ..." If your objective was to keep people from dropping out of the service and to move up from Novice to Technician ... which I think was the major FCC thrust of the Rulemaking ... then Novice Enhancement is successful.

"For those that thought that this was going to bring lots of new people ... Well, I don't think that it is working." (John Johnston, W3BE, Chief of the FCC's Personal Radio Branch).

"Johnston also said that many times information published or circulated concerning Amateur Radio growth — or lack of it — is not supported by the actual licensing numbers." (W5YI Report, 02/15/88)

"... a large percentage of those in primary amateur training classes appear to be bypassing the Novice in favor of going directly to the Technician license. In numerous cases, in-

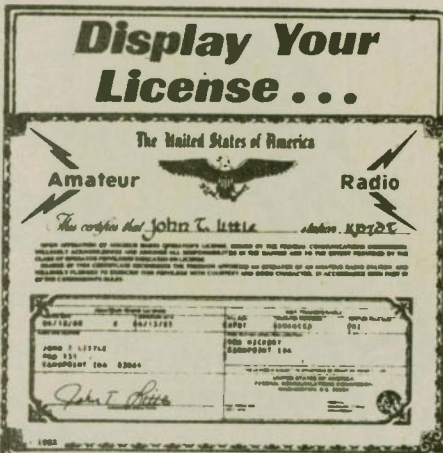
structors and students alike feel that the difficulty level between the Novice and Technician is minimal and the code element is the same.

"With overall testing more easily available ... going directly to Technician is an obvious route. This would explain the surge in the ... number of ... Techs contained in the FCC figures." (Westlink Report, 02/05/88)

When asked about the progress of FCC's PRB-3, Privatization of the assignment of Amateur Radio station call signs, PR Branch Chief Johnston said: "... There are still a lot of approvals and reviews ahead. The threshold decision is whether we want to do it or not.

"One of the key things is whether or not it is going to cost us any resources ... Thirteen people have proposed to issue amateur calls signs in the private sector ..." (W5YI, 02/15/88)

Despite "Last December's decision by former FCC Special Services Division Chief Ray Kowalski to permit multiple coordinators to represent the same spectrum in the same geographic area ... a lawsuit charging libel and slander has been filed by ... members of one Southern California 220 MHz frequency coordination group against another such group. (Westlink Report, 02/05/88, 01/22/88)



... with an official looking, 8 x 10 white parchment certificate printed with red, blue and gold ink (gold borders, gold eagle with red, white and blue shield, red lightning bolts and blue type). Looks good with original license or photocopy.

Area reserved for your license is pre-slotted for easy insertion. Your name and call are hand printed on certificate in calligraphy.

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END-OF-MONTH LICENSE TOTALS

December	1987/1988	January
43,902	Extra	43,970
98,610	Advanced	98,408
114,398	General	113,958
93,466	Technician	93,675
83,013	Novice	82,400
433,389	Totals	432,411

Novice World

Novice World — Volume 2, Issue 1, is now available free from ICOM America. Novice World is a newsletter developed by and for the Novice Class operator to introduce him to new and exciting facets of Amateur Radio Communications.

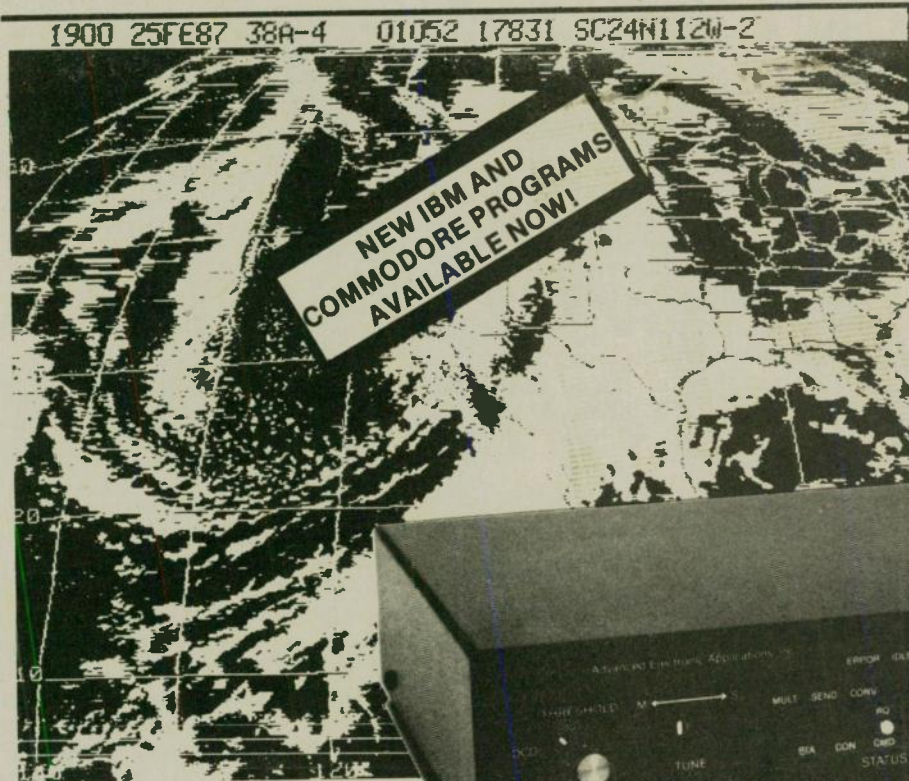
Novice World is currently the only publication devoted specifically to the Novice Class ham. Novices who would like to receive a copy can drop a note to Novice World, in care of ICOM America, 2380-116th Ave. NE, Bellevue, WA 98004.

— Westlink Report

Are you involved in public service?

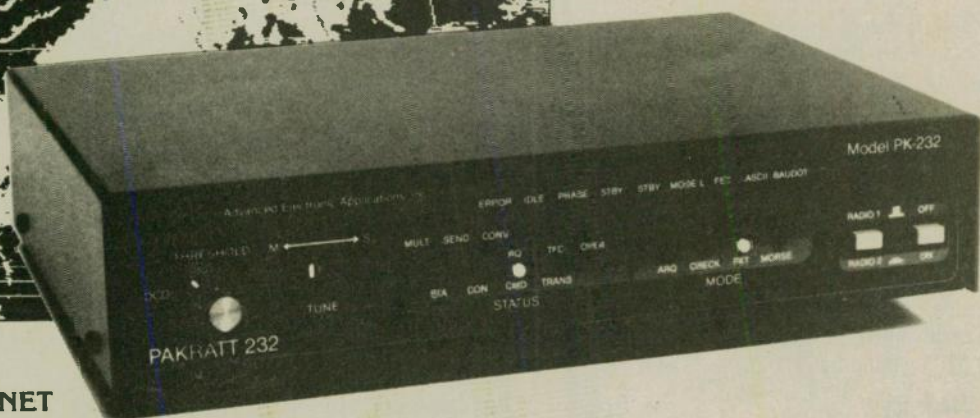
New PK-232 Breakthrough

Six Digital Modes - Including Weather FAX



A new software enhancement makes the AEA PK-232 the only amateur data controller to offer six transmit/receive modes in a single unit.

- * Morse Code
- * Baudot (RTTY)
- * ASCII
- * AMTOR
- * Packet
- * Weather FAX



\$319⁹⁵
AMATEUR NET
\$379.95 AEA RETAIL

Your home computer (or even a simple terminal) can be used for radio data communication in six different modes. Any RS-232 compatible computer or terminal can be connected directly to the PK-232, which interfaces with your transceiver. The only program needed is a simple terminal program, like those used with telephone modems, allowing the computer to be used as a data terminal. All signal processing, protocol, and decoding software is in ROM in the PK-232.

The PK-232 also includes a no compromise VHF/HF/CW modem with an eight pole bandpass filter, four pole discriminator, and 5 pole post detection low pass filter. Experienced HF Packeteers are reporting the PK-232 to have the best Packet modem available.

Operation of the PK-232 is a breeze, with twenty-one front panel indicators for constant

status and mode indication. The 240 page manual includes a "quick start" section for easy connection and complete documentation including schematics. Two identical back panel radio ports mean either your VHF or HF radio can be selected with a front panel switch. Other back panel connections include external modem disconnect, FSK and Scope Outputs, CW keying jacks, and RS-232 terminal interface.

The RS-232 connector is also used for attaching any Epson graphics compatible parallel printer for printing Weather Fax. Weather maps and satellite photos, like the one in this ad, can be printed in your shack.

Contact your local AEA dealer today for more information about the one unit that gives you six modes for one low price, the PK-232.



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TUNER-TUNER™



- Tune your tuner without transmitting.
- Save those finals!
- Operate easier, faster.

Do you use an antenna tuner? Then you need the new Palomar Tuner-Tuner to tune up your tuner without turning on your transmitter. The Tuner-Tuner connects between your tuner and your rig.

Here's how it works:

1. Turn on the Tuner-Tuner. You'll hear a loud S9+ noise.
2. Tune your tuner until the noise drops out completely.
3. Turn off the Tuner-Tuner.
4. Start transmitting. SWR will be 1:1.

What could be simpler? You can tune up while listening to the other station call CQ. No need to move off frequency to tune up. No need to cause interference while tuning. No need to operate your rig into anything but 1:1 SWR.

Users say:

"I cannot tell you how pleased I am with the Tuner-Tuner. What a fantastic product! I would recommend the Tuner-Tuner to anyone." — W06P

"It performed exactly as claimed. It represents one of those simple but clever ideas whose time has come." — CQ Magazine

"I picked up my Tuner-Tuner which I ordered through my dealer, and I am delighted with it. What a useful and clever invention!" — N4MNS

Order yours today! If you use a tuner you need a Tuner-Tuner.



Model PT-340 Tuner-Tuner only \$99.95 + \$4 shipping in U.S. & Canada. Calif. residents add sales tax. FREE catalog on request.

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Incident Command System

Ed Mitchell, WA6AOD

"Semi-organized chaos is what we used to have," said Fire Captain Jerry D. Baker, Sunnyvale Department of Public Safety, speaking on the need for the Incident Command System (ICS), being adopted nationwide by fire departments and other emergency service agencies.

Speaking to the Southern Peninsula Emergency Communications System (W6ASH/R, 145.27/224.36 MHz repeaters) quarterly meeting, held January 10 at El Camino Hospital, Mountain View, California, Capt. Baker described the ICS and how it has brought a simple, organized structure to the handling of major and minor emergencies. "ICS is simple and has caught on like wildfire," claimed Baker.

To Amateur Radio operators, and particularly ARES members, ICS is important because ICS provides a structure into which ARES fits. Further, incident commanders expect the services they work with, including ARES, to have a good understanding of the ICS.

The System

According to Capt. Baker, the ICS concept originated in the mid-1970's after a series of devastating fires in Southern California. Since then, ICS has been adopted as a standard by the Federal Emergency Management Agency, and is now being implemented throughout the United States.

ICS works because it puts one individual in charge at the scene of a disaster and establishes common terminology to eliminate confusion. As an example, Baker described a typical accident report, indicating that a vehicle has struck a power pole.

A single fire engine is sent to the scene, but upon arrival, spots "tetraethyl-death running down the roadway." The first engine on the scene immediately assumes charge as the Incident Commander (IC), and requests additional resources and assigns crews to various functions. The IC might assign one engine company to evacuate buildings, and another to

cordon off the area.

Note that the first individual on the scene becomes the IC. Only later does a Battalion Chief or other high ranking firefighter step in to take over the IC position. From the minute a rescue squad arrives, *someone is in charge*.

The ICS is split into three functions: Logistics, Operations and Planning. Initially, the IC is in charge of all three functions. But, depending on the size of the disaster, the IC will delegate responsibility for the sub-areas. The IC, together with these three functional areas, is the Administrative Section of the ICS.

Logistics manages the resources that are on the scene. For example, 10 fire trucks, a Red Cross vehicle, three paramedic units, water supplies and an ARES team.

The Operations team manages the current situation, applying efforts, for example, to wash down the "tetraethyl-death."

The Planning function tries to stay ahead of the situation, estimating what resources will be needed in, say, 30 minutes or an hour. These resources are then requested to station themselves at the "staging" area, where they will be managed by logistics and brought into play at the IC's request.

Important elements

According to Capt. Baker, "The whole world is filled with good people who want to come in and help us. All these people are clamoring for the IC's attention." This quickly overwhelms the commander's ability to manage the situation. Hence, the need for a logistics leader and a *staging area*.

All the resources, from official agencies to certified volunteers, should report to the staging area. If their help is needed, the IC will call for it.

The staging function relieves the IC from a busy task, and provides a way to deal with all the agencies and volunteers who *think* their skills are absolutely essential. It is not uncommon for 60% or more of the available resources to be sent home, unused. The IC would rather have too many than not enough.

The ICS provides that someone is always in charge. When additional units arrive on the scene, they are assigned duties and given tactical call signs, such as "Interior Division," "Floor 2," "Traffic Control" and so on.

Ramifications for ARES

The ICS has been proven as an effec-

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tive mechanism for dealing with small and large disasters. It is being adopted nationwide by all fire fighting agencies and many police agencies, including the California Highway Patrol. All of these agencies expect that support services like ARES will be familiar with the ICS.

Amateur operations have already adopted features similar to the ICS. When a situation occurs, a Net Control Station assumes control, and begins gathering and assigning resources. Eventually, a separate resources net is established to take this function off of the tactical net frequency — in effect, establishing a staging area. Other similarities include the use of tactical call signs

rather than FCC call signs, as appropriate.

The ICS format is so close to the existing amateur response, we should probably adopt its protocols. Don't be afraid to assume ARES control functions. If you're the first ham on the scene, you should be the Amateur Radio IC, coordinating the amateur response until someone with perhaps more experience than you, arrives to take charge.

When ARES support is requested by an agency, or if you think it may be needed, report to the staging area, not the IC. The IC is going to "have a hard time putting 225 guys to work." While most of the officials are aware of ARES, "We learn how to use you when we need you."

Capt. Baker concluded his talk by saying, "Amateur Radio is a resource that we don't want to have to use. If we call on you, it means we are stretched to the limit. The situation is really serious."

ICS works

The Incident Command System is simple and effective. According to Capt. Baker, "I could teach the whole thing in three to four hours, and you could all walk out as experts." The bottom line is that ICS works and ARES members will need to become familiar with its operation. □

Cancer link follow-up

Over the past few decades, the fear of cancer has grown — and with it, many theories on its causes. Earlier this year, an article was published in the *American Journal of Epidemiology* (AJE), inferring that Amateur Radio operators may run a greater risk of cancer — in particular, leukemia — than the general public.

The study was based on a survey of 67,829 California and Washington radio amateurs from January 1, 1979 to December 31, 1984. The actual death rate among those hams was 2,485. (This was a follow-up of a study printed in the April 1985 issue of *Lancet*. The original study was the result of a suggestion made by Andrew Sabol, W2EVE.)

Worldradio talked to the author of the article — Dr. Samuel Milham, Jr. He said he had done some further study on this subject and sent a copy of that study which had also been submitted to the AJE. The study broke down the ratios of mortality rates by Amateur Radio license class.

"I wouldn't make any drastic life changes until something more than a preliminary study has been done," said Milham. "Until a more extensive study is done, people should not jump to conclusions." He said that he would definitely not give up a hobby based on one survey.

A similar statement was made by Leonard Sagan, program manager for radiation studies at the Electric Power Research Institute in Palo Alto, California. "Evidence is weak and inconsistent and in a few years we will have better evidence."

Sagan warned that studies like Milham's can be misinterpreted. Milham's findings could be simple associations that have nothing to do

with cancer causes among people who work with electricity, he said. Sagan added that his own research hasn't shown whether electricity causes cancer, but he predicted that if it does, it's rare.

For more information on the survey, write to Dr. Samuel Milham, Jr., Dept. of Social & Health Services, LP15, Olympia, WA 98504.

— *Information from Dr. Samuel Milham, Jr. and the Los Angeles Times, 1/3/88; thanks to Ken Caplin, KA6NOR, for submitting the Times article* □

• *A smile is contagious* •

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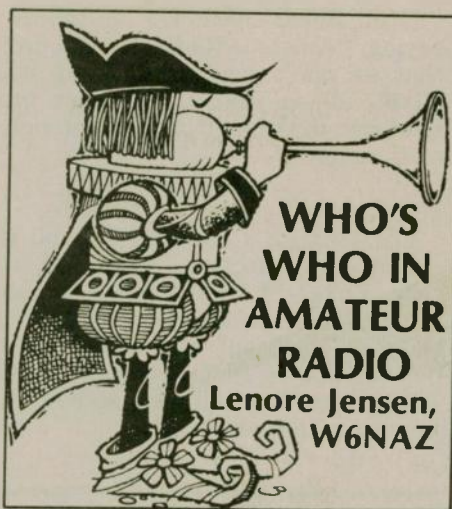
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**WHO'S
WHO IN
AMATEUR
RADIO**
Lenore Jensen,
W6NAZ

Andy Romanisky, WA6WXD, fulfilled a long-held dream—he visited Russia to meet in person about 200 radio amateurs! But this was only after months of planning and correspondence.

“For years,” he explains, “I had enjoyed QSO’s with UA’s, and once received a polite request for some ham maps, which I gladly sent, never imagining that one day I would see those same maps on the wall of a Russian ham club. However, correspondence developed with him and others. I finally wrote asking if I could meet them in person, should I be able to visit. The replies were warm and encouraging.

“That started the preparations, making more QSO’s with other English-speaking operators, and learning the intricacies of travel in the USSR outside the normal tourist spots. My local friend Tony Loeb, AB6Q, was of enormous help due to his fluency in Russian.

“Finally, I started out on a four-week trip, all alone, first for Leningrad where I would be permitted to finalize the itinerary. (I had to send a dozen photos of myself as I would be met by

Intourist representatives at each spot, directed to certain hotels, etc. I felt they knew where I was at all times.)

“Once there, Intourist assisted with travel details. It turned out I could not phone my special friend Valarie, UA0JV, in Eastern Siberia, to give him arrival time so at \$15 a minute, I telephoned Tony back home asking that he QSO Valarie with the date and time, which was two weeks hence.”

So finally, Andy was able to realize his dream of shaking Russian ham hands. He met many new friends in Leningrad at the Globe ARC, UZ1-AYA, where Serge, RV1AA, had invited him to be guest speaker, with

towing a boat), American hams sending greetings from a big swapmeet, a barbecue grill and other U.S. “cultural” activities.

Andy took a tiny battery-operated TV monitor on which to show it, and this was always a big hit. Most of those he met had never before conversed with an American. “I was signing autographs like a celebrity! After an initial reticence, the sun broke through, and they were like old friends.”

He spent a week there, then took off for Moscow to meet Alex, RW3AZ, who—along with two others—had established Russia’s first repeater early

I admired their home-built equipment; no commercial gear is used . . . At one place, I was shown a unique heatsink with scores of sewing needles projecting upwards.

Boris, UA1DJ, translating. Andy had brought along current Amateur Radio magazines and brochures which were very eagerly read.

He had made a previous trip to Russia (before *glasnost*) and decided this time to bring a bit of Southern California in the form of an 8mm videotaped view of what it’s like to live in Los Angeles. He taped supermarkets, malls, freeways (including the amazing—to them—sight of a car

in 1987 using the club call of AZ3AXJ on 145.600. Again, Andy met many licensed operators as well as short-wave listeners at their club.

Then came the two-week 6,000-mile adventure on the Trans-Siberia railroad, with the plan of stopping at various cities to meet friends from on the air.

“If you plan to take it, I hope you like borscht and breakfasts of black (please turn to page 22)

MORSE CODE

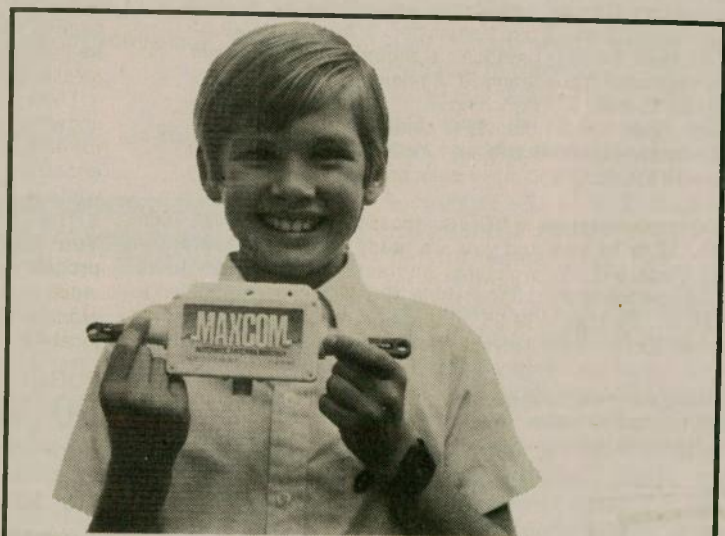
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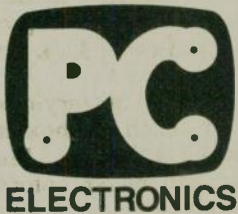


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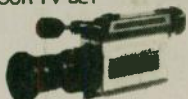
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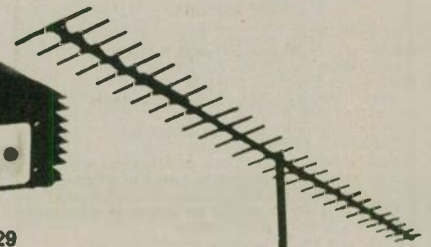
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Andy Romanisky, WA6WXD, visiting with friend Victor, RB7GG, in Kherson, Ukraine, USSR. Andy is at radio club station "Crystal," RB0GWG. The radio maps in the background were given as gifts to the radio club by WA6WXD.



Andy Romanisky, WA6WXD, speaking to the Leningrad Radio Club, September 1986, about Amateur Radio in the USA. Two Russian Amateur Radio operators help translate English into Russian for the radio club. Left to right: Andy, WA6WXD; Boris Gnuosov, UA1DJ; and Gene Momot, UA1BB.

Who's Who

(continued from page 20)

bread and cheese with tea! The dining car was comfortable, and I discovered the waitress computed my bill with an abacus, as people do everywhere over there. I had a sleeping car which I shared with another man.

"When we reached mid-Siberia, I

got off at the city of Irkutsk to meet Vlad, UA0SG, president of the club station (call letters UZ0SWA), and Serge, UA0SR, who showed me their QSL bureau for the UA0 area: a wall of cubicles for cards very carefully handled. When our QSL's go to P.O. Box 88 in Moscow, those for other areas are shipped for distribution by various clubs. Shortwave listeners with assigned numbers exchange lots


of cards, by the way.

"I admired their home-built equipment; no commercial gear is used. They laughed when I showed them my handi-talkie explaining 'everything we have is made in Japan.'

"At one place, I was shown a unique heatsink with scores of sewing needles projecting upwards."

After many more miles by train, Andy was at Kharbarovsk and delighted

HAMCON 88



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to find Tony's message had reached special friend Valarie and his wife Valentina; they were waiting at the station. Instead of the anticipated 10-minute visit, they boarded the train for the next 14 hours for fine conversation.

They all got off at the end of the rail and said goodbye as Andy took a Russian jet back to Moscow and then to Odessa. There he boarded a hydrofoil boat down the river to the city of Kherson, at the Black Sea, and visited Victor, RB7GG, and Natasha, to whom he has talked on the air for 10 years. They took him to the Contest Radio Club Crystal where Andy finally saw those maps, sent years ago, on the wall. The club specializes in contests and uses two calls: RB0GWG and UB4GWW.

During his travels, Andy used up his five allowable videotapes in his Camcorder, bringing home precious memories and sights—mysterious (till now) Siberia; the daily Russian life of Moscow and Leningrad; apartments; a pet bazaar (like a swapmeet as there are no pet shops, and where he saw his only advertising—a hand-made poster extolling a dog); dispensing machines for "gas water" where everyone uses the same little glass after a button rinses it; Young Pioneers, like Boy Scouts but walking stiff-legged. And countless huge buildings as well as the astonishingly large Red Square, and the extremely clean and beautiful Moscow subway. (People are not permitted to take pictures from planes or of train stations. A particular no-no is

photographing bridges, all of which are guarded by soldiers.)

As an unofficial goodwill ambassador of American Amateur Radio, he came home warmed by "overwhelming hospitality and admiration for his new friends."

His tip when you work a new Russian station: just because he comes back in English with his name, location, your signal report, etc., don't assume he is fluent and go into a lot of English. He's just doing what we do with Q signals, so gradually add facts. After all, he still knows more English than we do Russian!

Back at his job as a deputy sheriff, Andy is even now planning his next trip to Bangkok and Singapore to add to his previous eight trips to South America, three to Europe, and ham visits also to Japan and Hong Kong. Luckily, his wife Marilyn—a teacher/nurse—admires his visits as he brings home a wealth of interesting stories. Amateur Radio clubs are busy lining up with requests to see his videotapes and presentations of his fascinating travels.

If he's in town, that is.

As some of our readers may have noticed, *WHO'S WHO IN AMATEUR RADIO* was missing from our pages for several months—two years, to be exact. Two months ago, in the March issue, the column was back and we're happy to say that Lenore Jensen, W6NAZ, will once again be submitting her columns on a regular basis (every other month). Welcome back, Lenore! □

World's largest 'bug'

A pair of radio amateurs have built the world's largest semi-automatic Morse code key or "bug." The idea for the humongous key came from Jim Mozley, W2BCH, and Jeryl Wright, NK2X, both members of the Radio Amateurs of Greater Syracuse in upstate New York.

The big bug is scaled up 9" to the inch and is made of wood and steel spring. The copper contacts were made from wood with copper pipe cap inserts. Lathe-turned round parts and a sliding wooden weight make this bug fully operational and adjustable over a wide keying range. The finished product measures 33" x 53" and is painted to duplicate the gold plated top, silver parts and red paddle of the original desk model.

Each detail of the scaled-up model is exact, even to the red jewel and "bug" logo. The only difference is that below the black skirt on the base are wheels to permit the 4½'-long bug to be easily

moved. And the bug actually works.

Following its unveiling, a contest was held and most attempting to key the big bug had no problem doing so, despite the unit's giant size. The prize in the contest? A can of bug spray, no doubt. Tnx RaRa Rag. — Westlink Report □

The deadline for news releases and special announcements is the 10th of the month, two months prior to issue date. Example: Deadline for the August issue is 10 June.

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AWARDS

Skitrek Award

The Canadian Radio Relay League (CRRL) has announced the 1988 Polar Bridge Diploma, to correspond with the joint Soviet/Canadian Skitrek expedition which begins in March. The attractive, oversize, bilingual (English/Russian) commemorative diploma will be awarded to all amateurs and SWL's fulfilling the following requirements.

Competitors must submit three different calls from Northwest Territories (NWT) Canada, (usually VE8); three different calls from Asiatic station, USSR, (usually UA9 or UA0); and one base camp station from either Canada or the USSR.

Also required are: one contact from the capital region of Ottawa, Canada; and one contact from the capital region of Moscow, USSR, for a total of nine two-way QSO's or log entries. Contacts must be made between February 15 and June 15, 1988.

Send your application, certified log data (no QSL's), and 10 IRC's or \$5 Canadian to CRRL National Awards Manager Garry V. Hammond, VE3-XN/VE8XN, 5 McLaren Ave, Listowel, Ontario, N4W 3K1 CANADA.

Canada's Department of Communications (DOC) has authorized the use of the special prefix CI8 for use by Northwest Territories (NWT) radio amateurs from February 15 to June 15, 1988. Base station CI8C will be located at Resolute Bay, NWT.

—ARRL Letter

The Polar Bridge Expedition began its more-than-three-month journey across the polar ice cap on March 3, at 0731 GMT. (See "USSR/Canada expedition," page 3, April Worldradio.)

In order to facilitate the communications in support of the expedition, a special third-party traffic and reciprocal operating agreement between Canada and the USSR was specifically negotiated and is in effect until August 1, 1988.

This is a historic agreement — the first of its kind involving the USSR. It was jointly signed by senior officials of the Soviet Ministry of Communications; the Canadian Department of Communications; Chairman Y.U. Zubarev of the Radio Sports Federation of the USSR; and Tom Atkins, VE3CDM, president of the Canadian Radio Relay League.

Using the facilities of SARSAT/COSPAS, the search and rescue satellites — as well as the amateur

satellite OSCAR-11/UoSAT, with its "talking computer" on board — the trekkers are able to receive position reports on their ICOM micro2At hand-held FM transceiver on 145.825 MHz FM, about every 100 minutes.

The format for the digtalker transmissions in plain English will include: Position Report Number, Priority Code, Date, Time UTC, Latitude and Longitude.

The skiers' daily routine consists of a steady 8- to 10-hour trek, followed by the setting up of their single tent, a meal together, a few minutes on the HF radio to the base stations, and a well-deserved night's rest. The morning routine includes a quick breakfast and tent take-down, as they switch on their Emergency Locator Transmitter for the navigation fix during a satellite pass.

All elements of the Polar Bridge Amateur Radio communications network are performing well. □

Ambassador Award nominations

For the third consecutive year, Advanced Electronic Applications is announcing a special award for the radio amateur who demonstrates extraordinary action in presenting the Amateur Service to those outside Amateur Radio. The AEA Amateur Ambassador Award includes a \$1,000 cash prize and round-trip air fare, hotel and meals, to the ARRL National Convention in Portland, Oregon in September, where the award will be presented.

The award is judged on the criteria of dedication to Amateur Radio,

positive influence on those outside the Amateur Service, and initiation of special projects or programs to promote the Amateur Service. Previous winners have included Mary Duffield, WA6KFA, of California and Byron Lindsey, W4BIW, of Georgia.

Nominations will be accepted until August 1, 1988, and can be made by requesting the AEA Amateur Award nomination form from AEA. Send requests to: Advanced Electronic Applications Amateur Ambassador Award, P.O. Box C-2160, Lynnwood, WA 98036. □

Ham given Volunteer Citation Award

At the recent awards and installation banquet of the California Park and Recreation Society, SARES (Sunnyvale Amateur Radio Emergency Service) was awarded the 1987 Volunteer Citation Award.

The award, in the form of a plaque, was accepted for SARES by Walter Rees, WA6BAX, Emergency Coordinator for Sunnyvale. He was escorted by John Lawrence of the City of Sunnyvale Parks and Recreation Department.

In awarding the plaque, district director David Muela said: "The Sun-

nyvale Amateur Radio Emergency Service is recognized as a major communications network for this area's emergency services organizations. This group of volunteers has donated its time, equipment and expertise to a number of community activities, including the city of Sunnyvale's annual running event.

"Their participation has been instrumental in providing a safe and well-organized community event for the city of Sunnyvale." — Walter Rees, WA6BAX □

Amateur honored

Congratulations to Sgt. Wayne Beasley, N7ICS, who was recently awarded the Air Force Achievement Medal. Normally this medal is awarded for outstanding performance while

on duty.

Beasley was one of the Amateur Radio operators who provided emergency communications support for the Red Cross during the Hangman Valley Fire in Spokane, Washington, July 1987. □

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At the dedication ceremony of the Electrical Engineering Milestone, left to right: Chief James Sisk, Bayonne Police Dept.; Lt. Harry Allan, Bayonne P.D.; Frank Gunther, W2ALS; George Graul, IEEE; Capt. Alexander Auriemma, Bayonne P.D. (W2DME photos)

Police mobile system hits a milestone

Philip Petersen, W2DME

In the fall of 1932, Frank Gunther, W2ALS, designed a two-way mobile communication system for the Bayonne, New Jersey Police Department. This system enabled patrolmen in patrol cars to communicate with headquarters and other cars instead of just receiving calls.

This was a radical new "state-of-the-art" concept to police radio communications. With the one-way low-frequency systems already in use for five years, the former Federal Radio Commission was reluctant to authorize the operation of a new two-way radio in police vehicles. However, after much persuasive correspondence with the FRC, a license was issued in March 1933 to the Bayonne Police Department and the first two-way mobile radio system was officially underway.

Word of the success of Frank Gunther's design of the two-way mobile radio systems spread throughout New Jersey and then across the nation, with many towns and cities installing two-way police radios. It is now finally recognized as an electrical engineering

milestone in two-way mobile police radio communications.

Frank Gunther, W2ALS, who was Chief Engineer of the Radio Engineering Laboratories, said that one of the large, prestigious companies selling the one-way radio system was strongly opposed to local governments buying the new two-way radio system. The company claimed that a vertical antenna would not provide adequate coverage and would identify the vehicle as a police car.

Gunther's tenacity and experience as a radio amateur helped him to finally succeed after several other cities followed the advice of the leading consultants of that day — that the two-way police radio would not be satisfactory.

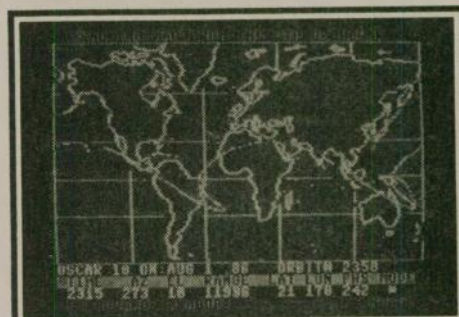
The system was rather simple by to-

day's standards. It consisted of an Armstrong Super-Regenerative VHF receiver circuit. The transmitter was a non-crystal-controlled, amplitude modulated transmitter, operating in the vicinity of 34,600 kHz powered by the police car storage battery and dynamotor. The system was, of course, over 10 times higher in frequency than the old one-way system, much less costly, lighter in weight, and less prone to many types of radio interference.

This writer remembers hearing the Bayonne Police Two-Way Radio in the early 1930's on a "homebrew" super regenerative receiver 15 miles away when living in Staten Island, New York. It was a thrilling experience when I learned that someone was speaking from a moving police car.

Little did I realize then that, 54 years later, I would be invited to witness the dedication ceremony when a large bronze plaque was presented by the Institute of Electrical and Electronic Engineers to the City of Bayonne, designating the design of this first two-way police radio communication system an electrical engineering milestone. □

Check your license expiration date.



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STATION APPEARANCE

MAY WINNER
Bob Branch, KJ7I

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.



Bob Branch, KJ7I, of Pine, Arizona wins this month's STATION APPEARANCE with these photos and description of his station.

Bob writes that the creation of this station is the result of operating out of a mountain "summer house" for several years before retiring there in 1986. He goes on to say:

"This meant an unoccupied house, in a remote area, for much of the time. A combined goal of space saving,

neatness and security was pursued with success.

"All gear is housed in a closet under the steps to the second floor. An 18"×36" opening was cut in the wall between the closet and the outside room. The cutout section was hinged



across the bottom and provided with chain stops. When opened, this provides a writing desk/operating area. When secured the desk is folded up and a large picture is hung in front of the cutout.

"Radio equipment is mounted on two 12"-deep shelves installed through the wall with the front panels flush with the desk surface in the folded position. Eight 115V and two 110V receptacles are provided on the inside wall of the closet so that all wiring is inside the closet and hidden from view, yet easily accessible for changes.

"For further security, the closet door is disguised as a paneled wall when buttoned up, and no indication of the station is visible to the casual observer (or intruder!).

"One other point of interest (and security) is the 10/15/20M antenna, consisting of a pair of phased verticals disguised as flag poles.

"Equipment line-up is, from left to right: (top) FT-107M, HC-10, YO-301; (bottom) FP-107E, MFJ-481, AEA MBA-RC, Alpha 76A." □

Modern love story

Jim Pinfield and Hadley student Sherrie Bucknell knew nothing about each other three years ago. Now, as a result of their shared hobby of Amateur Radio, they are married and share the same last name. Here's the story:

In 1985, Jim, a native of Concord, New Hampshire, and an Amateur Radio operator, picked up fellow ham Sherrie's frequency from Grafton, Massachusetts. He promptly informed her, using Morse code, that her

signals weren't clear enough.

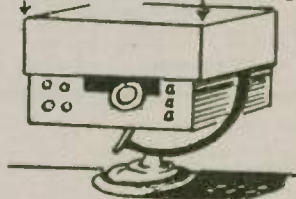
That was the beginning, and four months later, after many hours on the radio and hundreds of dollars worth of phone calls, they met. Jim passed the critical test at that first meeting: he liked Sherrie's dog guide, Junket. Now married and living in Concord, the couple travels in a van with license plates identifying them as "2 HAMS."

—*The Hadley School for the Blind* □

Canadian time

If you have trouble getting the time/frequency standard signals from WWV, try the Canadian station CHU. Even if you don't have a general coverage receiver, you should be able to tune to the 7.235 MHz transmission. This transmission is with 3.67×10^6 of the primary cesium clocks. (See August 1987 *QST* for further details.) — *Poway ARC, CA* □

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- Et Original Electronics-Brownsville, TX
- EEB Vienna, VA
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- The Ham Station-Evansville, IL
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Activities Calendar

- 23-24 Apr USKA Helvetia H-26 Contest
- 14-15 May RSF CQ-M Contest
- 28-29 May URE Ibero-America Contest (SSB)
- 28-29 May LABRE World Telecommunications Day
- 28-29 May CQ World Wide WPX Contest (CW)
- 04-05 Jun DARC Field Day (CW)
- 18-19 Jun JARL All Asian DX Contest (SSB)
- 25-26 Jun RSGB Summer 1.8 MHz Contest (CW)

W-100-N

328. NJ0L Richard J. Baker

International DX Weekend

Thinking of going to Europe this spring? Why not plan to attend the International DX Weekend at Geilo, Norway, to celebrate the 10th anniversary of the LA-DX-Group. The program follows the typical DX-related subjects, including John, ON4UN, with a program on low-band DXing and computational techniques.

The date is June 4-5 for this event. If you plan to be in the mountains of south central Norway and would like to attend, you may request registration information from Bjorn-Henning Bergheim, LA4DCA, Nebbejordet 34, N-1266 Oslo 12, NORWAY. You must register before May 1, and the fee is NOK 100.

Botswana (A22)

Larry Schmidke, A22BW, has been found on several bands recently. On 40M he was worked near 7.006 MHz around 1545 UTC on the West Coast, February 15. Other spots include 14.151 MHz at 2045 UTC and 28.532 MHz at 1900 UTC. Top band fans in

Massachusetts found him on 1.828 MHz at 0345 UTC near the end of January. According to *Inside DX*, Larry will be glad to make a schedule on any band that you need Botswana on.

Dale, A22EE, was worked recently in Ontario, where he was found on 21.275 MHz at 1730 UTC and 28.487 MHz at 1800 UTC.

10M is a good band to work Botswana on as almost all the stations reported this past period included 10M contacts. These included the following:

A22BW	28.462	1945
A22FN	28.520	1800
A22RB	28.501	1900

The third of the above listing, A22RB, has also been very busy. He has been reported on the E.T. Net on 14.160 MHz around 2330 UTC, and then on CW near 14.010 MHz at 2100 UTC. Also check 15M near 21.277 MHz at 1930 UTC.

A fifth station reported was A22DG, who was found around 1630 UTC on 21.240 MHz.

Tonga (A35)

Only two calls were reported from this one during the month of February. On 40M near 7.005 MHz, A35BV was busy working the Midwest area around 1410 UTC, and again at 0700 UTC the Europeans.

Up on 20M near 14.226 MHz, A35SA was worked during the early part of the month at 1845 UTC.

Inside DX reports that W9GW was expected to sign with an A35 call the latter part of March.

Reunion Island (FR)

Herrick Larive, FR5DX, has been one of the busy ones giving out contacts from Reunion Island. Pick your band as he has been reported on several. Try 20M between 14.195 and 14.200 MHz after 2100 UTC. He has also been found on 10M near 28.515 MHz at 1500 UTC working the Europeans, 21.296 MHz at 1500 UTC and 7.070 MHz at 0230 UTC working into western Canada.

Other Reunion Island DXers reported this past period include the following:

FR4EB	21.280	1800
FR5ES	14.196	1430

FR5ZE	14.200	0315
FR5ZN	14.243	1500
FR5ZD	14.160	2100
FR0EH	21.280	1800

DXers are reminded that when sending QSL cards direct to Reunion Island to add the words "via France." Morris Shepherd, W7LVI, of the Western Washington DX Club, says that mail addressed to the island normally goes through Nigeria, where the mail can be pilfered. If the address has a French department code, most likely you can delete the Reunion Island part of the address.

Mongolia (JT)

Not much activity from this Zone 23 country. Bator Sambu, JT1BG, has been reported on 10M working into Europe on 28.531 MHz around 0930 UTC.

On 20M, a JT5AA was reported on February 19 around 1300 UTC, working into Maryland on 14.200 MHz. Also on this frequency was JT1BS at 1145 UTC working the European mob.

Near the band edge of 40M, JT/OK1XC was working into south-eastern North America after 1200 UTC mid-February.

Kingman Reef (KH5K)

An international team of DXers are scheduled to leave Christmas Island on April 20 to head for "KH5-land" according to *QRZ DX*. The calls of the operators include DJ8NK, F6EXV, JA5DQH, K9AJ, KP2A, W0RLX and WA2MOE. The period mentioned will be April 23 through May 7.

According to *DX News Sheet*, the calls signs will be K9AJ on CW and W0RLX on SSB, appending KH5K from Kingman Reef and KH5 from Palmyra Island. The DXpedition is scheduled to hit Palmyra first and then to Kingman Reef around the 30th.

We have our thoughts on the Palmyra operation. A few years ago, there was a DXpedition to that spot which resulted in the aircraft crashing on landing on the island, seriously injuring Jan, WA6YQW, one of the team members. Unfortunately, this resulted in a lawsuit against the owners of Palmyra Island. The last we heard, it was still in litigation and the owners were refusing anyone access to the island. We shall keep our fingers crossed. That was 1980, so perhaps things have mellowed!

Papua New Guinea (P29)

Swing your beams to the South Pacific if you need this one. On 75M, P29RB was worked mid-February around 1130 UTC near 3.799 MHz. On 80M, P29PL was found on 3.503 MHz

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at 1215 UTC and also on 40M near 7.003 MHz at 1100 UTC.

On 15M look for P29DE, who has been worked on the East Coast near 21.230 MHz at 2130 UTC and P29JP on 21.256 MHz around the same time.

Europeans found P29VU on 14.185 MHz around 1100 UTC — a bit too early for this part of the world.

Central Kiribati (T31)

The Long Island DX Bulletin reports that Jim Smith was to pick up a T31 call sign upon his arrival. This is part of the DXpedition to Baker and Howland Islands that was scheduled to commence the latter part of March. Whether he operates from this part of Kiribati or Eastern and Western Kiribati (T30 and T32) we shall see. Many DXers still need Central Kiribati as there has been no activity from Canton Island recently.

Iceland (TF)

We don't know how many DXers need this one. Most likely, new DXers are looking for this one and it is within reach of even the most modest station. At least five stations in Iceland have been reported during the month of February:

TF3BM	14.227	2000
TF3CW	14.026	2315
TF3SA	14.097	2145
TF3SV	14.165	1415
TF5BW	3.776	2245

Moldavia (UO)

Those of you who watched the Dynasty episodes a couple of seasons ago probably had a good laugh when the Carrington family went to Moldavia for the wedding into the royal family. Moldavia does exist, but it is a Soviet republic.

Quite a handful of Moldavian stations have been reported recently with some of them quite active. Take a listen for these:

UO4OR	7.008	0330
UO4OWN	7.003	0545
UO5OAP	3.502	0330
UO5OK	14.092	1245
UO5OKS	3.510	0415
UO5OO	7.011	2330
UO5OQ	14.226	1745
UO5OR	3.508	0300
UO5PK	7.003	0230

Be aware that the frequency for UO5OK is for RTTY.

Senegal (6W)

A few stations from this one have been reported recently. John Pipien, 6W6JX, has been very active and has been reported on at least three bands. On 20M he has shown on the net frequencies such as the Family Hour on 14.226 MHz around 2045, and later on the Friendly E.T. Net, 14.160 MHz at 2300 UTC. On 15M he has been reported on 21.230 MHz around the

same time period. Top band fans have also been blessed with the appearance of 6W6JX, although by the time you read this, the band will be useless for the season.

Jack Bonnafous, 6W1BL, has also been worked, reported in Ontario around 2000 UTC on 14.024 MHz. Also on the band is Wolfgang Jorzik, 6W1NQ, who puts out an excellent signal on 14.170 MHz. Look for Wolfgang after 2330 UTC.

Other Senegal stations include the following:

6W1JW	14.226	2230
6W6AB	21.257	1930

6W6IQ	28.460	1630
6W7OG	14.160	2245

Amateur Radio in Sri Lanka


We received a very nice letter from Ernest Amarasinghe, 4S7EA, who gave us some insights on Amateur Radio in Sri Lanka. Ernest is 52 years old and has been licensed since 1957. Ernest writes:

"I have a TS520SE and a 2-element tri-band cubical quad antenna. I am active on SSB, CW, RTTY, AMTOR and satellite. So far I have worked over 60 countries via OSCAR-10. For satellite working I use a FT726R and 70cm 20-element Yagi and 145 MHz

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12-element Yagi. I am also active on 50 MHz and use a TS600. I am the only 50 MHz station in Sri Lanka, and have worked Japan, YB and VU2.

"Ham radio started in Sri Lanka well over 50 years ago and presently we have approximately 130 4S7's. The licensing authority is the Director of Telecommunications. The exam is held once a year in August, and one should pass a theory and regulations paper. Morse speed required is 12 wpm. The maximum power allowed is 100W.

"Visiting foreign hams are allowed to operate in Sri Lanka. You must send in your application to the Director of Telecommunications, Telecom Headquarters, Colombo, at least three months before your arrival. Call sign allocated will be N6JM/4S7."

Ernest is married to Chandra and they have a 12-year-old son, Kavi. Ernest is the only amateur in the family. Look for 4S7EA every day from 0100 to 0200 UTC near 14.185 MHz. Set your antenna for long path.



Ernest Amarasinghe, 4S7EA, is very active from Sri Lanka and looks for Stateside contacts every day between 0100 and 0200 UTC on 14.185 MHz long path. Ernest is 52 years old, employed as an engineer with the Overseas Telecommunications Service. One of about 130 amateurs in Sri Lanka, Ernest has been hamming since 1957. (Photo courtesy of 4S7EA)

Clubs

The Northern Arizona DX Association recently selected their 1988 officers with Arthur Phillips, NN7A, President; Frank Berberich, KD7XO, Secretary Treasurer; Mike Sharp, NG7S, Program Director; and Hugh Phillips, KR7Y, Editor. We wonder who runs the meetings if the president is unavailable. DXers in northern Arizona can contact the NADXA at 222 Robin Hood Rd., Williams, AZ 86046.

The new officers of the Madison DX Club include Joel Kupferberg, N9CPW, President; Frank Holliday, WB9NOV, Vice President; and Ken Trachte N9ADN, Secretary/Treasurer. This Wisconsin club has 30 members, of which seven are on the honor roll. W9ZM leads the group with 366 countries confirmed. The average countries worked in the club is 278 — a range of 180 to 366.

Comments

Richard Stuber, N6LGO, comments on my remarks in our March column regarding QSL cards lost in the mails. Richard manages the "T" section of the 6th District QSL bureau and writes:

"The reason the cards have not been received is that there are presently 3.3 pounds of cards awaiting funds so

that they may be forwarded to WK6T on behalf of KH9AC. I have not received any funds to cover the cost of 4th class postage to WK6T. So do not blame the mail for the problem."

My comment "lost in the mails" has nothing to do with QSL cards sent via the bureau at all. We don't feel that a QSL manager should have to pay for the postage of receiving cards for others via the bureau. The exception to this, of course, is from those countries that discourage mailing cards direct. And there are some managers who refuse to accept QSL cards via the bureau. Perhaps it would save everyone some frustration if N6LGO contacted WK6T via the telephone and asked him what to do with the cards he is manager for.

Then perhaps we need some more discussion on the responsibilities of a QSL manager. Should he have to accept cards sent via the bureau? Perhaps a few other QSL managers — or QSL bureaus — can add to this.

Antique QSL Department

Here are some more oldies from the collection of the late Roy Weisbach, W9UX. These were submitted by Bob Truhlar, W9LNQ, a regular contributor to this column.

NQ2AC was the call used by Jose Acosta of Havana, Cuba. Roy was using the call NU9UU back on May 31, 1928. As we have said in the past, the first letter in the prefix indicated the continent, the second letter the country. Canada was already represented by "NC", hence the "NQ" for Cuba. This card also listed his DX worked, such as NU, NM, NZ, SV, SJ, EB, EG, EI, EJ, EK, EN, OA, VE. The OA

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3 .. 160, 80, 40M	60 ft. ..	44 ..
2 .. 80, 40M	40 ft. ..	39 ..
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call assigned to Peter, still residing in Livingstone. This country is now known as Zambia with the "9J2" prefix. Peter is not listed in the 1987 Callbook with such a call, so perhaps he is now a Silent Key.

ARRL Outgoing QSL Bureau

We assume that ARRL members have been making use of the Outgoing QSL Bureau. This is the service for members only, for QSL shipping outside of the continental United States. This is not the same as the Incoming Bureau, which is available to everyone. There are limitations, however. The following is a list of prefixes for which the ARRL Outgoing Bureau cannot forward cards: A5, A6, A7, BV, C9, D6, ET, HZ, J5, KC4, KC6, KH1, KH3, KH5, KH7, KH9, KP1, KP5, P5, S9, T2, T3, T5, TJ, TL, TN, TT, TY, TZ, V4, VP2E, VR6, XT, XU, XW, XX9, XZ, YA, ZA, ZD7, ZD9, ZK2, ZK3, 3C, 3V, 3W, 3X, 4W, 5A, 5H, 5U, 5X, 7O, 7Q, 8Q, 9G, 9N, 9U. Any cards for amateurs in these countries must be sent direct or through a manager, as directed.

The cost is minimal — only \$1 per pound or less. Approximately 155 QSL cards weigh 1 lb. Be sure to include the address label from your current copy of *QST*. Send your packet to headquarters in Newington.

QSL help

Rufus Taylor, KC4AFT, worked Peter, TJ1DL, last summer and is looking for a QSL route. A check with the W6GO/K6HHD List indicates that DK8SO is the QSL manager for this station. We also listed this station in our QSL Routes in the January 1988 issue.

Eric Carlson, K7TIC, needs a route for VQ9DX, who he worked two years ago. Anyone have a route or can help Eric out?

Joe Arcuire, W3HNC, the famous QSL manager, says he has been successful in getting QSL cards back from Soviet stations in less than four weeks. This applies for practically anything except the UA3 stations. The UF6 stations are also difficult, except he has had success with a few of them. If you need help, just ask Joe. Include an SASE and green stamp with each card you send. As Joe is not the manager for these stations, he must send your card directly to the Soviet Union.

Fast QSL turnaround

The following QSL's were received here with a fast turnaround service by the QSL managers: KC6CS (JE1JKL), eight days; XE0KNE (W5KNE), nine days; XE2GKG (Yasme), 10 days; (please turn to page 34)

VQ2PL

Ex CR7AX, CR7IA,
and ZE1JD

Confirms the QSO with W9PST at 0610 GMT
on Sept 18 38 1ST 569 on ACR130 Rx.
Transmitter 6L6 T20 on 14.398 Mcs

Railway Telegraphs. Many TNX QSO
Rhodesia Railways. PSE QSL TKS
Livingstone. 73
N. Rhodesia. Peter L. Lowth.

was, of course, Australia, but what was "VE"?

By the late 1930's, Roy was using the call W9PST. On September 18, 1938, he worked Peter L. Lowth of Livingstone, Northern Rhodesia, who signed with the call VQ2PL. The contact was made on 20M CW on 14.398 MHz, which is no longer part of the amateur band. The card is printed on pink stock.

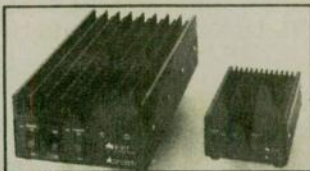
The 1954 Callbook still listed this

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H Models 100 W

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IC-375A, 220 MHz

IC-475A/475H, 430-450 MHz



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(415) 534-5757
Al, Mgr. WA6SYK
17N-5th Ave. /17S-16th Ave.

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1702 W. Camelback Rd
(602) 242-3515
Bob, Mgr. K7RDH
East of Hwy 17

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5375 Kearny Villa Rd.
(619) 560-4900
Tom, Mgr. KM6K
Hwy 163 & Claremont Mesa Blvd

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DX World

(continued from page 31)

6W1NQ (DL1HH), 11 days; NP4A (W3HKN), XE1FUX (KB9AW), TJ1BP (VE3NPL), 13 days; J88AQ (W2MIG), 15 days; and 4S7EA (direct), 29 days.

QSL routes

A15AA	-DJ8SI	J34A	-W6PWG
A15AB	-DL8CM	J34LTA	-K4LTA
A15AC	-DJ8JC	J62US	-WA8JOC
A22BW	-DK3KD	J66AS	(See Note 2)
AT0NRO	-VU2APR	J88BK	-WN6K
AX9LF	-DJ8CQ	JD1YAA	-JA1WU
AX9LM	-DJ8CQ	JG1FVZ	
BY5HZ	-W2JB	5N0	-JF1EEK
	(See Note 1)	JW6EDA	-LA5NM
ED0BAE	-EA4YW	JW7FD	-LA5NM
F2JD/A6	-F6AJA	KC6VU	(See Note 3)
FM5FA	-AJ3H	KH2D	-KA3T
F00TFL	-WN6YTR	KX6HE	-K2CL
F00VU	-DJ3HJ	N4GNR/6Y5	-N4GNR
F00ZR	-WA9INK	OY/DK9FE	-DK9FE
GB75SIG	-G40HX	P40RV	-WA4SSI
H44VU	-DL1MCY	P40V	-A16V
J28SI	-DJ6SI		(See Note 4)

PY1ZFO/0	-W9VA	XE1L	-WA3HUP
PY0FZ	-PY0ZZ	XE2XGY	-KD6GY
RF0FWW	-UF6FFF	XE0DX	-KD6GY
	(See Note 5)	XU1SS	-JA4KFA
RU1DZ	-UA1DZ		(See Note 8)
	(See Note 5)	ZF2BB	-K9HMB
S0RASD	-EA2JG	ZF2EL	-W4PN
ST0AS	-DL2AS	ZF2HM	-K9S
T22VU	-DJ9ZB	ZF2KE	-K9DX
T30BC	-ZL2QW	ZF2LV	-K5RR
T32BC	-ZL2QW	ZK1XH	(See Note 9)
T32BG	-W6PQS	ZK2JS	-WB2GJE
T32ZK*	JJ1TZK	ZK2MB	-NM7N
	(See Note 6)	ZL9AMO	-ZL1AMO
T47CW	-CO7KR	ZL9BQD	-ZL1AMO
T47DX	-CO7KR	ZL0AFZ	
TL8HW	-KJ4GK	ZL9	-ZL1AMO
TL8SC	-K4UTE	ZL9	-KN2N
TP2CE	-F6FQK	3D2VU	-DB5UJ
V31GS	-W3UM	3D2ZZ	-4X6TT
V31HE	-DL1JW	3D6BW	-AK1E
V31TP	-WB8DLT	3V8CW	-IT9GSF
V19LF	-DJ5CQ	4K1J	-UA1BJ
V19LM	-DJ5CQ		(See Note 5)
VK9LF	-DJ5CQ	5T5EV	-DL3KCE
VK9LM	-DJ5CQ	5Z4SS	-JA1ODC
VK0IC	-VK1BL	8P9AY	-K1COW
VP2ERA	-N6RA	8P9RV	-G3LNS
VP2ML	-K1RH	8P9X	-K4FJ
VQ9KR	-KB80BG	9Q5UN	-OH3GZ
	(See Note 7)	9V1XE	-VK2DX1
VU2JW	-KE3A		
AA4MC	-Route 6 Box 64, Apex, NC 27502		
VP2M	(See Note 10)		

CE8IDI	-P.O. Box 1508, Punta Arenas, CHILE
CN8EK	-P.O. Box 299, Rabat, MOROCCO
FD1MXQ/TT	
	-4 Rue Cesar Franck, 81100 Castres, FRANCE
J40DX	-P.O. Box 66, Rhodes, GREECE
J73LJ	-P.O. Box 245, Roseau, DOMINICA
P43WLP	-P.O. Box 35, St. Nicholas, ARUBA
VP2MDC	-P.O. Box DX, Andover, CT 06232
YJ8NJS	-P.O. Box 431, Port Vila, VANUATU
YJ8NRM	-P.O. Box 535, Port Vila, VANUATU

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MAY 1988 WEST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
10	(17)	17	16	(15)	17
12	23	18	14	20	20
14	28	19	13	23	27
16	30	16	(13)	26	32
18	30	17	(12)	24	36
20	24	24	31	21	38
22	20	28	38	13	37
24	17	31	39	(11)	26
2	(15)	33	40	(10)	21
4	21	33	38	20	18
6	20	30	29	16	16
8	16	21	18	14	14

CENTRAL USA

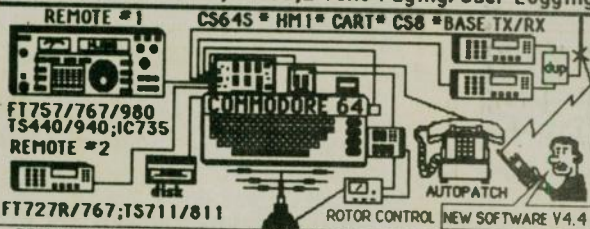
UTC	AFRI	ASIA	OCEA	EURO	SO AM
8	21	14	17	15	14
10	26	14	15	20	19
12	32	18	14	23	27
14	37	15	(13)	25	32
16	39	13	(12)	26	35
18	30	(15)	(12)	25	38
20	24	20	31	23	39
22	20	23	37	18	29
24	17	26	40	12	24
2	15	26	39	13	20
4	21	23	30	16	17
6	21	17	24	14	15

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
7	18	14	20	14	15
9	24	(15)	15	19	19
11	31	20	14	23	26
13	35	17	(13)	25	31
15	38	14	(13)	26	35
17	38	(14)	(12)	26	37
19	27	19	24	25	39
21	22	23	35	23	38
23	19	25	39	20	27
1	16	25	39	14	22
3	17	23	30	15	19
5	21	16	24	14	16

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 *Individual access privileges
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Notes

1. This applies for operations by operator W2JB only.
2. Please include a separate QSL card for each contact and use one-sided cards. If you have a two-sided card include your call on the report side.
3. For contacts made from East Carolines (Micronesia) route via DL2MDZ; from West Carolines (Belau) route via DF7CC.
4. This QSL manager requests cards be sent direct only, not via the bureau.
5. Unless otherwise indicated, cards for Soviet managers must go via P.O. Box 88.
6. Cards must be sent direct only. JJ1TZK not member of JARL and has no bureau privileges. QSL to P.O. Box 32, Ageo, Saitama 362, JAPAN.
7. This route applies for Stateside stations. All others go via G4UCB.
8. If you QSL via JA4KFA, send your request to P.O. Box 201, Okayama Central, 700-91 JAPAN. You may also QSL direct to Keo Piseth, Aranyaprathet-Prachinburi, 26120 THAILAND. Benny Wyenantea, YB3CN, is another choice via P.O. Box 545, Surabaya 60001, INDONESIA. If you QSL direct, please do not place any call letters on the envelope.
9. Contacts made during November 1987 go to W8AP; February 1988 to HB9CUY.
10. The Callbook address for AA4NC is incorrect.

Our thanks go to the following DXers for their help in this month's column: WA9INK, LA1EE, WB9NOV, W3HNC, K7TIC, KC4AFT, KA6OTV, W6JED, N6LGO, W9LNQ, WA6WZO, 4S7EA and YB3CN. In addition, the following DX clubs sent us information: The Carolina DX Association (K2SD), Western Washington DX Club (K7ZR), Northern Arizona DX Association (KR7Y), Greater Milwaukee DX Association (NK9G), Salt City DX Association (KB2G), Western New York DX Association (KA2VYW), Southern California DX Club (NK6A) and Northern California DX Club (W6CF). If you don't see your club listed here, ask your club newsletter editor to add us to his mailing list (he will get a complimentary subscription to Worldradio for it).

Most of all, the DX bulletins are a valuable source to DX news, including *Long Skip* (VE3IPR), *The Long Island DX Bulletin* (W2IYX), *DX News Sheet* (G4DYO), *Inside DX* (N2AU), *QRZ DX* (W5KNE), and *The DX Bulletin* (VP2ML).

Those of you who are going to apply for the new DXCC awards should remember that the dates are retroactive to 1945, when the post-war DXCC was created. If you have been DXing for several decades now, you should have a nice collection along with many DXCC countries that have been deleted since then. Have fun! GL es 73 de John N6JM. □

Continuing event

If you work special event stations you can't help but come up with some unusual names. How about the recent operation by Judson Mangerson, W9IAL, and Doug Alderton, NN9Z, at a "Community Soup Festival." Must go back to Depression days since this was the 50th annual event! — *Triple States RAC, Adena, OH* □



Ham Sam officers (left to right): Frank Funk, N7EBT, Wagonmaster; Marge Kessler, KA7TOU, Secretary-Treasurer; Don Rader, N7HYH, President; and Fred Kessler, KA7TOT, Vice President. (WI6S photo)

Arizona Ham Sams

Cal Turner, WI6S

The first Arizona Good Sam Ham Chapter, Arizona Ham Sams, got off to a flying start with an outing to the North Rim of the Grand Canyon, August 17-21. Eight rigs and 16 people participated.

Each of the rigs was equipped with 2M radios and HF equipment. Much "hamming" was done, as well as discussions about antennas, power output, etc.

In addition to radio talk, the Kaibab Lumber Company provided a two-hour van-driven tour of the area, describing the forest management plan as it relates to commercial lumbering.

Seminars were taught on proper usage of cable hoist/puller equipment ("cumalongs") and on homebrew DF

antennas. A ladies' seminar on wildflower greeting cards was also given. Future outings will deal with emergency services and how we can operate with the sanction of local government agencies.

Participants were: Walt Stewart, W7MDH, and XYL Georgia; Howard (W7DC) and Viola (KA7MVK) Chambers; Bob Lawrence, W7GCJ, and XYL Ann; Fred (KA7TOT) and Marge (KA7TOU) Kessler; Frank (N7EBT) and Peggy (N7DDR) Funk; Don Rader, N7HYH, and XYL Ruth; John Sullivan, KQ7T, and XYL Edith; and Cal (WI6S) and Mary (KA6RCM) Turner.

Any RV owners who are licensed Amateur Radio operators and are interested in joining the Arizona Ham Sams may contact Don Rader, N7HYH, at (602) 282-1801. □

Liven up those meetings

Shirley Wolter, N6LFA

Need a little excitement to liven up an otherwise ho-hum club meeting? Polly Newberry, KA6KKN, and Jim Chandler, N5COT — the two vice presidents of the Victor Valley ARC in Victorville, California — designed a Bingo game using Morse code, which was nicknamed "Ognib."

The rules are simple. Everyone can participate, but if prizes are given, students, Novices and upgrading licensees should be given handicap points so every person has a fighting chance. Awards can be very inconsequential — it is the spirit of the code that matters.

A Bingo card is passed out to participants. They are to select any number, letter, period, comma, question mark or slant bar (/) in each open block. Use each selection only once.

The card can be verified by appointed members, making sure there are no duplicates and that the participants understand the rules.

Jim then sent random code at a speed of about 8-10 wpm, with ample spacing between letters. The first person to "X" out the squares vertically, horizontally or diagonally, calls out "Bingo"! The card is verified, and the play continues until you have given out all the prizes. (to next page)



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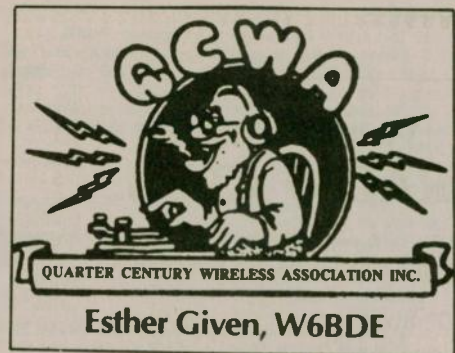
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Several old-timers were honored in September, 1986 at a special meeting of the 67-year-old Mountain ARC in Cumberland, Maryland. Among those who attended were (left to right): Alvin Mawhinney, WA3SYE, who coordinated the program; Paul Bosley, W3HQD; George Freeland, W8GSN, who received an award for being the longest-licensed amateur, with a license dating back 56 years; Melvin Riffey, W3DIC; James Riley, W3CXC; Ray Sines, W3JIW, who received an award for traveling the farthest (from Conneaut Lake, Pennsylvania); Royce Smelser, W8GHS; Kenneth Lease, K8ONJ; John B. White, W3VFJ; Paul Everline, K4QAX; and Gay Rembold, W3DFW, current president of the club. Not shown in photo is Joe Garlitz, who at age 97 was the oldest person attending. Also absent were Ralph Brown, W3IXP, and John Patton, W3FRV. (Photo courtesy of Cumberland Sunday Times; submitted by Jan P. Alderton, WB3DQY)



Esther Given, W6BDE

The Quarter Century Wireless Association's officers and directors met in Irving, Texas, the organization's headquarters, on April 8 and 9, for their spring board meeting. The governing board is made up of four officers and 10 directors who meet twice annually, once in the spring and again in the fall immediately prior to the annual convention.

The four officers and five of the directors are elected for two-year terms in odd-numbered years and the other five directors in even-numbered years. In this way there will always be incumbent directors with prior governing board experience active in the operation of the organization.

QCWA officers and directors are elected by the full membership and are responsible for carrying out the wishes of the members of the whole organization rather than any specific group or area. Service of both officers and directors is voluntary, and expenses are borne by the individual.

Candidates may be enlisted by the nominating committee or may petition to appear on the ballot. The candidate must agree to serve if elected and must have been a QCWA member in good standing for at least two years prior to filing. Ballots for the 1988 election will be mailed in mid-May to all QCWA members in good standing at that time. Check this column next month for information in that regard.

Dayton-Cincinnati Chapter 9 of QCWA announces the 1988 QCWA banquet, an annual get-together scheduled at the Dayton Hamvention. The banquet will be held the first evening of that event, Friday, April 29, at Neil's Heritage House where a delicious dinner is promised. The COD bar will open at 6:30 p.m. EST with the banquet following at 7:30.

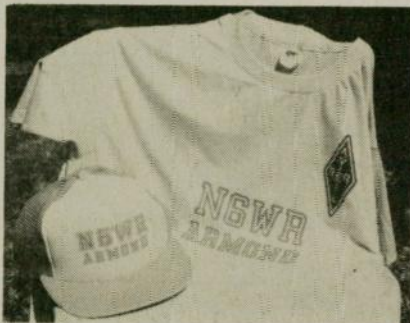
Featured speaker will be Carole Perry, WB2MGP, recipient of the 1987 "Ham Of The Year" award at Dayton last year. Perry, a teacher, will present an attractive program of time-ly interest.

Banquet tickets \$13 and further information are available from Bob Dingle, KA4LAU, 657 Dell Ridge Dr., (please turn to page 38)

(continued from page 35)

Be forewarned; have lots of prizes. We almost had a minor riot on our hands until we agreed to continue playing, even after all prizes had been won. □

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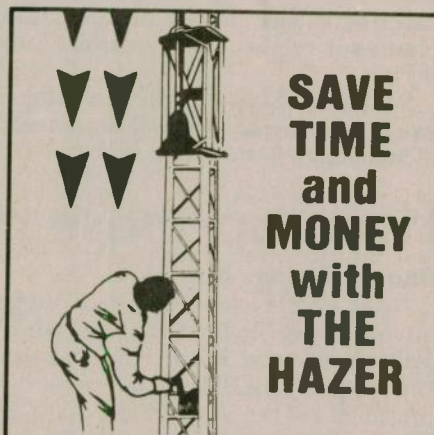
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ALABAMA

Birmingham Amateur Radio Club (BARC). Meets at the American Red Cross Bldg., 2225 3rd Ave. North in downtown Birmingham, AL. 1st and 3rd Thursdays/monthly, 7:30 p.m.

Montgomery Amateur Radio Club (W4AP). Alabama State Trooper Dist. Office. Intersection of Coliseum Blvd. & Federal Dr. Randy Smith, N4LZK, (205) 832-4598. Meets 3rd Monday/monthly, 7:00 p.m.

ALASKA

Arctic Amateur Radio Club. Geophysical Institute West Ridge U of A, P.O. Box 81389, College, AK 99708. 1st Friday/monthly, 7:30 p.m.

ARIZONA

Arizona Amateur Radio Club. Meets 2nd Thursday/monthly, 7:30 p.m. 1510 E. Flower St., Phoenix, AZ. Net: W7IO Information Net every Thurs., 7:00 p.m. W7WGWIR 147.88/147.28 Rptr.

Old Pueblo Radio Club. Meets: 2nd Wednesday/monthly, 7:30 p.m. Location: Franklin Bldg., University of Arizona. N.E. corner of 5th St. & Park.

Tucson Repeater Assoc. P.O. Box 40371, Tucson, AZ 85717-0371. 2nd Sat./monthly, 7:30 p.m., Pima Co. Communications Bldg., 2545 E. Ajo. Net Thurs. 7:30 p.m. 146.28/88 (146.22/82, 147.68/08, 147.70/10-PKT).

CALIFORNIA

Amador County Amateur Radio Club. P.O. Box 1094, Pine Grove, CA 95665. Senior Citizens Center, Jackson, CA. Meets: first Thursday/monthly, 7:30 p.m. WA6WYI Rptr., 146.835, 146.235. Net Tues. 7:30 p.m.

Associated Radio Amateurs of Long Beach, W6RO. P.O. Box 7493, Long Beach, CA 90807. Meets: 1st Friday/monthly, 7:30 p.m. Signal Hill Recreation Hall, 1708 E. Hill St., Signal Hill, CA.

Citrus Belt Amateur Radio Club. 777 East Rialto Ave., San Bernardino, CA. P.O. Box 3788, Zip-92413. Meets: first Friday/monthly, 7:00 p.m.

Fresno Amateur Radio Club, Inc. P.O. Box 783, Fresno, CA 93712. Meets 2nd Friday/monthly, 8:00 p.m. Manchester School, 2307 E. Dakota, Fresno, CA. W6TOR/146.34/94.

Gabilan Amateur Radio Club GARC. P.O. Box 2178, Gilroy, CA 95020-2178. Meets: South Valley Jr High School, 385 I.O.O.F. Ave., Gilroy. 2nd Thurs/monthly. 7:30 p.m. Talk-in 145.47/144.87.

Golden Empire Amateur Radio Society (VEC). P.O. Box 508, Chico, CA 95927. Club call W6RHC, Repeater 146.25/85. Meets at Esplanade House, 1528 Esplanade. Room 101, 3rd Friday/monthly, 8:00 p.m.

The Hayward Radio Club, Inc. Fire Station #6, 1401 West Winton Ave., Hayward, CA. Classroom in back of station. Meets: 3rd Friday/monthly, 7:30 p.m. For info contact Mrs. Elfy Griffiths N6DOC.

Hilltop Amateur Mastertie System (HAMS). Informal mtgs. weekly/Mon. 5 p.m. at Shakey's Pizza, 12924 Washington Blvd., Mar Vista, CA. Meets 3rd Mon./monthly at Bicycle Shop Cafe, 12217 W. Wilshire Blvd., W. LA. Info, N6FD 213/823-0767.

Kern River Valley Amateur Radio Club. P.O. Box 2611, Lake Isabella, CA 93240 Meets 4th Sat./monthly at 4 p.m. (Pot Luck). Veteran's Hall, Lake Isabella WA6UYW Rptrs. 146.085/146.685 224.22/Down 1.6 WB6ODZ Rptr.-224.58 Down 1.6 Low-Level.

Livermore Amateur Radio Klub (LARK). St. Bartholomew's Episcopal Church. Meets: 3rd Saturday/monthly, 9:30 a.m. Net Mondays 7:00 p.m. 147.12 + . For info call WD6J, (415) 829-5229.

Marin Amateur Radio Club (MARC) W6SG. Box 1231, San Rafael, CA 94901. Meets 1st Fri./8 p.m.; MARC Clubhouse Bldg. 549, HAFB, Novato, CA (415) 883-9789 (Summer exceptions; contact Pete N6IYU, 924-1578). Sunday AM Club at Red Cross, San Rafael.

North Hills Radio Club. P.O. Box 41635, Sacramento, CA 95841. 3rd Tuesday/monthly, 7:30 p.m., Carmichael Elks Lodge, 5631 Cypress Ave., Carmichael, CA. Net 145.19 Thur. at 8:00 p.m.

North Shores ARC. (619-275-1495) So. Clairemont Recreation Center, 3605 Clairemont Dr., San Diego, CA. 1st Tuesday/monthly, 7:30 p.m. Club net each Monday, 7:00 p.m. 28.485 MHz.

Radio Amateur Mobile Society. Meets: 2nd Tuesday/monthly, 7:30 p.m. Carmichael Elks Bldg., Cypress and Hackberry, Carmichael, CA. Net Saturday a.m. 224.84 8:30/146.79 9:00.

River City A.R.C.S. Meets: 1st Tuesday/monthly, 7 p.m. SMUD Bldg., Room B & C, Elkhorn & Don Julio, Sacramento, CA. For info: (916) 483-3293.

Sacramento Amateur Radio Club. Contact: Bob Lyman, K16FT, (916) 726-2694. Meets Sacramento Blood Bank, 32nd St. & Stockton Blvd., Sacramento, CA. 2nd Wednesday/monthly, 7 p.m.

Sacramento "Old Timers" Ham Radio Brkfst Club. Meets 2nd Wednesday/monthly, 8 a.m., Carrows Restaurant near Watt Ave. and Hwy 80 exit. For info contact Paul Wolf, W6RLP (916) 331-1830.

San Fernando Valley ARC, (W6SD). Meets 3rd Friday/monthly, 7:30 p.m. Red Cross Bldg., 14717 Sherman Way, Van Nuys, CA 91407. Exams 8 a.m. 1st Sat./monthly. Pre-registration via P.O. Box 3151, Van Nuys, CA 91407.

San Gabriel Valley ARC. Bowling Green Clubhouse, 405 S. Santa Anita Ave., Arcadia, CA 91006. Meets: 1st Tuesday/monthly, 7:30 p.m., except Dec. W6QFK, Repeater 147.165/765.

San Mateo Radio Club. Beresford Park Recreation Center, 28th Ave. and Alameda de las Pulgas, San Mateo, CA 94403. 3rd Friday/monthly, 7:30 p.m.

Santa Clara Valley Rptr. Society (SCVRS). P.O. Box 3085, Sunnyvale, CA 95087. (408) 247-2877. 146.76(-600 kHz), 224.26(-1.6 MHz), 444.60(+5 MHz). 2 meter/220 net Mon. 9 p.m. Mtgs.-3rd Fridays.

Shasta Cascade Amateur Radio Society (SCARS) P.O. Box 664, Anderson, CA 96007. Meets: 3rd Wed./monthly, 7 p.m. at the C.D.F. Conf. Rm., Grape St., near Parkview Ave., Redding, CA. Net 146.64 Wed., 8 p.m.

Sierra Foothills Amateur Radio Club. P.O. Box 3262, Auburn, CA 95604. Office of Education Bldg., 360 Nevada St., Auburn, CA. Meets: 2nd Friday/monthly, 7:30 p.m. Nets: Tues. 7:30 p.m. 28.443 MHz. Thurs. 7:30 p.m. Rptr. 145.43/223.86.

Solano County Amateur Radio Society. P.O. Box 457, Fairfield, CA 94533. Meets: 3rd Wed. 7 p.m., Vanden High School. 441.150 + 5 (Remote 145.69 simplex) PL 77Hz, (707) 448-1461.

Sonoma County Radio Amateurs, Inc. Meets 1st Wednesday/monthly (except Dec.) at the Emergency Operations Center (behind the County Courthouse), P.O. Box 116, Santa Rosa, CA 95402.

South Bay Amateur Radio Association. Los Cerritos Community Center, Fremont, CA. Dick Melcher, WA6MDI. Call-in 147.615/015. Meets: 3rd Wednesday/monthly, 7:30 p.m.

Southern Calif. Amateur Transmitting Society (SCATS). P.O. Box 1770, Covina, CA 91722. Meets: Cortez School, 2226 E. Rio Verde Dr., West Covina, CA 91791. 1st Monday/monthly, 7 p.m. (coffee 6:30 p.m.)

Southern California Six Meter Club. P.O. Box 448, Cypress, CA 90630. USB Net Tue., 8:00 p.m., 50.150. FM Rpt. Net Thurs., 8:00 p.m., 52.28/88. FM Smplx Net Thur., 9:00 p.m., 50.300.

Stanislaus Amateur Radio Assoc. (SARA). P.O. Box 4601, Modesto, CA 95352. Stanislaus Co. Administration Bldg., 12th & H Streets, 3rd Tues./monthly, 7:30 p.m. 145.39 MHz WD6EJF, 223.68 MHz.

Stockton-Delta Amateur Radio Club, Inc. U. of the Pacific, RM 122, Kensington & Mendocino. 2nd Wed/monthly, 7:30 p.m. Rptr. 147.165/765 Net Wed. 8:00 p.m.

Tehama County Amateur Radio Club. 13620 Trinity Ave., Red Bluff, CA 96080. Meets: 1st Friday, 7:00 p.m. Lincoln Street School. Net Wednesday 8:00 p.m. 147.705 rptr.

Tri-County Amateur Radio Assoc. P.O. Box 142, Pomona, CA 91769. Meets: 2nd Monday/monthly, 7:30 p.m. Pomona First Federal S&L, (basement), 399 N. Garey, Pomona, CA.

The Trinity County ARC. P.O. Box 2283, Weaverville, CA 96093. Meets 2nd Wednesday/monthly, at the CD Hall in Weaverville, 7:30 p.m. WD6FHX Rptr. 146.13/73.

Victor Valley Amateur Radio Club. P.O. Box 869, Victorville, CA 92392. Meets: Victor School Board Room, 6th & "A". 2nd Tuesday/monthly, 7:30 p.m. WA6EFW Rptr. 146.34/146.94.

West Coast Amateur Radio Club. Fountain Valley School. Talbert/Bushard. Fountain Valley, CA. Meets 3rd Thursday/monthly. 145.44-4Z.

Western Amateur Radio Assoc. Cerritos Park East, 166th St. and Carmenita Ave., Cerritos, CA. 1st Tuesday/monthly 7:00 p.m.-145.400.

Yucaipa Valley Amateur Radio Club (YVARC). Gibraltar Saving's Community Room, 34880 Yucaipa Blvd., Yucaipa, CA 92399. Pres: Fred Schmidt KG6QN (714) 794-1244. Meets: 3rd Monday/monthly, 7:30 p.m.

CONNECTICUT

Tri-City ARC. Groton Public Library, Route 117, Groton, CT 06340. 2nd Tuesday/monthly, 7:30 p.m.

FLORIDA

Indian River ARC, Inc. (IRARC). 597 Capri Rd., Cocoa Beach, FL 32931. Martin Andersen Senior Center, 1025 S. Florida Ave., Rockledge, FL. Meets: 1st Thurs./monthly, 7:30 p.m.

Sarasota Amateur Radio Ass'n, Inc. Meets: 3rd Tues./monthly, 8 p.m. on the 6th floor (board rm.) of the County Admin. Bldg., corner of 301 & Ringling Blvd. Club Rptr. W4IE, freq. 146.91/31, open to all. Phone patch *Up #Down. Welcome.

South Brevard Amateur Radio Club. P.O. Box 2205, Melbourne, FL 32902. Meets 1st Tuesday/monthly, 7 p.m., Melbourne Library, 2275 S. Babcock St., Melbourne, FL.

HAWAII

Big Island Amateur Radio Club. P.O. Box 1938, Hilo, HI 96721-1938. Meets: 2nd Tuesday/monthly, 7:00 p.m., Helco Auditorium, 1200 Kilauea, Hilo. Talk-in on 146.76(-).

ILLINOIS

Bolingbrook Amateur Radio Society. P.O. Box 1429, Bolingbrook, IL 60439-7429. (312) 759-4747. Call in 147.93/33. Meets: 3rd Monday/monthly, 7:30 p.m.

Chicago Suburban Radio Assoc. (CSRA). P.O. Box 88, Lyons, IL 60534. Meets 2nd Wed./monthly, 8 p.m. Community Rm. Clyde Federal Savings & Loan Assoc., 7222 W. Cermak Rd., North Riverside, IL.

Dupage Amateur Radio Club W9DUP. Mid-America Savings & Loan, 55th & Holmes (55th St. near RT 83), Clarendon Hill, IL. 4th Monday/monthly, 7:30 p.m. Club rpt. 145.250 — 600 kHz.

Elgin Amateur Radio Society. P.O. Box 1351, Elgin, IL 60120. (WB9EEA President). Meets in EOC Rm. of Elgin Municipal Bldg. 2nd Friday/monthly, 8:00 p.m.

Fox River Radio League. Valley National Bank, Lower Level, Northgate Shopping Ctr. & RT. 31, Aurora, IL (312) 584-4925 for more info. Meets: 2nd Tuesday/monthly, 7:30 p.m.

North Shore Radio Club. Meets: 2nd Monday/monthly. Net 8 p.m. Tues. Karger Center, 1850 Green Bay, Highland Pk, IL. WB9FRM Rptr. 147.345 + 600 (PL 1B). Info: NSRC, P.O. Box 1066, Highland Pk., IL 60035.

Six Meter Club of Chicago K9ONA. Bank of Lyons, Lower Level, 8601 West Ogden Ave., Lyons, IL. 2nd Friday/monthly, 7:30 p.m. Club Rptrs: 146.371.97, 448.30/444.30.

INDIANA

Fort Wayne Radio Club. James Wolf, KR9U, P.O. Box 15127, Fort Wayne, IN 46885. The Salem Church. Meets: 3rd Friday/monthly, 7:30 p.m.

Northeastern Indiana Amateur Radio Club. P.O. Box 745, Auburn, Indiana 46706. Meets: 2nd Tuesday/monthly, 7:00 p.m. at members homes. Daily traffic net at 2300Z on 147.96/36 MHz, the WB9VDK rptr.

MARYLAND

The Peninsula Radio Operators Society (PROS). Family oriented activities, training and exams held throughout the year. PROS Rptrs. 146.925 and 146.625. PROS, P.O. Box 2315, Salisbury, MD 21801.

MICHIGAN

Hazel Park Amateur Radio Club. Hoover Elementary School-Hazel Park, P.O. Box 368, Hazel Park, MI 48030. 2nd Wed./monthly, 7:30 p.m. Sept. thru May. 147.51 Simplex Call-In.

MISSOURI

St. Charles Amateur Radio Club (SCARC). St. Peters Civic Center, St. Peters, MO. I-70 and Salt Lick Road. Meets: 4th Tuesday/monthly, 7:30 p.m. WB0HSI Rptr. 07/67.

Heart of America Radio Club. 211 W. Armour, Kansas City, MO. Meets: 3rd Tuesday, 7:30 p.m.

PHD Amateur Radio Assn. Inc. P.O. Box 11, Liberty, MO 64068. Meets last Tuesday/monthly, 7 p.m. Red Cross Bldg. (816) 781-7313, Volunteer Examiner Coordinator.

NEVADA

Frontier Amateur Radio Society (FARS). Meets: 1st Friday at Fly-N-Chef, 7 p.m., Scenic Airlines Terminal, McCarran Airport, Las Vegas, NV. Net Mondays 7:30 p.m. 145.39. Info: Bob Herrell, WB5PTO, 641-6682.

Las Vegas Radio Amateur Club (LVRAC). Meets: 2nd Tuesday/monthly at 7 p.m., Nevada Power Building, Wengert Rm., 6226 W. Sahara Ave. (Near Jones). Net Tuesdays 8:00 p.m. on 146.94 MHz. Info: Call Lyle at 456-9510.

NEW HAMPSHIRE

Great Bay Radio Assn., WB1CAG. P.O. Box 911, Dover NH 03820. (603) 742-0130/755-2600. 2nd Sunday/monthly, 7:00 p.m. Dover Dist. Court. Talk-in 147.57.

NEW JERSEY

Gloucester County Amateur Radio Club (GCARC). Woodbury V.F.W. 1st Wednesday/monthly, 8:00 p.m., Woodbury, NJ. Talk-in 147.18/78. For info call K2JF (609) 589-2318.

South Jersey Radio Assoc. (SJRA). Pennsauken Sr. Hi Sch. at Hylton Rd. & Remington Ave., Pennsauken, NJ 08109. Jan.-Oct. 4th Wed./monthly, 7:30 p.m. Nov.-Dec. 3rd Wed. due to Thanksgiving and Christmas. Talk-in 145.290 rptr. Club call K2AA.

NEW YORK

Communications Club of New Rochelle, NY. Harrison Street Firehouse. Bill McCarran, K2LV, (914) 938-0768. Meets: 1st Monday/monthly, 8 p.m.

Genesee Radio Amateurs (G.R.A.M.). N.Y.S. Civil Defense Center, State St., Batavia, NY 14020. Meets: 3rd Friday/monthly, 7:30 p.m. 147.255 + W2RCX.

Hall of Science Amateur Radio Club. P.O. Box 131, Jeffriacia, NY 11415. HOSARC, 2nd Tuesday/monthly, Hall of Science Bldg., 47-01 111 St., Flushing Meadow Park at 7:30 p.m. The tristates' only 3-band linked rptr. system 144.300 S223.600 — 1445.225 —.

Radio Club of Junior High School 22 N.Y.C. 111 Columbia St., New York, NY 10002. "At The Core of The Big Apple," QSLs invited. For info contact WB2JKJ and "The Crew" learning English thru Ham Radio at (516) 674-4072, 24 hrs.

Westchester Amateur Radio Assoc. (WARA). Scarsdale Village Hall, Scarsdale, New York. Meets: 1st Wednesday/monthly, 8:00 p.m. For info call B. Dubbs, Pres. (WA2FSR). (914) 725-1191.

NORTH CAROLINA

Raleigh Amateur Radio Society, Inc. (RARS). P.O. Box 17124, Raleigh, NC 27619. Meets: 1st Wed./monthly, 7:30 p.m., First Presb. Church. Club net daily, 8 p.m. on RARS 04/64, W4DW. Annual Hamfest, 2nd Sunday in April.

NORTH DAKOTA

Fork Amateur Radio Club. United Hospital, Grand Forks, N.D. Call-in 34/94. Meets last Tuesday/monthly, 7:30 p.m.

OHIO

Amateur Radio Fellowship (ARF). NBHUN, Linda Delugach, Sec. P.O. Box 2486, Streetsboro, OH 44241. Meets: 1st Sat./monthly at Kent Wally Waffle. K88PHO rptr. 147.675/075.

Ashtabula County ARC. Ken Stenback, A18S (964-7316). County Justice Center, Jefferson, OH. 3rd Tuesday/monthly, 7:30 p.m. County Rptr., 146.715.

Northern Ohio Amateur Radio Society (NOARS). K8KRG/WB8JBM, P.O. Box 354, Lorain, OH 44052. Meets 3rd Mondays/monthly, 8 p.m. at Gargus Hall. Info: George, WB8ANM, (216) 933-2841. Ohio's largest general interest club.

OREGON

Salem Amateur Radio Club (SARC). Northwest Natural Gas Auditorium, 3123 Broadway N.E., Salem, Oregon 97303. Talk-in 146.86. Meets 4th Tuesday/monthly, 7:30 p.m.

PENNSYLVANIA

Mercer County Amateur Radio Club W3LIF. P.O. Box 996, Sharon, PA 16146. Meets: 4th Tuesday/monthly at 7:30 p.m. at Shenango Valley Medical Center, Farrell, PA. Net, Thursdays 8:45 p.m. on 147.75/15 W3LIF/R.

Warminster Amateur Radio Club. P.O. Box 113, Warminster, PA 18974. Meets: 1st Wednesday/monthly, 8:00 p.m. at St. Johns Lutheran Church, Hatboro, PA. Net Wednesdays, 8:30, 147.09/69.

VIRGINIA

Southern Peninsula Amateur Radio Klub (SPARK). Meets: 1st and 3rd Tuesdays, Salvation Army Community Bldg., Hampton, VA. Operates 148/13 147/73 Rptr., VEC information (804) 851-5573.

WASHINGTON

Mike & Key ARC K7LED. Good Neighbor Center, 305 So. 43rd Street, Renton, WA 98055. Meets monthly on 3rd St., 10 a.m.

WEST VIRGINIA

Jackson County Amateur Radio Club. D. Geneal Bailey, NK8P, Sec.-Treas. 113 Winters Dr., Ripley, WV 25271. First National Bank of Ripley. Meets: 1st Thursday/monthly, 7:30 p.m.

The Kanawha Amateur Radio Club. P.O. Box 1694, Charleston, WV 25326. Meets: 1st Friday/monthly, 7 p.m., South Charleston City Hall annex. Rptrs. 6.82 and 6.88.

WYOMING

University ARC. 146.01/61 Meets: 1st Tues., 7:30 p.m. Sept.-May. U.W. Physical Plant Bldg., 15th & Lewis St., P.O. Box 3625, Laramie, WY 82070. June-Aug: Bernie Club picnics Wednesdays.

For information on how to get your club listed in "Visit Your Radio Club," plus receive many other benefits, write to Club Liaison, Worldradio, 2120-28th Street, Sacramento, CA 95818.

No more German Novice reciprocal licenses

The FTZ, the German equivalent to our FCC, has stopped issuing German reciprocal Amateur Radio licensing privileges to FCC-licensed Novice operators. The West German government does not feel that the Novice test knowledge level and operating privileges are comparable to their German Class "A" license which authorizes 80, 15, (CW only) 10, 2M, and 70cm and 23cm operation, all modes 15M.

It appears that the real reason West

Germany will no longer reciprocally license FCC-licensed Novice operators is because, even though Germany has their own amateur rules and testing procedures, they allow their citizens to go to any other country and obtain an Amateur Radio license which can be traded into the FTZ for a German ham ticket and a full privilege (not a reciprocal) call sign. Apparently, many German amateurs are taking U.S. FCC tests to get German Amateur Radio licenses! — Tnx Steve Hutchins, KN6G and DA2DS — *NeW5YI Report* □

Yaesu consolidates

In an effort to provide the best customer service, Yaesu USA has announced the consolidation of their repair facilities at corporate headquarters in Cerritos, California. The move is effective immediately; they are closing the Ohio location.

Owners of Yaesu hand-held and mobile radios can request service from Yaesu USA, 17210 Edwards Road, Cerritos, CA 90701. For more information about Yaesu products, contact Yaesu USA at (213) 404-2700. □

QCWA

(continued from page 36)

Dayton, OH 45429; (513) 299-7114.
Early reservations are suggested.

Leo Meyerson Chapter 154 of Palm Springs, California recently presented an exciting program entitled "Voyager Luncheon." The event was held at Indian Hills Country Club and featured John Swancara, WA6LOD, a member of the ground crew of the experimental aircraft *Voyager*, which flew around the world without refueling. Swancara's presentation was received with great enjoyment and tremendous applause by an audience of 110 QCWA members and friends.

Seven QCWA chapters in the Northwest are combining efforts in planning "QCWA Reunion '88," to be held during the ARRL National Convention in Portland, Oregon next September. A full-time QCWA Lounge is planned, and a QCWA luncheon will be held on Saturday, September 10. Chairman of the Reunion '88 Committee is John Brown, W7CKZ, who is recognized locally as an outstanding organizer of successful ventures.

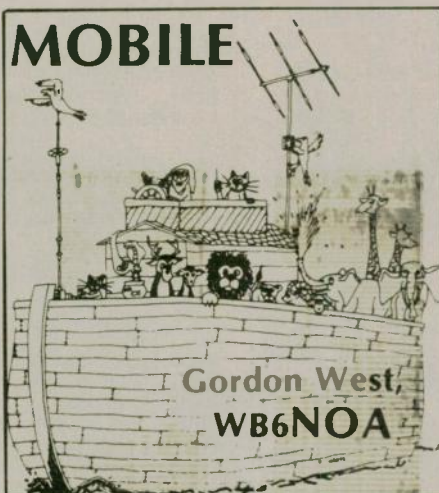
QCWA Chapter 16, which embraces the state of Arizona, was organized in 1962. Secretary Oliver Grieve, W7-WGW, reports the chapter put on a drive recently. They recruited 20 new members, boosting their total membership to 96. They hope to pass the 100 mark in 1988. Their next meeting will be April 30 in Prescott.

QCWA members who participated in the annual QSO parties (CW in February and phone in March) are reminded of the April 13th deadline for logs to reach tellers. □

Better ground

Scientists working on an Army Grounding Analysis project have shown that grounding with the standard 6' metal rod, or even several rods parallel, is often unsafe and more often inadequate for good low-noise communications. They have found that a better ground can be established by stapling a 100' length of standard 1/8" stranded steel wire to the earth every 4" with 6" pegs. A 3 lb. hammer (in lieu of the 10 lb. sledgehammer used with the ground rod) should be sufficient to drive in the pegs.

Tests at all sites in the country show the surface wire to be 32-95% more efficient than the 6' grounding rod.
— CHARRO, San Antonio, TX □



Multiband mobile whips

High frequency SSB fixed stations may use trap antennas for multiband operation. The popular "triband" beam or dipole is an efficient way of getting 10, 15 and 20M from a single antenna on a single feedline. The traps are a hi-Q parallel resonant LC circuit that exhibits maximum impedance to the RF energy at a specific frequency fed into the antenna system.

The 10M trap is the first one encountered because you want a shorter antenna than 15M and 20M. For 15M, the 10M trap acts as a series inductance for 15M. For 20M, the 10M and 15M traps act as series inductance, too.

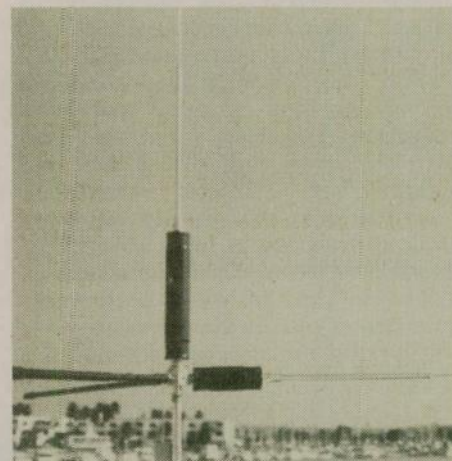
I suppose the mobile operator could employ a 5-band trap vertical for stationary mobile use. At the ham shows, I see plenty of 5-band Hustlers, Butternuts, Hy-Gains and Cushcrafts mounted on the side — or on top of — the aluminum motorhomes. These 20' antennas, with their traps (many times mistaken as loading coils), use the metal skin of the RV as the groundplane. Results are exceptional! In fact, many RV's almost sound like small 3-element beams!

But for in-motion vehicle use, traps are too bulky. Most mobilers will settle for single-band operation with a single loaded whip. And for multiband mobile use, a collection of four whips could be run simultaneously without too much interaction. While this does give you the porcupine look, it is one possibility for running multiband mobile in motion . . . or maritime mobile . . . or RV mobile.

The Spider™ Maritimer™ name is somewhat synonymous, although trademarked by Fred, for this type of operation. A single shaft couples four resonators at once for 4-band operation. Using top-loading, this 4-resonator approach is a good way to go. Bandwidth is not bad, and signal output is almost as good as a single dedicated mobile whip.

The individual resonators act as series resonant circuits. The other resonators look out of tune and absorb hardly any amounts of power. It's the resonant single series resonator that does all the work.

Typical of all mobile whips, the set-



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up needs a good groundplane directly beneath them in order to work properly. They also must be mounted "in the clear." If they are mounted so that the resonators are beside something metal, they just won't load. Mounted up high, this means your 4-band array is really going to look crazy while going down the street.

The Spider™ antenna (Canoga Park, California) has the best structural design. It uses stainless steel throughout its construction, and it loads up more predictably than other "Spider" types. However, they *all* sound good on the air, and you get an adequate signal from this multiband mobile set-up.

I have also seen a multiband mobile with simultaneous multiband connections inside a single large coil form (Autotenna). While this required a tremendous amount of pre-tuning, once I got it to fly, it did a reasonable job.

I also saw the Texas "Bug-Catcher" that claims instant band switching for all 5-band mobile operation. "Instant" to me means I can change bands without ever having to go back and play with the loading assembly. To *them*, instant means a quick change of the loading coil taps for multiband operation. However, I did find that with the large coil, I had increased signal strength to distant stations.

And we all remember the old Swan antenna that has a manual roller inductance selector which can be manipulated inside the vehicle. It works great when you hit the resonant point! I still have one of these old antennas



Gil Smith, W6FSF, fine-tuning the Autotenna

with the adjustable roller resonating sleeve, and it works well, too.

So, for mobile and maritime mobile multiband operation from a single whip, it can be done, but with appendages. Most are Spider-type looking, but if you don't mind the looks, they do a nice job.

However, in my experience, the longer single band whips with the largest possible loading coil always seem to give me a stronger signal than smaller multiband whips with less radiation resistance. The more wire you can put out there, generally the better your signal. Go for the biggest mobile antenna possible! □

Who needs training?

Dick AAR4PP/FL

"Pull up the fences, here we go!" shouted the pilot as the twin-engine plane started its takeoff run.

The green co-pilot, thinking the pilot had said, "Pull up the landing gear," retracted the wheels. The plane which had not achieved full flying speed, settled gracefully and slid expensively on its belly to a stop.

The Naval Air Corps investigative board assigned full pilot-error to both the pilot and the co-pilot. Why? Well, the co-pilot got his black marks for being fatheaded enough to retract the gear while still on the ground, no matter *what* his pilot might have said. ("Stupidity may not be a sin," Robert Heinlein once wrote, "but it is always punished, without delay and without pity.")

The pilot, on the other hand, was disciplined for "improper procedure." There is simply no room for informality during critical operations: chit-chat and casual paraphrases can kill people.

"Proper procedure," — a certain formality — is a characteristic of all military operations, MARS nets included. All MARS nets are essentially training nets. MARS exists only because the Armed Forces need competent backup operators during emergencies. "Competent," means *trained* according to the procedures in the Tech Manual.

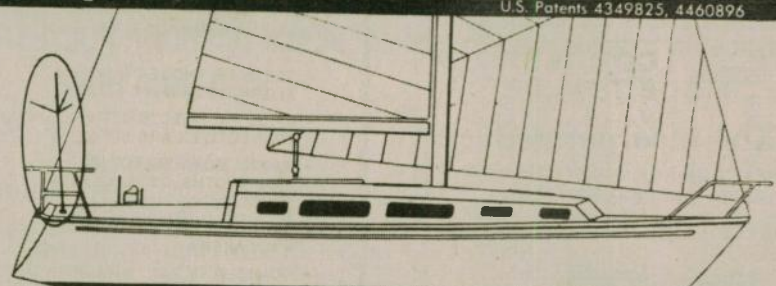
There are hams, some highly skilled and talented, who are personally inflexible. For them, criticism is an affront, and procedural correction constitutes an infringement of free speech. There is a place for such folks, those citizens who "march to a different drummer." Our nation needs them.

But not in MARS.

— Florida Skip □

The Spider™ Maritimer™ Antenna

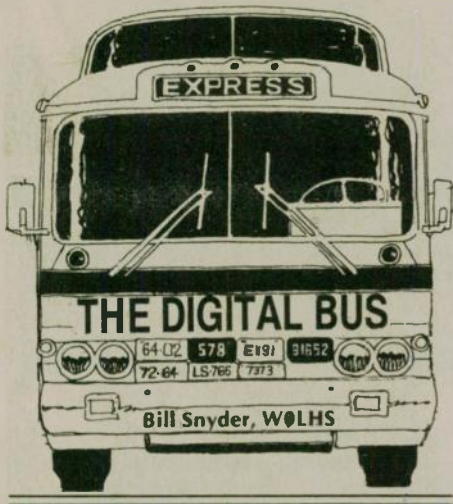
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For the past 35 years, RTTY has been the communications mode I have enjoyed the most. I started on RTTY the first weekend we were allowed to transmit HF-FSK. Since then I have been on and off amateur radioteletype in spurts. I didn't earnestly start chasing DX until about eight years ago, and then the fever caught me.

At that time, the ARRL issued a basic certificate for DXCC-RTTY and that was that. No endorsement stickers were available for higher achievement.

When I received RTTY DXCC #43, I felt we should be treated like the other modes, so I wrote to various ARRL officials requesting the League offer endorsements for the digital mode. I also cornered some of the DXCC Advisory Committee members and asked them: "Why is RTTY treated like a bum cousin when it comes to the DX Century Club award?"

I was not alone in asking that. Many other RTTY types were singing the same song! It took a while, but the ARRL finally relented and began to issue endorsement stickers in multiples of 25 for those between 100 and 250 countries. Nowadays it is felt by the RTTY crowd that the 25 increment for endorsement is too high; it should be reduced to only 10 per submission.

Chasing DX on RTTY is a bit harder than CW or SSB. One of the reasons is the fact that many DXpeditions go to exotic countries and bang out thousands of "dit dit dit dit dit-dah dit-dah dit" and "five-nine" contacts, but only now and then do they think of RTTY, satellite and the other modes. So, many countries are unobtainable for that reason alone. And so it takes a long time for the average DXer to accumulate 25 new cards after getting the basic 100 certificate.

At this moment, there are only a few RTTY fans whose country count is

over 200, and they have been pounding the "green keys" for a long time. I would guess that only four or five are over 250 with Gin Naniwada, JA1-ACB, leading the pack around 270. Gin has never registered his QSL collection with the ARRL, and neither have a number of other high-count stations in Europe.

Only a handful in the United States have 200 or more confirmed. I have 181 registered with the ARRL (in

write to your DXCC Advisory Committee member and let him know how you feel. A list of the committee members is on page 51 of the June 1987 QST. It would also be worthwhile to let your ARRL Director know how you feel about this matter. A lot of the directors have never really been exposed to RTTY, so the problem is not evident to them. The squeaky wheel gets the grease. Start squeaking, RTTY fans!

There is no Honor Roll for RTTY. Shouldn't the top digital operators be afforded the same honors as those on CW?

1986). At the rate I am going (10 in the last year and a half), I will not be able to get another endorsement for about two or three years. If, instead of RTTY, I was chasing DX on 160M, I could send in my cards now and get another sticker because the League endorses 160M operations in units of 10 up to 200 and five after that. 'Tain't fair!

There is no Honor Roll for RTTY. Shouldn't the top digital operators be afforded the same honors as those on CW, etc.? It would probably cause foreign DXers to submit their cards into the competition instead of boycotting the DXCC.

I'm not alone in my feelings. Here's what Jack Whitaker, W5HEZ, has to say: "With the increased activity in the digital modes of communication and the emphasis that the League is placing on digital communications, I feel that the creation of an Honor Roll and endorsing in multiples of 10 and five confirmations for RTTY DXCC would really create a lot of interest and competition for the top spots in RTTY DXCC activity."

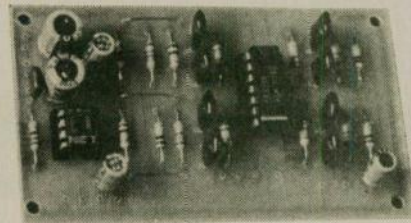
So, RTTY fans all over the world,

Packet tracks

Last month I told of our traffic problems in and out of North Dakota. Well, the dry spot extended to 23 days at one point. Then one of the net/ROM digi ops discovered antenna troubles. Fixing that problem didn't cure everything, but it helped. We still need another digi on our route to the outside world. That could be coming in the next few months. Then, perhaps, North Dakota will really be on the packet map. I know we are a rare state; you should hear the CW pile-ups I get during the North Dakota QSO party. Just like DX!

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In a recent issue of *The Node*, a newsletter for the friends of the Oklahoma Net/ROM Group, I saw this interesting item. The editors, Larry Conner, WA7UIB, and Jim Everitt, N5DUB, published a list of the nodes heard on 2M band openings. Of the 70 calls listed, 12 were from Iowa, Louisiana, Nebraska, Colorado and Wyoming were also on the included.

Recently, our local group of packeteers inaugurated a new net/ROM digipeater on a local TV tower. Our radiator is located at the 750' level of the 1,200' structure. The base of the tower is about 450 feet above the local terrain, so we have 1,200 feet of altitude to work with. We have both an FM and a digi on the same antenna, although it takes a pile of cans to do the multiplexing. And does it work! Wow!

I would like to know how readers feel about addressing traffic by ZIP codes or @ BBS? Let me hear from you by mail or packet.

Eavesdroppings

IN COMPUTERS, WHEN ONE THING GOES WRONG, NOTHING ELSE GOES RIGHT ... THE ANTENNA FOR 80/40 IS A PERVERTED VEE ... I'M TERRIBLY SORRY BUT I CANNOT FIND MY BRAG TAPE ... I'M ABOUT TO FIRE UP A BRAND NEW LINEAR — IF YOU DON'T HEAR FROM ME AGAIN YOU'LL KNOW WHAT HAPPENED ... RST 579 WIT DA ANTENNA STUCK ... I AM REALLY TRYING TO HUSH THE COMPUTER HASH HERE ... I'M A SHIPBOARD RADIO OPERATOR VACATIONING ON DRY LAND ...

YOU ARE TRANSMITTING UP-SIDE DOWN OR DOWN-SIDE UP, WHICH EVER IT IS ... SHOW ME A TV FAITH-HEALER AND I'LL SHOW YOU ONE WHO NEVER MADE A HOUSE CALL ... YOUR SIGNALS ARE NO SLOUCH, IF SIGNALS CAN SLOUCH ... I'M GOOD IN ANY CALLBOOK FOR THE LAST 100 YEARS ... OUR SHACK IS LOCATED TEN MILES FROM 3 MILE ISLAND AND UPWIND, TOO ... ALL THE BEAST TO YOU, GEORGE ... I'M HEAD-ED FOR LAS VEGAS TO VISIT THE MONEY I LEFT THERE LAST WEEKEND ... NAME HERE AT THE MOMENT IS LUIS ... WE'RE LOCATED ON THE BEAST COAST OF FLORIDA ... MUST QRT AS MUST USHER IN CHURCH IN TWO MINUTES ... WHEN I MOVED TO THIS CITY I LOST 265 DX QSL CARDS — MY ENTIRE COLLECTION ... GUESS THE ALLIGATORS ARE GETTING US SO 73 ... GREETINGS FROM NEW ENGLAND FROM A FELLOW WIRELESS PIONEER ... BEEN A HAM FOR 2 YEARS AND ON RTTY FOR 20 ... I WAS HIT BY A BIG BATCH OF QSB THAT LAST TIME ... SORRY OM, BUT I THINK THE LINK IS GONE FOREVER, CUL ... MY XYL CONFUSES MY ANTENNA AND HER CLOTHES LINE ... MY QTH IS LOCATED BETWEEN TEXAS AND OKLAHOMA ... BEEN OFF RTTY SO LONG MY FINGERS CAN'T FIND THE KEYS ... PACKET RADIO IS FOR THE BIRDS — THE INSTRUCTION MANUAL HAS OVER 200 PAGES IN IT ... STAND BY FOR THE "STATION BLAB BUFFER."

Thanks to N7JWO, W7VFR, W5HEZ, W0ML, W1DA and WC0M. Write me: Bill Snyder, 1514 South 12th St., Fargo, ND 58103. Packet address: W0LHS @ W0LHS or 58103. 73 and DIT DIT □

10-10 INTERNATIONAL News

Chuck Imsande, W6YLJ
10-10 19636

Just clowning around

Beside having Amateur Radio as his hobby, one of our 10-10 members — Don Jones, KB6QLC, 10-10 #42822 — spends much of his time just clowning around.

Don, whose phonetics for his call KB6QLC is Quiet Loving Clown, has been clowning around for the last 17 years and is president of the Long Beach Elks Clown Group. In January of this year, during the Long Beach Centennial Ceremonies, Don had the pleasure of working with California's governor, George Deukmejian. Don has also participated as "Sniffles the Clown" for the Special Olympics and for the Abused Children program. He has worked with such stars as Robert Blake and Loretta Swit.

Don has been a ham for a little over a year, but has become fully active. He is a volunteer operator of W6RO, the Amateur Radio station aboard the *Queen Mary*. Incidentally, he is 10-10 #25000. Don can be found at the control desk of W6RO the fourth Saturday of each month, 2100-0000 UTC, giving out #25000.

At the home QTH in Long Beach, Don's station consists of a Kenwood TS-180 and both a 5-band Hustler vertical and a 3-element Yagi beam antenna. With all of his other activities, he still finds time to operate the radio 55 to 60 hours a week looking for new 10-10 members. At this writing, he needs only seven more states to finish 10-10 WAS and has eight 10-10 DX countries to his credit. Not bad for just over a year of hamming.

Although Don has only been a 10-10 member since 1987, he has taken a liking to the friendly people and good fellowship of 10-10 and acts as the alternate net control of 10-10 Novice Enhancement Net which meets Thursday mornings at 0300 UTC (7 p.m. Wednesday evenings Pacific time) on 28.450 MHz. If conditions permit, check in on this new active net and say hello to "Sniffles the Clown," KB6QLC, and add 10-10 #42822 to your list.

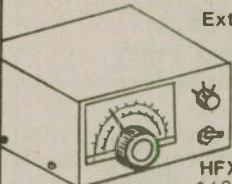


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
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10-10 Scholarship Award

As part of the corporate restructuring, 10-10 has established two \$750 scholarships annually. Administration of the 10-10 Scholarship Program is being handled by the Foundation for Amateur Radio (FAR), which also administers Amateur Radio scholarships for a number of other Amateur Radio organizations.

Any amateur who holds at least an FCC Novice Class license, or foreign equivalent of the U.S. Novice Class license, is eligible for consideration to receive one of the 10-10 scholarships. Applicants must be recommended by a 10-10 member who can show proof of paid-up membership in 10-10. The applicant must plan to pursue a full-time course of studies beyond high school and must be enrolled or have been accepted for enrollment at an accredited university, college or technical school.



California's Governor George Deukmejian with "Sniffles the Clown," Don Jones, KB6QLC, 10-10 #42822

Additional information and an application may be obtained from The Foundation for Amateur Radio, FAR Scholarships, 6903 Rhode Island Ave., College Park, MD 20740. Requests for application must be post-marked prior to May 31, 1988.

In addition, 10-10 members have an opportunity to contribute to the 10-10 International Net Scholarship Fund. Send your contributions to Gerry Gross, WA6POZ, 10-10 Treasurer, 8145 Cozycroft Ave., Canoga Park, CA 91306. Checks should be made payable to "10-10 Scholarship Fund."

How about sending a contribution

to Gerry? Even the smallest amount will help. If each of you reading this would send Gerry just \$1, think how our Scholarship Fund could benefit our younger hams with their education. You do not have to be a 10-10 member to contribute, so get your checkbook out right now and send Gerry your contribution. For one thing, it will be an indication to me that writing this column is worth all the time and effort it takes. Thanks in advance for your help.

A report on the activities of W6OI

As has been noted in this column previously, the 10-10 Club Station W6OI, 10-10 #109, was activated at the 10-10 25th Anniversary Convention in Shreveport last August and was authorized by 10-10 to remain active in Shreveport until December 31, 1987. Thanks to Mel Sojka, KD5DE, 10-10 #33513, who managed to keep W6OI/5 on the air in Shreveport, Louisiana, the following interesting statistics show the activity during the five months from August through December 1987.

A total of 932 contacts were logged, resulting in 612 QSL requests. During the Fall 10-10 QSO Party, 226 contacts were made in 26 states and two DX countries. After the convention, Mel made a concerted effort into getting W6OI/5 on the air as much as possible. The final results are not only pleasing, but also a bit surprising.

As of December 31, 1987, the club station W6OI, operating portable five out of Shreveport, is qualified for the 10-10 WAS, VIP, WAC and DX Award plus one endorsement. The countries worked include the following: VK, 9Q, HK, KC, TI, 5H, CR6, CU3, CO7, CN2, TR8, JA, YB, ZL, VK9, P40, PJ1, PJ1, Z63, ZS, TE2, EA, EA6, EA8, CQ9, J87, T30, 5W, 5N, TR1, I, FR, EI, G, F, 9H, 5L, PY, LU, CE, CX, ZP and CP.

Consider this list! Not half bad considering all of the contacts were made with one of two QRP rigs. One puts out a whopping 3W and the other puts out a bigger 6W! That's right, 3W or 6W. So you see, it can be done on 10M with low power.

One last bit of trivia. Mel has now made contact with 287 countries, all but one on 10M. And believe it or not,

all 10M contacts have been made with low (QRP) power. On 10M, when conditions are right, power is not important.

Finally

Thanks again to the many of you who send me your comments on this column. Sorry I can't answer each personally, but that would take every last bit of my spare time. But each comment is read and appreciated.

There is some help that I do need. If you have any interesting story about yourself, your involvement in 10-10 or Amateur Radio in general, drop me a note. Don't be modest; let me hear about you and your activities, other hobbies or whatever. Together we can make this column interesting about 10-10 members, their families, etc.

One request for information about 10-10 received the other day asked for four applications as the YL, OM and their two harmonics all want to join 10-10. Another request was received from the Submarine Base ARC at New London, Connecticut.

If you are interested in receiving information about 10-10 and how to obtain your own 10-10 number, send me a business-size (#10) stamped, self-addressed envelope (SASE) with one first class postage stamp (may be 25¢ by the time you read this). If you would like to receive the information pack and the latest copy of the *10-10 International News*, 10-10's official magazine, send me \$1 (commonly referred to as a "green stamp"). No SASE required when you request the magazine.

Best 72, and let the Scholarship Fund hear from you. CU next month.

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New 6M moonbounce record set

On February 15, Ray Rector, WA4NJP, Georgia, worked Bert Inghalls, KH6HI, Hawaii, via the moon, to extend the recently set distance record by about 200 miles. Bert is using four 8-element Yagis with 1.92-wavelength boom length. The antennas are spaced 24 feet vertically, and 27½ feet horizontally on an H frame. He is running 1000W from a pair of 4-400A's.

This was Ray's sixth contact, and the 10th 6M EME contact to date. Work is ongoing in Africa, and Japan is to become active on 6M EME.

New countries on 6M

The French PTT has authorized 6M operation for Class A license holders with power restrictions dependent

upon how far the holder is from a TV station. Because TV stations are planned north and south of Paris, this area is off-limits for operation on 6M. Amateur stations located over 200km from a TV station are permitted 10W ERP. Those between 150 and 200km are allowed 3W ERP. Anyone within 150km of a TV station will not be granted a permit.

Peter Dewhurst, J73PD, Dominica is no longer on 6M. Lambert, J73LC, has expressed interest in 6M. Let us hope he becomes active.

Bill Sawyer, 9J2WS, will be active on 6M from Zambia until the end of 1989, when he will return home to Sierra Leone as 9L1WS. He is running a Yaesu FT-101 and FTV-650 transverter with 40W output. Steve Katz, WB2WIK, the *CQ Magazine* VHF editor, has sent 6M gear to Frank van Dijk, PA3BFM. Mike Barry, ZD8MB (G4MAB), Ascension Island, can be contacted by U.S. personnel through this address: M.A. Barry, BBC ARS., P.O. Box 4608, Patrick Air Force Base, FL 32925. Otherwise, his QTH is: M.A. Barry, B23 Two Boats, c/o BBC ARS, Ascension Island, SOUTH ATLANTIC.

DXpeditions

Jimmy Treybig, W6JKV, has said to look for him from Aruba during the June ARRL contest. He hopes to operate somewhere from West Africa at a later date. He will be on 28.885, as usual, for coordination.

Harry Schools, KA3B (to whom I am indebted for some of this information), will be on St. Pierre (FP) June 7-14, during the ARRL VHF Contest. He will take a 5-element beam and leave it at the Hotel Robert, which has

a well-stocked permanent HF station on the top floor. It has been the scene of many HF DXpeditions in the past. Harry will be signing FP0SIX (he hopes) or FP/KA3B, running 100W. SASE, please! I just received his #7 newsletter. You need it. You can get it from me for \$3. One thing it has is the QTH of all active 6M DX operators in this hemisphere.

Speaking of HF DXpeditions, I encourage ALL of you going on HF DXpeditions to include a Kenwood TS-680S as your HF rig. It has 10W on 6M, scans, and has a built-in preamp. As solar activity increases, you will be amazed at what you can work on 6M. When you do it on 6, it feels better! Ask any jaded HF DXer now active on 6M how he feels after working a DX station on 6. He will tell you that old feeling he used to get on HF now lives on 6M!

6M DX Society members Mario Karcich, WB2CZB, Jim Holt, N3AHI, and John Laing, W1EXC, say they will be on Saba Island, as PJ0M, July 7-14. Operation will be on all bands, 80-6M, SSB/CW.

Equipment includes an FT757, two TS-680S's, amps, with wire antennas on HF and 3- and 5-element beams on 6M. Particular attention will be paid to 6M multi-hop paths to the United Kingdom, as well as to the Americas.

In addition, Mario, WB2CZB—a member of QRP ARC International—will actively solicit QRP contacts. QSLing is via Mario Rotondo, K2MUB. SASE's, please!

Steve Katz, WB2WIK, says The Society of Contest Operators and Radio Experimenters (SCORE) will return to Chincoteague Island, Virginia (FM27) for the June 11-12 ARRL VHF Contest. Two legal-limit 6M stations will be in use. They will look for Europeans around 50.175 MHz or so.

Terry Baxter, N6CW (also XE2-GDK), will be operating from VP2VCW, British Virgin Islands, the last week of May and first week of June. He will also be on from KP2A, U.S. Virgin Islands, in that time frame. He will monitor 28.885. Terry said to remind you he is the QSL manager for KP2A, VP2VCW, XE2GBO and XE2GDK.

Beacons

Dave Bernhardt, N7DB, has reworked his beacon, which is an expanded version of one in the April 1975 *QST*. It cost about \$30 to build. Details are available on request. The beacon sends "VVV DE N7DB/B ORE CN85 AR" at about 15 wpm. His QTH: P.O. Box 711, Boring, OR 97009.

Richard La Chance, AH6IO, reports that there is now a KH6JJK Hawaiian

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beacon operating on 50.080, from Honolulu. That is all I know about it so far.

6M repeater

Rodger Keiser, K0GBZ, P.O. Box 66-319 West 6th St., Quinter, KS 67752, has a complete 6M repeater for sale. It is a Hamtronics REP-100, crystallized on 52.450 MHz receive and 53.450 transmit, with touchtone control by remote, and Wacom Products four-cavity duplexer Model WP-609 all in a 6' cabinet. Contact him if you are interested.

The "Big Sticker" 6M antenna

Walt Schivo, KB6BKN, has designed a 3-element wide-spaced, triangular reflector Yagi for 6. I don't have room for details here, but he will be glad to provide them. Write Walt at: 560 Eldridge Ave., Novato, CA 94947.

Sporadic Es results for 1987

Pat Dyer, WA5IYX, just released to me the 1987 results of his 88-108 MHz Es monitoring from San Antonio. 1987 was the most Es activity he has seen since 1972, with 89 days, 184 openings and 10,175 minutes of activity. The month of December was the best since 1972. Here is the breakdown:

Jan.	Feb.	Mar.	Apr.	May	Jun.
0	7 D	1 D	4 D	14 D	21 D
0	9 O	1 O	8 O	25 O	45 O
0	360M	25 M	415 M	745 M	3405M

Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
19 D	9 D	1 D	1 D	3 D	9 D
57 O	13 O	1 O	1 O	4 O	20 O
3395M	575 M	85 M	5M	100M	1065M

D=# of Days Open. O=# of Openings.
M=Minutes open per month.

DX reports

Bob Moelius, KA5EBL, reports working Patrick de Verteuil, HH7PV; Eric Roy, TI2NA; and Heinz Lazarfeld, TI2HL, on December 18, 1987. On February 21, 0030 UTC, 1988, Mike Barry, ZD8MB worked Adonias Gomez de Monte, PY7JJ. On February 23, between 2000 and 2200 UTC, Fred Fish, W5FF, New Mexico, and Pat Patterson, W5VY, San Antonio, worked LU, CX and HC stations on what was thought to be an F2 to Es link.

Lucio M. Moreno Quintana, OA4QC (LU8BF), is now said to be active on 6M from Peru. We also had a recent opening to Uruguay. QSL information on HC8VB is: Diego Bucheli, HC8VB, San Cristobal Island, Galapagos Islands, ECUADOR, SOUTH AMERICA.

Technical tips

For those of you having TVI prob-

lems, check out March 1988 QST, page 25. Joseph E. Fleagle, W0FY, 320 Greentrails Dr. South, Chesterfield, MO 63017, wrote a very good article on traps for VHF interference. If you try it and it works, please let me know.

Operating on 6M

I get a lot of questions concerning 6M operating. One concerns TVI, and another tower or antenna restrictions. Yes, you can still have TVI problems on 6. However, with many of us running just 10W and many cities on cable TV, this may not be the problem for you that it used to be in the AM days. Even with 10W, we still work the world, for often the DX is also only running 10W. If you had or have a TVI problem, or tower/antenna limitations, you often ask me how to get around them.

One way is to operate mobile. This is the best of two worlds. You get to work the DX when you are away from home, and you can run higher power and not bother your neighbors.

I run an ICOM IC-560 (a great little mobile rig with a good noise blanker, which you will need), and a 180W amplifier. I recommend a TE Systems 0510G 180W amp with GaAsfet preamp. Other good rigs to use are the ICOM IC-505, and the Kenwood TS-660 and 670.

You can use a 2M 5/8 whip, or a 6M whip for the antenna. I prefer to use the Saturn Six Three Ring Halo because it is horizontally polarized, which most of us on SSB at the home station are. You can still find them if you ask around. So, don't give up on 6M because you are afraid of TVI. Become a Mobile (Mini) Kilowatt and work the world! It is great fun to work Es and F2 while mobile. A rig or amplifier with a good preamp sure helps.

Another question I often receive is how best to work 6M. The best advice I can give you is to: form your own 6M group in your area; start your own SMIRK net; keep each other advised of information you receive concerning 6; establish a DX alerting net on a repeater, or a telephone call down list like we have here in San Antonio; encourage others who used to be active

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to get back on; or help others get on 6 for the first time.

Last, and probably most important, leave the 6M rig on 50.110 at all times when you are home, and call about every half hour. You will be amazed at who you can talk to when you don't expect it!

Remember, when you do it on 6M, it feels better! See you on the Magic Band all of a sudden! □

No-code in Canada

No code may come to North America by way of Canada! It now seems certain that Canada will have some form of code-free entry-level license by mid-1989. On February 20, representatives of the Canadian Radio Relay League and the Canadian Amateur Radio Federation participated in a meeting with that nation's Department of Communications Industry Working Group Dealing with the Restructuring of the Canadian Amateur Service. At the meeting, DOC stated that it was committed to a new Amateur Service structure based on four classes of license certificates, including one (Certificate A) for an entry-level no-code ticket with full VHF/UHF operating privileges above 30 MHz. But the DOC proposal goes a lot further.

The next step would be the B Class certificate. To earn it, one would have to show proficiency in the Morse code at 5 wpm. In exchange, he would be given all Certificate A privileges plus all-mode operation from 3.5 to 4 MHz at 250W input power. In other words, the equivalent of Novice phone on 75M! Various other aspects of the proposal would include simplified requirements for full HF privileges and repeater ownership.

— Westlink Report □

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I have long been fascinated with the world above 50 MHz. While in Japan during the mid-'70s, I discovered that ICOM marketed portable 6M and 2M SSB transceivers (IC-502 and 202 respectively). After some major globe trotting (courtesy of the Air Force), I found myself in England. Many of the UK amateurs used the IC-202 SSB transceivers.

In 1980 I bought an IC-202S and had a ball running it barefoot to a homemade Quagi.* With an output of only 3W (PEP), I managed to work many grid squares all over the UK from my East Anglian QTH. During the European VHF contests, I worked as far as central France and even into Germany! I was impressed with the IC-202 and the distances I was able to work using QRP and a very modest antenna system.

ICOM first marketed the IC-202 in 1976. In 1979, a second-generation 2M portable — the IC-202S — hit the market. The "S" version incorporated USB, LSB and CW (the 202 only had USB and CW) and an upgraded RF front-end device for better receive sensitivity. The only external changes were the front panel knobs and the color of lettering (the 202 has orange lettering, the 202S has light blue). Used

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Sun	1500	10:00A	Long Island	East Coast	144.250	WA2SLY WA2FXB
Sun	1530	8:30A	Tucson AZ	Arizona SWOT	144.300	W5DXN/7
Sun	0300	9:00P	Twin Cities	Minnesota SWOT	144.250	W0KRX
Sup	0245	0415P	MD to OH	Activity Group	144.170	W3WN Doc
Sun	0330	7:30P	Southern CA	SOCAL SWOT	144.250	WB6NOA KP6ZB
Mon	0300	8:00	Ft. Carson CO	Colorado SWOT	144.200	NL7CO/0
Mon	0330	7:30P	Stevensville MT	MT-ID-WA	144.110	W7HAH
Tue	0045	8:45P	MD to OH	Activity Group	144.170	W3WN Doc
Tue	2300	9:00P	Anchorage	Alaska SWOT	144.200	NL7FM
Tue	0230	8:30P	Southern IL	Little Egypt	144.250	KA9HDZ KB9SG
Tue	0300	9:00P	Texas Panhandle	Panhandle SWOT	144.210	K5IS Jerome
Tue	0400	8:00P	North Counties	NORCAL SWOT	144.250	WD6CHL Vern
Wed	0100	8:00P	Cleveland OH	N.Cent.States	144.255	K8RAQ WD8PKQ
Wed	0200	8:00P	Iowa-Illinois	Tri-State SWOT	144.250	WB9WMM N9CXO
Wed	0200	9:00P	East PA-NJ	Delaware Valley	144.250	WB2BJH KA3KHZ
Wed	0300	9:00P	North Texas	HDQRTRS SWOT	144.250	WD5DJT KA5NGG
Thu	0200	8:00P	Chicago-Ind.	INDY SWOT	144.250	KA9EJJ
Thu	0400	8:00P	South Counties	NORCAL SWOT	144.250	N6EIO
Fri	0245	8:45P	MD to OH	Activity Group	144.170	W3WN Doc
Fri	0400	9:30P	Great Lakes	Michigan SWOT	144.250	WB0WAO/8 N8CGY
Sat	1300	7:00A	North Texas	HDQRTRS SWOT	144.250	WA5DBY N5CTE

Sidewinders On Two (SWOT) net schedule. National VHF/UHF "activity" nights include: Monday—2M, on 144.2 MHz (SSB). This is a U.S.-wide event to further our knowledge of 2M propagation and increase 2M activity.

IC-202's can be had for a song (mine cost only \$40!). My goal was to put together a quality VHF QRP station using low-cost equipment that would provide hours of fun operation on 2M. While the IC-202 transceivers are great little performers, they do have some weaknesses that need to be addressed.

ICOM specs the receiver sensitivity at 0.5µV at 10dB (S+N/N). This is an adequate receiver spec for an HF rig, but it just don't cut the mustard at VHF. One of the first things to do is add a pre-amp. A properly designed and tuned pre-amp can increase the overall sensitivity of a VHF receiver while keeping the noise figure at an ac-

ceptable level. This means you will hear many more stations with a small increase in receiver-generated noise.

Not all pre-amps are created equal! With this in mind, there exists a company in Connecticut that makes terrific pre-amps. Advanced Receiver Research, Box 1242, Burlington, CT 06013, has an exceptional line of receiver pre-amps for various applications.

I chose the model P144VDA (a dual-gate FET device as opposed to a GaAsFET) for a couple of reasons. Dual-gate pre-amps are cheaper and less finicky than their GaAsFet cousins. Overall gain of the P144VDA pre-amp is about 15dB with a noise figure < 1dB. The additional .5dB decrease in noise figure gained by using the GaAsFET device is just not worth the extra cost in this particular application. After the P144VDA preamp was hooked up to the IC-202, the difference in performance was **UNBELIEVABLE!** All of a sudden I was hearing all sorts of DX stations, which were never there before.

Once the receiver section was hotted up (as the "blokes" say), I faced the second major problem . . . I was hearing them, but they were not hearing me. There were two ways to approach this problem. The first method is to upgrade the existing antenna system. The second way is to add an external linear amplifier. Either is acceptable, provided a little planning is used.

Let's take the antenna upgrade first. Previously I had used a homebrew Quagi (a great antenna for the price). Unfortunately, the Quagi didn't make the trip to the States. Bob

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Michael, WB3FAA, was kind enough to give me a Cushcraft 147.11, 11-element 2M beam. Although cut for the FM portion of the band (146-148 MHz), it can be retuned to 144 MHz.

For the January VHF contest, I used a Radio Shack tripod set on the floor of my attic and a 6' mast to support two of the three sections of the 11-element antenna. This gave me only seven elements on 2M, but, based on my experiences in European VHF contesting using the 8-element Quagi at 15 feet, I figured that this makeshift set up would work well. Boy, was I wrong! Things did not go according to plan at all!

The ARR pre-amp had not been installed prior to the contest. A deaf receiver coupled with a marginal antenna system spelled frustration with a capital "F". My operating time during the contest was very limited; however, I did amass a grand total of nine contacts. Every one of those (except for Bob who lives only two miles away) was a chore. Not only was I not getting out, I was not hearing anyone but the locals. I did work three grid squares (FN-10, 20 and 21) using this lashup. Bob hit the nail on the head when he said, "You gotta get a better antenna system up in the air."

I still consider the 11-element Cushcraft a reasonable start on a VHF antenna system. If you can find one or two of these antennas used, for a good price, buy them. However, any serious VHF DXing requires a better-than-average antenna system and low-loss feedline. My goal is a set of Cushcraft 4218XL Boomers or Tonna F9FT's and a power divider system, fed with Belden 9913, up about 50 feet. This system will do well in any contest or DX scenario.

Now, a word about amplifiers. The Class C amps that are used with 2M hand-holds (2W in/10W out) should not be used with the IC-202, except on CW. The reason is that these amps are non-linear and SSB requires linear operation to minimize distortion.

Ramsey Electronics, 2575 Baird Rd., Penfield, NY 14526, markets a nifty little HT amp that has a built-in pre-amp (16dB gain) for about \$35 plus postage. I obtained one of these little gems for use on CW during the VHF contest. The pre-amp was a help and the extra RF output didn't hurt anything, either.

I did notice that there was no way to

utilize the pre-amp without using the 10W RF output, too. Therefore, if I was going to be able to hear the stations, I was locked into using the full output of the amplifier on CW only. There have been articles on linearizing these little HT amplifiers for use on OSCAR and SSB.** Since the Ramsey HT amp is a "garden variety" class C design, there should be no problem with re-biasing the amp class AB1 and pressing it into SSB service.

Another solution to the RF output problem comes from Communications Concepts, 121 Brown St., Dayton, OH 45402. CCI markets a variety of linear amps. I chose the Model 335A-K (35W output) to test. It comes as a kit and is very well designed. Quality parts and a good double-sided PC board make for a reliable amplifier at a reasonable cost (\$75 plus postage). While this amp is outside true QRP power limits, there will be times when you'll want to run more power, and this particular amp is a very good choice.

Value for money, the Model 335A-K amplifier outshines other units costing over \$100! 2W input yields about 32W output — more than enough power, when coupled to a good antenna system, to work everything you can hear with the 202. I am not ad-

vocating the use of raw power to work contests or DX. However, there are those times when a little more RF output can make or break a QSO. Emergency situations, net operations over long VHF paths, etc. warrant the use of a little extra RF power. Moderation is the key word here. Both of these amplifiers will be reviewed in detail in an upcoming column.

That's it for this month. Many thanks to David Wiegele, at ICOM America, Bellevue, Washington, for the avalanche of information he provided on the IC-202 transceivers. Thanks also to Len Hoops, KC5IJ, editor of Sidewinders On Two (SWOT) Bulletin for the LSB mods on the IC-202 and SWOT net info. Contact Len at 1704 Glenn Dr., Ft. Worth, TX 76131.

Next month we'll show you how to do the ARR pre-amp installation and discuss antenna systems. WANTED: IC-3PS power supply. Till next time, 73 es Gud DXing. Rich Arland, K7YHA, 9 Vine St., Shavertown, PA 18708.

**"The VHF Quagi" by Wayne Overbeck, N6NB, QST, April 1977, page 11.

**"Taming the 2-Meter Linear" by Calvin McCarthy, VE3LMP, 73 Magazine, December 1983, page 28. □

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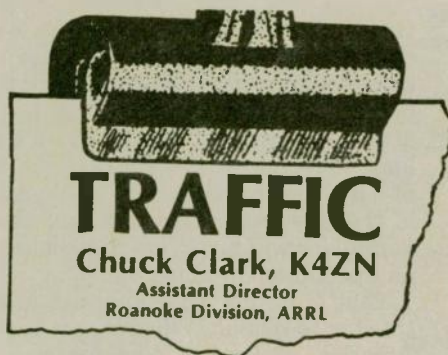
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Sending CW

A correspondent recently wrote to say thanks for remarks made here about CW. The writer would like to see the code test made harder — say, 10 wpm for Novice, 15 for General, 20 for Advanced, 25 for Extra. I refrain from mentioning the writer by name, as I don't want to be responsible for what some people might do to him!

I myself think the present code test is adequate, and could even support a no-code license restricted to frequencies above 1 GHz if it would encourage more use of the microwave region. I fear that any effort at this stage to make licenses significantly harder to obtain, especially at the entry level, will not be in the best interest of Amateur Radio, nor will it serve the public interest, convenience or necessity. We need new blood to replace us oldsters as we become Silent Keys.

The January piece spoke about receiving CW. Something should also be said about sending.

As operators gain experience, they become better at copying code. Old-timers often can copy signals that newer operators can hardly hear, through noise, interference, fading, and from fists that anyone else would call unintelligible.

I remember as a youngster I was at a hamfest in Michigan where several of the local hams who were also commercial operators demonstrated their abilities to copy what the writer in *The Detroit News* characterized as "static." One of them was MacDonald, W8CW, who was ranked the #2 telegrapher in the United States. He had lost out to #1, McElroy, by 1 wpm in the contest where McElroy set the world's record of 75 wpm, which still stands in the Guinness Book of Records. Mac then gave a demonstra-

tion where one of the other operators sent mixed American and International code with a bug, and he copied it solid.

Unfortunately, the oldsters often develop unique fists of their own that others find difficult to copy, at best. And often these are the traffic handlers with whom we have to exchange traffic. Several things happen to cause this.

For one thing, traffic handlers are a small minority among amateurs, probably amounting to less than 1% of those active on the air. And generally, traffic handlers will be found mostly on nets working other traffic handlers that operate on the same nets, and form a tight circle of specialists who communicate mainly among themselves. Others are most welcome, of course, but they mostly work one

way to cure it is to remove your hand from the key at the end of each word as you transmit.

If you find operators who generally ask you for fills, chances are that you are running things together, unless there is some other cause, such as weak signals from your station. There is a Q signal to use in such cases — QSD, but you'll rarely hear it on traffic nets.

Keyers

Then there are the various forms of speed key that sometimes make difficult copy. Some people can send 25 wpm or even more on a straight key, but most of us find that 20 is our limit — at least if the result is to be intelligible.

Telegraphers have developed various devices to make it possible to

The oldsters often develop unique fists of their own that others find difficult to copy, at best, and often these are the traffic handlers with whom we have to exchange traffic.

another. As a result, they get to know one another's sending quirks and can make sense out of what others would call unintelligible.

You may ask, why don't they straighten one another out? Once in a while they might, but they have become so used to one another's style that they don't notice it anymore. It serves to identify one another without even signing their calls.

Then there is the pressure to speed things up. Worse, there is often the tendency to speed things up even when there is no need. When a net control station gives the net call at 25 wpm repeatedly, with nobody checking in, he could just as well be doing it at 15; and he might get some check-ins from hams whom the higher speed frightens off. But there are times when the traffic load is heavy, and the only way to clear it all in the time allotted for the net is for fast operators to step on the accelerator. Quality may suffer when this happens, and the sloppy sending habits may carry over into other operating activities.

One of the first casualties of the accelerated pace is the space. The Morse code is made up of three elements: dits, dahs and spaces. Letters and words are run together, and the result can be something that might bring a citation from the FCC for sending encrypted messages. ANNAPOLIS MD might become PXPOLIS8, for example, or FAIR WEATHER come a FLR PATHER, AND becomes PD, SMALL becomes 3ALL. If you catch yourself doing this, perhaps the best

transmit faster. Probably the oldest such device — and certainly the simplest — is the sideswiper, a form of key where the hand is moved from side to side instead of up and down, with the key making contact when moved in either direction.

Thus, to generate a string of dits, say to transmit the figure 5, one would move the lever right, left, right, left, right, then back to the center off position. The sideswiper makes it possible to send almost twice as fast as one can with a straight key.

Next followed the bug, where a vibrating armature makes a string of dits when the lever is moved to the right, while dahs are made manually by moving the lever to the left (this is for right-handed operators; left-handed bugs exist too, in fact some models can be changed from one to the other by disassembling the key, turning the base upside down and reassembling. I have read about another type of key called the "cootie key," but have never been able to learn exactly what that animal was.

Just before World War II, other types of speed keys appeared. There was one that used a motor and clutch arrangement with a keyboard to generate Morse code. The keyboard was not a typewriter type with the letters of the alphabet, but simply a number of keys that gave various strings of dits and dahs. It never became popular, however.

What did achieve popularity was the electronic keyer, which has pretty (please turn to page 50)

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Bob's Corner

Bob Decesari, WA9GDZ/6

about the design is the use of common wire in a quasi-stripline technique, and the use of 10 megohm resistors as circuitboard stand-offs to hold the circuit components.

Wire stubs, a couple of inches long, are positioned and cemented to a copper-clad circuit board. The combination of the wire length, distance above the clad, and the wire insulation material — which acts as a dielectric — determines the operating resonant frequency. By positioning a base stub and a collector stub in close proximity to each other, feedback is established and the circuit oscillates.

Experience has taught that the easiest way to adjust the operating frequency is to trim or lengthen the stub length. A small trim capacitor,

however, may be placed in the collector line to allow frequency adjustment. Second and third harmonics can be minimized by adjusting the distance of the base stub from the collector stub.

Although the original design article utilized #16 PVC-coated solid wire for the stubs, I have had considerably better experience by utilizing #20 rubber-coated power cord! By using a power cord for the stubs, the distance between the stubs is kept very consistent and it is easier to work with in the assembly of the device. A little experimentation will go a long way in this area. Keep in mind that the type of insulation used on the stubs will affect the resonant frequency as the (to next page)

An experimental 915 MHz oscillator-transmitter

Here is an experimental oscillator that will allow the radio enthusiast to experiment on the newly opened 915 MHz amateur band. The new band,

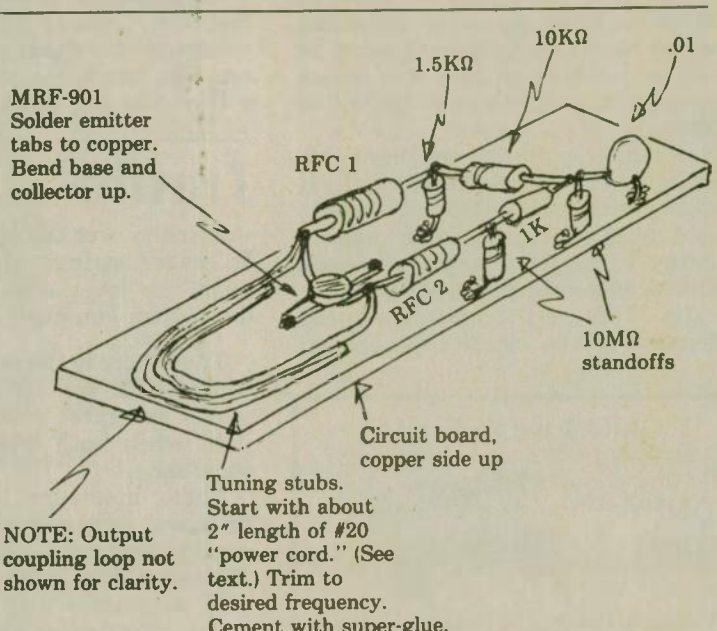
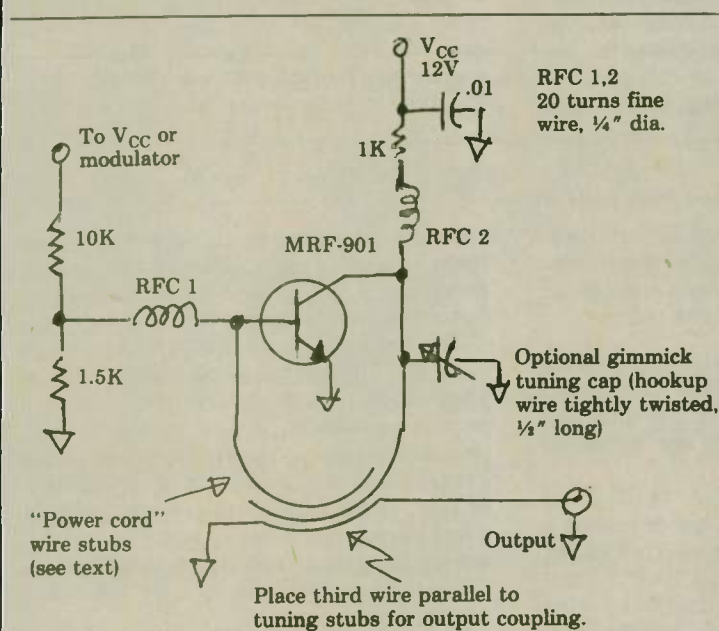


Figure 1 — Experimental 915 MHz oscillator

Figure 2 — Construction details of 915 MHz oscillator

covering 902 MHz to 928 MHz, is actually shared with other RF devices commonly used for industrial, scientific and commercial applications. The oscillator may be used as both a simple transmitter, a reference oscillator, or an oscillator for a receiving converter. Actually, the circuit could be made to work to 2 GHz or better, thus allowing the advanced experimenter to cover the 23cm (1296 MHz) band as well.

I do not take claim for the originality of this circuit. Instead, I became interested in it after reading a July 1981 QST article by Robert Wilson, KL7-ISA, and Hal Silverman, W3HWC. The article should be referred to for additional technical and design details.

Figure 1 illustrates the basic circuit and Figure 2 the basic mechanical construction technique. What is unique

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dielectric insulation determines the capacitance to ground.

As stated previously, 10 megohm resistors are used as stand-offs in mounting the bias resistors. This value provides more than enough "insulation" as the current to ground is in the microamp area. As can be seen from the schematic, a Motorola MRF-901 transistor is used as the active device.

Once upon a time, Radio Shack used to carry this device. However, I do not know if this is still an active Radio Shack part. Circuit Specialists in Scottsdale, Arizona, is a good source for this part in small quantities. The device package has two emitter leads, 180° apart. Both of these leads should be soldered to the copper clad ground. The base and collector leads are bent up to allow soldering to the stubs and the bias resistors. Keep everything as short as possible as this is a microwave circuit, and long leads cannot be tolerated.

Now that you have the oscillator built, how does one test it, especially if microwave and UHF test equipment is not available? Well, most experimenters these days have frequency counters; hopefully yours will count to 1 GHz. This is the easiest way to determine if the circuit is working.

However, I originally used a UHF television set to get my device working at least in the right ballpark! Most UHF televisions with analog tuning will cover well past Channel 83 to about 850 MHz.

If the stubs are made about a quarter of an inch longer from the dimensions given in the figure, you should easily be able to find the carrier on the television. This will tell you if the circuit is working and approximately where it is in the spectrum. Tune the entire UHF spectrum to make sure you are not looking at the second harmonic.

Once you get to the end of the UHF band, shorten the stubs a bit more and you will most likely be past 900 MHz. Unfortunately, from here on in, a frequency counter, Lecher wires, or other frequency measuring device will be necessary for exact placement in the amateur band.

If you're not intending to run the

circuit for amateur communications but simply experimenting, the television technique will work nicely.

The Windom revisited

My article of a couple months back on the Windom antenna brought several letters from old-timers who appreciated seeing their favorite antenna in print again. I was also informed that an Army Signal Corps officer by the name of General Windom was responsible for the popularization of this antenna. Can't say I have ever heard of him, but at least he had a good name for an antenna.

Another letter indicated the possibility that the single-wire feedline will radiate when operating the antenna on the harmonic frequencies, given a few other parameters as well. This is true and should be remembered when operating the antenna on harmonics. Thanks to these people who wrote me.

Traffic (continued from page 48)

well taken over the speed key market. It makes strings of dits when you push the lever one way, strings of dahs when you push it the other.

Then there is the *iambic* keyer, with separate levers for dits and dahs, which generates alternating dits and dahs when both levers are squeezed together.

Radio amateurs have built their own, and an electronic keyer makes a good project for anyone who is looking for something simple to build. Amateur magazines and handbooks give many circuits for these keyers, and there are chips available that contain most of the electronics needed so that

assembly is simple (but you don't learn much about electronics that way). Or if you prefer, several manufacturers offer them ready to go.

The keyer may be ready to go, but are you? Before going on the air with your keyer, you should spend time practicing with it. With a straight key or a sideswiper, you are in control of everything. But with any other form of key, the key provides some of the timing, and you have to learn to work with its rhythm. You'll find some kind of sidetone a must too, so that you can monitor your sending.

Electronic keys have controls to adjust the speed. Bugs have weights that may be moved out to the end of the armature for slow speeds, moved in close to the spring for high speeds.

One of the problems you may encounter when working an operator using a bug is the tendency of some to make the dits too fast for the dahs. Back when electronic keyers first appeared, a writer in *QST* said he thought one benefit of the keyer was that now operators will be forced to make their dahs as fast as their dits.

Finally, mention should be made of the various forms of keyboard keyer now becoming popular, often combining Baudot (Teletype), packet and AMTOR all in one package. You can send perfect code with these devices and at speeds up to 100 wpm or higher. But a word of warning: if you transmit at 40 wpm, you had better be able to receive at that speed too, as the general rule among operators is to reply using the same speed as the other station.

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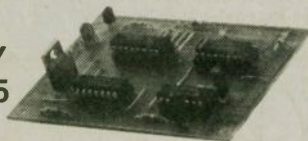
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AERIALS

Kurt N. Sterba

There are, among amateurs, some who say that reflected power is not lost power. Rubbish!

If the amount of reflected power should rise to a certain level, you can actually feel heat in spots on the feedline. That should prove it. You cannot heat your hand and the ionosphere at the same time.

A recent magazine article said it made no difference what length the feedline was. Funny — the author works for the same company that for years was circulating an engineering paper saying that SWR readings taken through a random length of coax were meaningless. Let's get together, fellas.

Then the author of a book published by a major company made a cruel cut. He referred to cutting feedline lengths as some sort of CB nonsense.

Well, the laugh may be on the big ham guys. What may have happened is that the CB's got together, pooled their money and sent one of their good buddies to college.

Between classes in Advanced Truck Driving, he was in the cafeteria and while looking over the shoulder of someone reading a book saw this, "The impedance at the input (transmitter) will be the same as the load (antenna) if the line is exactly a 1/2-wavelength long, no matter what the impedance of the line itself."

What this says is that a 1/2-wavelength line will "mirror" at the bottom what it sees at the top.

Now, logic should tell you that if the engineering tomes make a big point of this property of the 1/2-wave line, that a length *not* a 1/2-wave will *not* do that. Right?

Therefore, we must agree that a random length of feedline will not be as accurate as a 1/2-wave line. This holds true for any multiple of a 1/2-wave line.

WARNING: When we speak of the 1/2-wave lines (and multiples thereof), that takes into consideration the velocity factor of the line; so in reality the physical length of a 1/2-wave line will be shorter than that of a free space 1/2-wave.

While one could use the published velocity factor for the different types of coax and cut lines that way, it would be far preferable to use a noise bridge and know you are right on the button.

Lengths of feedlines do have special features. For example, if you had a 100Ω antenna and a 50Ω feedline, a 1/4-wavelength of 75Ω feedline at the antenna would act as a matching transformer. If you had a 36Ω antenna and a 75Ω feedline, a 1/4-wavelength of 50Ω line would act as a matching transformer.

Let's go back to the original premise. The magic of the 1/2-wave line is that no matter what impedance it should be itself, it will show at the bottom what it is seeing at the top. (And that is true for multiples of 1/2-wave.)

The first step is to know what impedance the antenna actually is. Then the noise bridge can tell you whether the antenna is short (capacitive reactance) or long (inductive reactance). If this column has made any contribution to your knowledge or antenna system improvement, this is it. I can assure you this is true, and I caution you against listening to anyone who says to the contrary.

And yes, the noise bridge is a most invaluable station accessory. If the price of an item not used every day should cause you to balk, get together with some pals, buy one and take turns using it.

Next, SWR is caused by the mismatch between the antenna and the feedline. Nothing you can do, no matter what knobs you twist at the station end, will change the condition existing at the feedpoint. Period.

Here's an example of false economy: replacing a 3-element Yagi with a 4-element Yagi, using cheap coax. You just threw away the gain of the extra element. Use the best coax you can afford. Oddly enough, the more loss there is in coax, the more distorted readings become regarding SWR. Crummy coax can tell you things are just fine when they are indeed rotten.

To avoid confusion, let me point out that all this talk about velocity factor is limited to feedlines *ONLY* and does not apply to antennas themselves. There is one book out on the market that just balls the whole thing up.

In the dimensions for the folded dipole, the book shrinks the length by about 18%, claiming the velocity factor of the two wires in the folded

dipole makes this happen. *Not so, not so.*

In the same book, a folded dipole is made out of zip cord wire and fed with zip cord. What's going on? While it's true that a dipole can be fed with zip cord (sort of), better the top portion should be just one wire rather than two. There is a lot of bum stuff being passed around. A folded dipole would be very close in length to a regular dipole.

It also bears repeating that the chart lengths for antennas are only

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starting points, and you should expect to prune or add to the length.

I wonder how much confusion a phrase on page 58 of an antenna book by a famous writer caused. There it was stated that the electrical length of lines was always shorter than the physical length. *NOT SO!* The physical length (which you would measure with a yardstick) will be shorter than the electrical effect obtained by that line.

Here is the true story. To obtain the electrical properties of a ¼- or a ½-wave line, the actual physical dimension of the cable will be shorter. It will be shorter by the percentage as expressed by the velocity factor so noted in the literature about the particular cable under consideration.

Now let's put you to work. If you've found any mistakes in books on antennas, help others by alerting them. You may have spotted errors and avoided problems because of your experience; a newcomer may not be so lucky. He may be struggling with his 107' antenna (as we saw in one book) on 80M CW. Send in your finds.

Your pet theory and technique will find a place on these pages; your questions will be answered. If I don't know the answer, I'll check with someone who does.

(Invitations to duels at sunrise with coconut cream pies at 10 paces will be ignored.)

Before signing off, let's finally do away with some often-heard-but-not-trues. While cross-polarization can really hurt at VHF frequencies (that is, one antenna vertical and the other end having horizontal antenna), it matters not at HF. The signals just turn, twist and jumble around. When you hear someone say the signal came in better on a vertical or a horizontal, it is probably due to the angle of the signal coming in rather than the polarization.

Some books say that on a wire antenna, end-fed, the radiation main lobe will be in the direction of the wire. Not so until the wire becomes several wavelengths long. Putting up a short long-wire antenna may see the main lobe at 90° to the wire or a not-so-short going out at 45°.

May your load always be resistive. I have now saved the best for last. Only those who have read all the way through will get this message and

therefore be a whole lot up on the others. First, do *NOT* make right-angle (or 90°) turns with open-wire line.

And, regarding the Zepp antenna (so named because it was first used on the Zeppelins) — which is a long-wire fed with open wire, one side connected to the flat top and the other to the other side of the insulator holding up the flat top (in other words, nothing) — my XYL Lil Paddle quotes from the Albion aerial book which says, "Despite its time-honoured status, this arrangement is very uncertain in its behavior. Put bluntly, it usually does not work."

The two above items may save you a lot of grief. □

(Needless to say, Kurt N. Sterba is a made-up name. He must remain anonymous for the protection of himself and the public. When people disagree with him he becomes violent. As he put it, "When I get to Phoenix, and you're there, argue with Lew McCoy instead.")

Amateur "Hi"

Ever had a funny or strange experience with Amateur Radio, either on or off the air? If so, type it up (or print neatly) and send it to us for consideration in our monthly AMATEUR "HI" contest. You could win a free year's subscription to Worldradio!

Wilbur S. Johnson, W0RBE, of Kenmore, Washington, made us chuckle with this story.

In 1958, I was operating in Cocoa Beach, Florida as K7GAO/4. My rig was a Heath DX-40 feeding a 40M dipole.

I had tied a small 8W fluorescent bulb near the end of the dipole. By watching the bulb through the window, maximum output was attained by tuning up in CW for the brightest light.

About three months earlier — when I moved into the trailer court — I had installed the antenna and set the station up, but had not done any operating except during the day.

One dark rainy night, I tuned up on 40 and was in the middle of a nice long AM ragchew, when the man who lived next door knocked on the door and excitedly told me to come out and look. "A UFO is in the tree behind my trailer," he said.

When I went outside there was a group of my neighbors all standing under the end of my dipole pointing and watching the flickering light coming though the leaves from the tree tops. What they were watching was the light from the fluorescent bulb being lit by the controlled carrier modulation of the DX-40.

I still chuckle each time I remember that dark wet night. □

Ham-burglars

Now that warm weather has arrived and summer is about to begin, many hams and their families will be gone for vacations and weekend outings. We would like to remind you to be careful about announcing your plans on the air when you are going to be away. Also, please be careful about announcing someone else's plans to go away, such as: "Hey Charlie! I hear you guys are going to be in Las Vegas next week. Be sure to have a good time, ya hear?"

Last month, we read in the local paper that an Aurora family lost about \$5,000 of belongings to burglars and among the items listed was a \$650 ham radio. — *Fox River Radio League, Aurora, IL* □



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K9WGV remembers QSO's with Forrest

Bob Brennan, K9WGV

Back in 1935, when I was a 13-year-old kid building crystal sets and winding coils on oatmeal boxes, I heard W9ERA coming in loud and strong on the broadcast band. He was in QSO with a station in Arkansas and gave his address over the air.

It was the first time I had ever heard a ham, and I just couldn't believe there was a radio station in my home town of East St. Louis, Illinois. I just had to go and see for myself. Was I amazed when I saw those 866's flashing blue and those meter needles

swinging back and forth with modulation. I knew this had to be for me too.

I bought my first shortwave receiver from Forrest. I still remember the tube line-up: 24-A RF amplifier, 27 detector, 41 audio amplifier, and an 80 rectifier. Next I graduated to a commercial job — a National SW-3 and boy oh boy, what I heard on that.

I didn't get my ticket at that time. I went into the CCC, then into the Army a few years later. Well, I moved a few times and so did Forrest. As the years passed, we lost contact with each other, until a day about seven years ago when I was in contact with W9FUS. As the QSO went on, Ed told me that his father-in-law got him started in Amateur Radio, and my ears stood straight up when he said his call was W9ERA. I told Ed that is where I got my start, too.

Well, to make a long story short, Ed called Forrest on the phone. Forrest got on the air. He only lived a few miles from me; I could hardly wait for that eyeball QSO. We exchanged QSL's, as mine was over 44 years old and Forrest said he thought I needed a new one. Both cards are on page 1 of my album.

Forrest is now a Silent Key, but I will never forget that first and second meeting. There are a thousand things to talk about after 44 years, and I believe we covered 99% of them. □

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Yesteryears

1925 STANLEY GOES MOBILE IN HIS MODEL T FORD



Convert straight key knob

Dick Thomas, KB7BAD

I don't know who the originator of this idea is, but I tried it and it works. To convert a standard straight key knob to a Navy knob, drill a hole in the center of a poker chip, remove the knob, insert the knob's threaded end through the chip, then screw it back on the key arm. You may also have to saw a V-shaped notch in the poker chip to clear the key arm so the chip will be parallel with the top surface of the knob. □

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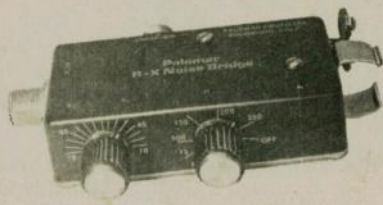
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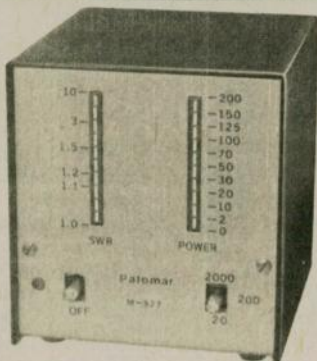


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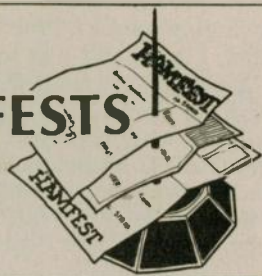
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HAMFESTS



California

The SANTA BARBARA ARC presents the 33rd Annual West Coast VHF/UHF Conference, to be held May 14-15, at the Holiday Inn, 555 McMurry Road, Buellton.

The program will feature: forecasting VHF/UHF propagation from weather data (Bob Denlinger, KD7YZ); Amateur lightwave communication (Steve Noll, WA6EJO); and K6TZ UHF contesting on Santa Cruz Island (Mac McClain, K6SPK), and more. Door prizes.

Admission is \$10 in advance (by April 30), \$15 at the door. Register from 7 to 9 p.m. Friday, May 13, in the Garden Patio Bar, and after 7:30 a.m., Saturday, May 14. Make room reservations directly with the hotel by April 30; availability not guaranteed after May 1. Rate is \$76/room; occupancy not specified. Be sure to mention VHF/UHF Conference. No formal banquet.

Talk-in on 146.79/19 and 147.00/60.

Send registration (checks payable to SBARC) to Santa Barbara ARC, c/o Al Soenke, WA6VNN, 228 Hillview Dr., Goleta, CA 93117.

Colorado

The PIKES PEAK RADIO AMATEUR ASSOCIATION will hold its 1988 swapfest on May 21 from 8:30 a.m. to 4 p.m. at the Rustic Hills Mall, located at Palmer Park and Academy Boulevard.

Free admission. Table rental, \$8 in advance, \$10 at the door if available. Commer-

cial dealers. VE testing.

Talk-in on 146.37/97 (courtesy of Pikes Peak FM Association).

For information or reservations, contact: Al Vrooman, N0CMW, (303) 473-1660, or write PPRAA Swapfest, P.O. Box 16521, Colorado Springs, CO 80935.

Illinois

The CHICAGO ARC will hold its annual Mini-Hamfest on Sunday, May 15, 9 a.m. to 3 p.m., at the "North Park Village," 5801 North Pulaski, Chicago. Admission is \$2. Indoors in case of rain. Refreshments.

Talk-in on 147.225.

For more information, call (312) 545-3622.

The KNOX COUNTY ARC, Inc. will hold its annual Knox County Hamfest on Sunday, May 15, at the Knox County Fairgrounds in Knoxville.

There will be a large commercial display building and acres of outside flea market space available at no charge. Gates open at 7 a.m. The commercial building opens at 8 a.m. As in the past, the Knox County Park Producers will be serving their famous Butterfly pork chops and other goodies. VE testing will be given near the hamfest site.

Talk-in on 147.00/146.40.

For table reservations, pre-registration of testing, and advanced tickets, write Keith L. Watson, WB9KHL, 119 S. Cherry St., #3, Galesburg, IL 61401-4527 or call (309) 342-3885 evenings.

Indiana

The TRI-STATE ARS will hold its annual hamfest at the 4-H Center, Hwy 41 N., Evansville, on May 15, 6 a.m. to 3 p.m. Admission \$3, tables \$5. All activities inside.

Talk-in on 147.75/15 and 146.19/79.

For more information, contact C. Sartore, N9DYE, 709 E. Virginia St., Evansville, IN 47711.

Maine

The PINE STATE ARC is sponsoring their 2nd annual outdoor hamfest on June 4, at the Hammond Street Campground near I-95.

Doors open from dawn to 5 p.m. Admission is \$2 per person. Overnight camping with power and water available June 3-5 (\$8.50 per night charged by campground management). Food, bathrooms, shower, small store and ample parking are available on premises. PSARC annual meeting and election of officers, VE exams, doors prizes, swapfest space (bring tables and chairs), and more are all available free with admission.

Talk-in on 146.34/94.

For more info, contact Gerry Bell, N1DQX, or Ken Olmstead, KA1NNR, (207) 989-4322.

Michigan

The WEXAUKEE ARC will hold its annual Swap & Shop on May 21, at Cadillac Middle School, 500 Chestnut Street, Cadillac. Featured will be swap tables, food and Doug DeMaw, W1FB, as guest speaker. Admission is \$3; tables \$6.

Talk-in on 146.97.

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For information, phone John Craddock, KX8Z, at (616) 797-5491, or write Wexaukee ARC, P.O. Box 163, Cadillac, MI 49601. □

The 11th Annual Chelsea Swap 'n Shop, sponsored by the CHELSEA COMMUNICATIONS CLUB, will be held June 5, at the Chelsea Fairgrounds.

Gates open at 5 a.m. for sellers. Table space is \$8 per 8 feet; trunk sale is \$2 per space. Admission is \$2.50 in advance, \$3 at the door; YL's, XYL's and kids under 12 free. Ladies' tables welcome. Breakfast and lunch available, as well as plenty of parking (including handicapped parking). Campgrounds nearby.

Talk-in on 146.980.

For more info, contact Robert Schantz, 416 Wilkinson St., Chelsea, MI 48118; (313) 475-1795. □

Minnesota

The ARROWHEAD RAC of the Duluth/Superior area proudly presents SWAPFEST '88 which will be held on May 7, at the First United Methodist Church (The Copper Domed Church) located at 230 East Skyline Parkway in Duluth.

Swapfest hours will be from 10 a.m. to 3 p.m. Hourly prize drawings in addition to the main door prize. There will also be a meeting of the Minnesota Repeater Council, for those interested. Admission will be \$4 with 4' tables going for \$5.

Talk-in on 146.34/94.

For more information, please contact Ron Carlson, K0BR, 5128 Wyoming St., Duluth, MN 55804; (218) 525-6860. □

The PAUL BUNYAN ARC is excited to announce that its annual hamfest will be held Saturday, May 7, at the newly constructed Moose Lodge in Bemidji.

The action-packed day will begin at 8 a.m. with a pancake breakfast. Skywarn retraining. Computer and packet radio demonstrations. Presentation of a DXpedition by George Carleton, AD0S, of RF Enterprises. Exams will be given and dealers will be present.

Talk-in on 146.13/73.

For more information, write to Paul Bunyan ARC, P.O. Box 524, Bemidji, MN 56601; (218) 751-1964. □

Nebraska

The AK-SAR-BEN ARC Annual Auction will be held May 14, at the Holy Name Social Hall (the old Shaver's Mart), 5739 North 60th Street, Omaha. Equipment check-in at 8 a.m. Auction starts promptly at 9:15 a.m.

Talk-in on 146.34/94.

For more information, contact Auction Co-Chairperson Ken Noel, AJ0A, 6730 S. 73rd Cr., Ralston, NE 68127. □

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The 1988 Midwest Division ARRL Convention, sponsored by the 3900 CLUB, will be held at South Sioux City, May 20, 21 and 22. There will be seminars on every conceivable subject: DX, packet, computers, computer repair, HANDI-HAMS, RTTY, AMTOR, FCC, ARRL general counsel, etc.

Programming will start Friday afternoon at the Marina Inn at 2 p.m. A get-acquainted dinner Friday night with entertainment. Activities on Saturday start at 8 a.m. The Saturday banquet features the Shrine Chanters, Sooland's internationally famous singing group. Attitude adjustments with the 3900 Club Stompers, last year's big hit. Programs all day Saturday, Wouff Hong Initiation Saturday night.

FCC examinations will be given Sunday morning. Full line of exhibitors and large flea market. Free 2M rig testing. 0 District QSL Manager, MARS. Ladies' programs Friday afternoon and all day Saturday.

Talk-in on 146.31/91.

Flea market people contact Al Smith, W0PEX, 3529 Douglas St., Sioux City, IA 51104. Convention information, motel reservations contact Dick Pitner, W0FZO, 2931 Pierce St., Sioux City, IA 51104. Banquet \$10 pre-convention registration, convention \$6.

New York

The SUFFOLK COUNTY RADIO CLUB Indoor-Outdoor Electronic Flea Market will be held on Sunday, May 1, 8 a.m. to 2 p.m. at Republic Lodge No. 1987, 585 Broadhollow Road (Rt. 110), Melville, Long Island.

There will be a refreshment stand on the premises and plenty of free parking. General admission is \$3 (wives and children under 12 free). Indoor sellers' tables are \$10 each, outdoor space is \$7, and each includes one free admission.

Talk-in on 144.61/145.21 and 146.52 simplex.

For additional information, contact Bill Sullivan, N2ETG, at (516) 689-9871 in the evenings. □


The 29th Annual Southern Tier Hamfest, sponsored by the SOUTHERN TIER ARC's, will be held May 7 at the Treadway Inn, Rt. 17 at exit 65, Owego.

League forum, vendor displays and all-day flea market. Gate admission is \$4; under 14 free. Dinner and gate ticket combined is \$15 (in advance). ARRL VEC exams.

Talk-in on 146.16/76 and 146.52.

For information or ticket orders, send SASE to STARC, P.O. Box 7082, Endicott, NY 13760. □

The LONG ISLAND MOBILE ARC ARRL Long Island Hamfair will be held May 15, at the New York Institute of Technology, Rt. 25A/Northern Boulevard, Old Westbury. Exit 39 North on Rt. 495, go north on Glen Cove Road 2 miles to 25A, turn right 1 mile to site.



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Outdoor tailgating; no reservations needed. Seller's car space \$5, general admission \$3. Non-ham women and children free. Food, refreshments, prizes. Open at 7:30 a.m. for sellers, 9 a.m. for buyers.

Talk-in on 146.25/85.

For further info, call Hank Wener, WB2ALW, (516) 484-4322, or Mark Nadel, NK2T, (516) 796-2366. □

The 2nd annual SKANFEST (Amateur Radio/Computer Fest) will be held May 27-28, at the Allyn Arena. Hours will be from 12 noon to 6 p.m. Friday and from 9 a.m. to 5 p.m. Saturday. The ARC OF SKANEATELES is the sponsor.

Outdoor flea market set-up/operation and indoor commercial vendor set-up on Friday. On Saturday there will be outdoor and indoor flea markets, indoor commercial vendors, technical sessions, door prizes and great food. Plenty of indoor space in case of rain.

Admission is \$2.50 in advance, \$3 at the gate. Advance flea market spaces are \$2.50 each (outdoor) and \$8 each (indoor, including 8' covered table). At the gate: outdoor spaces \$3, indoor \$10.


Talk-in on 147.00/146.40 and 442.30. Look for SKANFEST signs.

For more info, call Hank Bryant, (315) 685-7658. Mail remittance for advance tickets to SKANFEST, P.O. Box 302, Skaneateles, NY 13152. Deadline for advance tickets is May 13. □

Pennsylvania

The 34th Annual Breeze Shooters Hamfest — sponsored by BREEZE SHOOTERS, Inc. — will be held on Sunday, June 5, 9 a.m. to 4 p.m. at White Swan Amusement Park, Rt. 60 (Parkway West), near greater Pittsburgh International Airport.

Free admission, free parking and free tailgate vending. Family amusement park — bring the wife and kids. Under-roof vendors by advance reservations; limited space. Registration is \$2 each, three for \$5, seven for (please turn to page 57)



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University of Scranton
Scranton, PA 18510



Nevada QSO Party

The Frontier ARS announces the 2nd Annual Nevada QSO Party, to be held from 0000Z, May 7 to 0600Z, May 8.

Bands: 6M through 160M

Modes: SSB, CW, FM, RTTY and SSTV
Frequencies: CW — 15 kHz up from bottom of General band; SSB — 25 kHz up from bottom of General band; *Novice/Tech.* — CW and SSB portion of band.

Exchanges: *Nevada* — RS(T) and county; *Others* — RS(T), state, province or ARRL country.

Scoring: *Nevada* — 1 pt. per band per mode. Multiply number of Nevada counties, states, provinces, ARRL countries × QSO points; *Others* — 1 pt. per band per mode +20 pt. bonus for working FARS members. Multiply number of Nevada counties × number of QSO points.

Awards: Certificate to highest scoring station in each state, province or DXCC country; also to highest scoring *Novice/Tech* in each state. *Nevada* — Certificate to five highest scoring stations, and to five highest scoring *Novice/Tech* stations.

Logs: Send logs and score sheets — by June 1, 1988 — to Jim Frye, NW7O, 4120 Oakhill Ave., Las Vegas, NV 89121. □

Michigan QSO Party

The 1988 Michigan QSO Party will be sponsored by the Oak Park ARC, May 14-16. Operation times will be: 1800Z, Saturday, May 14 to 0300Z, Sunday, May 15; and 1100Z, Sunday, May 15 to 0200Z, Monday, May 16.

Phone and CW are combined into one con-

test. Michigan stations can work Michigan counties for multipliers. A station may be contacted once on each band/mode. Portable/mobiles may be counted as new contacts each time the county changes.

Exchange: RS(T), QSO#, QTH, county for Michigan; state or country for others.

Scoring: Multipliers are counted only once. *Michigan stations* — 1 pt. per QSO × (states + countries + Michigan counties) on phone. Each CW contact is 2 pts. per QSO. Alaska and Hawaii count as states. VE counts as a country. Maximum multiplier is 85. 5 pts. for each W8MB contact. *Non-Michigan stations* — QSO points × Michigan counties. 1 pt. for each Michigan phone QSO and 2 pts. for each CW contact. 5 pts. 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 — 1810, 3540, 3725, 7035, 7125, 14035, 21035, 21125, 28035, 28125; *Phone* — 1855, 3905, 7280, 14280, 21380, 28580; *VHF* — 50.125, 145.025, 146.52.

Awards: *Michigan: Plaques* — High Multi-operator/single transmitter score, High Michigan score, High Michigan (Upper Peninsula) score, High aggregate club score,

High VHF-only entry (minimum of 100 QSO's), High Michigan Mobile score, and High QRP single operator score (in celebration of Michigan QRP Club's 10th anniversary). *Certificates* — High score for each county (min. 50 QSO's). High QRP in (your) County including multi-op entries. *Out-State:* High Out-State plaque and certificates for high score in each state and country. High QRP Out-of-State and Country.

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. Also, a signed declaration that QRP entries have not exceeded 5W during the contest.

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 July 30, 1988 and will be mailed to all entries that have sent in an SASE. Mailing deadline is July 1, 1988. Send logs to: Mark Shaw, K8ED, 27600 Franklin Rd., #516, Southfield, MI 48034. □

QRP Hoot-Owl Sprint

The QRP ARCI announces its 1988 Hoot-Owl Sprint (CW), to be held on May 28, 2000-2400 (local).

Exchange: *Member* — RST, state/province/country, ARCI number; *Non-member* — RST, state/province/country, power out.

Points: *Member* = 5 pts.; *Non-member, different continent* = 4 pts.; *Non-member* = 2 pts.

Multipliers: S/P/C total all bands. The same station may be worked on more than one band for points and S/P/C credit. *Power supply multiplier* — ×1, commercial power; ×1.5, battery; ×2, solar/natural, or battery charged only by solar or natural power. *Power multiplier* — ×0, over 5W (check log); ×2, 4-5W; ×4, 3-4W; ×6, 2-3W; ×8, 1-2W; ×10, less than 1W.

Suggested frequencies: (160M) 1810 kHz; (80M) 3560, 3710 kHz; (40M) 7040, 7110 kHz; (20M) 14060 kHz; (15M) 21060, 21110 kHz; (10M) 28060, 28110 kHz; (6M) 50060 kHz.

Call: CQ QRP, CQ QRP, CQ QRP DE K5VOL, K5VOL, K5VOL, QRP TEST K.

Score: Points × S/P/C × power multiplier × power supply multiplier.

Awards: Certificates to top three scores overall and to the top score in each state, province/country in which two or more entries are received.

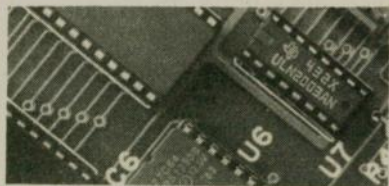
Entries: Entry includes a copy of the logs and a separate summary sheet. All entries must be postmarked 30 days following the end of the contest. Late entries will be counted as check logs. Members and non-members indicate their input or output power for each band. The highest output power level used will determine the power multiplier. Output power is considered as half of the input power.

Include a description of homebrew equipment, commercial equipment and antennas used with each entry.

A summary sheet and sample log sheets are available from the contest manager for an SASE with 1 unit of postage. Include an SASE with 1 unit of postage in the entry for a copy of the contest results. Results will be published in the next issue of the *QRP ARCI Quarterly*.

All entries are to be sent to: Red Reynolds, K5VOL, QRP ARCI Contest Manager, 835 Surryse Rd., Lake Zurich, IL 60047, USA. □

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Are you radioACTIVE?

Dean LeMon, KR0V sure is! Dean got active in Amateur Radio when he was 16 years old and earned his Extra Class license in less than four years! "It's a fascinating hobby and a great way to meet all kinds of new people from all over the world."

Dean has cerebral palsy and got started in Amateur Radio with help from the Courage HANDI-HAM System. The HANDI-HAM System is an international organization of able-bodied and disabled hams who help people with

physical disabilities expand their world through Amateur Radio. The System matches students with one to one helpers, provides instruction material and support, and loans radio equipment.

Isn't it time you got radioACTIVE with the Courage HANDI-HAM System?



Call or write the Courage HANDI-HAM System
 W0ZSW at Courage Center,
 3915 Golden Valley Road,
 Golden Valley, Minnesota
 55422, phone (612) 588-0811.



NEW PRODUCTS

Information in "New Products" is supplied by the manufacturers to acquaint *Worldradio* readers with new products on the market.

Radio-linked data catalog

A new LXE Short-form Catalog describes the company's complete line of radio-linked terminal network components for industrial applications. LXE wireless networks are being used extensively in material handling operations for picking, putaway, cycle counting, shipping/receiving and work-in-process.

Freedom from wires allows maximum operator and terminal portability and convenience, but the true benefit is *real time communications*. Real time updating of a host database permits inventory accuracies of 98-99%.

The LXE catalog describes hand-held data terminals, vehicle-mounted terminals, wireless modems and base stations for tying the network into a company's host computer.

For a copy of the recent literature release from LXE, contact: LXE, Bob Scaringe, 303 Research Dr., #225, Norcross, GA 30092; (404) 447-4224, TWX 810-766-1599. □

Hamfests

(continued from page 55)

\$10. Generous prizes.

Talk-in on 146.28/88; 2M on 52 simplex; 10M on 29 and 28.495 MHz.

For more information, contact Jim Inverarity, K3TOQ, 2639 Sunnyfield Dr., Pittsburgh, PA 15241; (412) 833-2681. □

Wisconsin

The OZAUKEE RADIO CLUB, Inc. will sponsor its 10th Annual Cedarburg Swapfest on Saturday, May 7, 8 a.m. to 1 p.m., at the Circle B Recreation Center, Hwy. 60 and County I, Cedarburg (located 20 miles north of Milwaukee).

Admission is \$2 in advance, \$3 at the door. Tables (4') are \$3 each. Door prizes, food and refreshments. Sellers will be admitted at 7 a.m. for table set-up.

Talk-in on 146.37/97 and 146.52.

For admission tickets, table reservations, maps or more information, send a business-size SASE to 1988 ORC Swapfest, 101 E. Clay St., Saukville, WI 53080; or phone (414) 284-3271. □



ICOM HF base station transceiver

"The Future of Amateur Communications" is here with the introduction of ICOM's new IC-781 HF base station transceiver. With every feature imaginable, and some you wouldn't even have dreamed of, the IC-781 is the most advanced Amateur Radio transceiver in the world.

The IC-781 operates all modes and bands 160 to 10M, with a band spectrum scope that displays signals in a 50/100/200 kHz range of your operating frequency. This is all indicated on the multi-function 5" CRT screen which displays frequencies, modes, memory contents, operating notes, RIT, two menu screens and includes subdisplays for packet and RTTY.

The IC-781 also features: dual band watch, twin passband tuning, 99 tunable memories, wide and narrow filters, direct keyboard en-

try, 150W output, built-in power supply, dual noise blanker, five multi-function timers and two internal clocks.

The IC-781 comes standard with everything else you can think of: built-in high speed automatic antenna tuner, iambic keyer, semi-automatic or full QSK CW break-in to 60 wpm, Audio Peaking Filter, RF speech processor, multi-scanning, 105dB dynamic range receiver that continuously tunes 100 kHz to 30 MHz, plus exceptional frequency control. It's a total communications system in one package! Scheduled availability of the IC-781 is March 1988. Pricing to be announced.

For more information, contact ICOM America, Inc., P.O. Box C-90029, Bellevue, WA 98009-9029; (206) 454-8155. □

BASE STATIONS



FT-757GXII. Hard-to-beat HF performance at a hard-to-beat price. Includes 100-watt output. 10 memories. Memory storage of operating mode. Dual VFOs. Slow/fast tuning selection. IF notch filter. Iambic electronic keyer. 600-Hz CW filter. AF speech processor. Receive coverage from 500 kHz to 30 MHz. Transmit coverage from 10 to 160 meters, including WARC bands. All mode coverage. QSK operation. Duct-flow cooling for continuous RTTY operation up to 30 minutes. Much, much more.



FT-767GX. The world's first HF/VHF/UHF base station. 160 to 10-meter transmit standard. Plug-in modules for 6-meter, 2-meter and 70-cm options. Receiver covers 100 kHz to 30 MHz. AM, FM, SSB, CW, AFSK modes built in. 10 memories store frequency, mode, and CTCSS info. Dual VFOs. And these are just a few highlights!

YAESU

The Radio Place

2964 Freeport Blvd., Sacramento, CA 95818

(916) 441-7388



7-mode multi-mode data controller

MFJ Enterprises, Inc. announces its new MFJ-1278 Multi-mode Data Controller that lets you work seven digital modes: packet, ASCII, RTTY, CW, WEFAX, SSTV and Contest Memory Keyer modes. The MFJ-1278 retails for \$249.95.

The MFJ-1278 features high-performance HF/VHF/CW modems, software selectable dual radio ports, precision tuning indicator, 32K RAM and an AC power supply.

All you need to operate MFJ-1278 is a standard HF or VHF rig and any computer with a serial port and terminal program.

MFJ also offers a Starter Pack to get MFJ-1278 users on the air instantly. The Starter Pack includes computer interface cable, terminal software and friendly instructions. It is available for the Commodore 64/128, VIC-20 (MFJ-1282, disk; MFJ-1283, tape) and for the IBM or compatible (MFJ-1284), \$19.95 each.

The MFJ-1278 automatically sets itself to match your computer baud rate. In all modes



it features printing, threshold control for varying band conditions, tune-up command, lithium battery backup, RS-232 and TTL serial ports, watchdog timer, FSK and AFSK outputs, output level control, speaker jack for both radio ports, test and calibration software, Z-80 microprocessor running at 4.9 MHz, 32K EPROM and socketed IC's. It is FCC-approved and measures 9" x 1 1/2" x 9 1/2". It operates on either 12VDC or 110VAC.

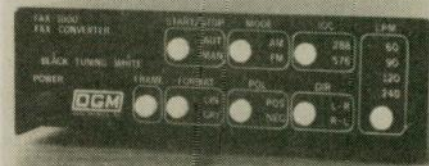
The MFJ-1278 comes with MFJ's unsurpassed double guarantee. If ordered from MFJ, it may be returned within 30 days for a full refund, less shipping. MFJ also backs this product with a one-year unconditional guarantee.

For more information, contact MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762, or call (800) 647-1800, (601) 323-5869 or Telex 53-4590 MFJSTKV. □

Facsimile Converter

DGM Electronics, Inc. has just introduced the FAX-1000 Facsimile Converter to its line of quality communications products. The FAX-1000 simply connects between a communications receiver and an Epson graphics compatible printer.

The FAX-1000 allows one to print weather charts, satellite pictures and press photos. It will copy AM facsimile signals sent by the satellites or FM facsimile signals which are normally sent on the HF frequencies. The FAX-1000 will copy all standard speeds and index of cooperations. Pictures can be inverted or printed in either direction. A 10-segment bar graph allows accurate tuning of the station being copied.



The FAX-1000 can be operated in the automatic or manual mode. In the automatic mode it will wait for the appropriate signals from the sending station to start, frame and stop printing. In the manual mode, the operator can start the printing and manually frame the picture with a front panel button. Front panel LED indicators and pushbuttons make the FAX-1000 easy to operate.

The FAX-1000 is housed in a compact, attractive RFI proof aluminum enclosure and measures only 7"W x 2"H x 6"D. The unit is powered by a 110VAC wall transformer which is included. The FAX-1000 costs only \$299.

For more information, contact DGM Electronics, Inc., 901 Elmwood Ave., Beloit, WI 53511; (608) 362-0410. □

Amateur Radio school curriculum

The Complete 'Plug-In' Curriculum for Teaching Ham Radio is a professional educator's instruction package from 1987 Radio Amateur of the Year Carole Perry, WB2MGP.

Included is an *Introduction to Amateur Radio* teacher's manual containing 26 lesson plans including quizzes, reproducibles, homework assignments and follow-up activities. The appendix includes important addresses, charts and other resources.

Also contained in the kit is the "Space Code Tape," which is the only code practice audiocassette geared to motivate children. The code practice sessions correlate with the lesson plans in the teacher's manual. A mini code practice oscillator housed in a jewel box case is also included.

This in-school training curriculum was prepared by the only educator in the New York City school system who teaches Amateur Radio on a daily basis and is designed to motivate all students — from gifted to the most unmotivated.

The course is applicable for grades 3-12 and leads up to the opportunity for children to take an FCC Amateur Radio exam. Priced at \$99.95 from Media Mentors, Inc., P.O. Box 1646, Staten Island, NY 10314; (718) 983-1416. — *Westlink Report* □



Technician Class book

The new Gordon West Technician Class theory book is devoted entirely to preparing for the Element 3A, Technician Class Amateur Radio examination. The book lists every question on the exam, four multiple-choice answers, the correct answer, and a

West-written explanation about the right answer. There is also a discussion on how to remember the right answer during the examination.

There are three chapters devoted to preparing for the examination. These chapters assist the applicant in locating a volunteer examination team and preparing for the actual test day. The book also contains a practice examination, FCC Form 610, and \$50 in equipment rebates from leading radio manufacturers.

"My new book specifically prepares for the Technician Class license and contains just that information. Other test preparation books on the market may confuse the student with too much theory covering the General Class license. Now that the Tech and General Class license examinations are separate, it was only natural that I would be the first to develop a Technician book specifically for the Technician Class license," comments Gordon West, well-known instructor and writer.

With most Novice operators wishing to upgrade immediately to Technician because of the easy examination, the book complements the many Novice training materials offered by Gordon West Radio School. The Technician Class book is \$4.95 from leading Amateur Radio dealers, or may be ordered directly from Radio School, 2414 College Dr., Costa Mesa, CA 92626. Add \$1 for postage and handling. □

Correction

On page 58 of our February 1988 issue, we ran a notice about Kantronics' Version 2.70 feature enhancement update for existing Kantronics All Mode units and KPC packet units. Lori A. Elliott, Marketing Manager of Kantronics, informs us that the latest update is actually the 2.8, effective December 1987.

Let Worldradio know what you do in Amateur Radio; many others will be interested in your experiences.

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Dept. AW Kearney, Nebraska, 68847

The Banker

Inventron Labs has introduced an exciting new accessory for owners of the Kenwood TS-940S transceiver. The Banker offers front-panel control of the radio's four memory banks, via the "voice" switch. The circuit board installs in the space intended for the voice synthesizer and just plugs in, with no modifications whatsoever to the radio.

Pressing the "voice" switch permits the operator to select any of the four memory banks, without using the radio's top-mounted bank switch. In fact, the switch need never be used again, so the sliding cover can remain closed!

The Banker utilizes ultra-low-power circuitry, takes no power from the radio's backup batteries, and is covered by a one-year limited warranty.

Note: The Banker cannot be installed if the voice synthesizer unit is already installed.

A must for all TS-940S owners who desire to make full use of their rigs' capabilities, The Banker may be ordered for only \$49.95 from: Inventron Labs, P.O. Box 1882, Brookline, MA 02146. □

Computer software for Kenwood

HAM RADIO OUTLET, Inc., of Anaheim, California and GRF Computer Services, Inc., of Long Beach, California announce the release of a new software product for use with Kenwood Amateur Radio products.

TS-COMM: communications and control system for Kenwood radios

TS-COMM provides a powerful, fast and comprehensive computer software system to allow controlling Kenwood Amateur Radio products using an IBM-PC/XT/AT series or true compatible computers. Full control of frequency, mode, memory channels and many front-panel controls are supported.

Each and every feature supplied by the IF-232 and IF/IC series of Kenwood products is fully supported. Just a few of the functions supported in TS-COMM are: Full real-time display of all supported radio functions; VFO/MEMORY CHANNEL tuning UP/DOWN; RIT tuning UP/DOWN; Select VFO A, VFO B, MEMORY CHANNEL, COM CHANNEL; Select USB, LSB, FSK, AM,

FM operation; Transmitter ON/OFF; Voice synthesizer (Kenwood VS option required); Full printing of memory channel data; Frequency lock ON/OFF; Lock memory channel scan ON/OFF; Select PL tone; Select repeater offsets SIMPLEX/PLUS/MINUS; Digital Squelch (DCS) ON/OFF; Memory scan functions; Comprehensive 32-page users manual.

Radios supported: TS-940, TS-811A, TS-711A, TS-440A, R-5000.

System requirements: IBM-PC, PC-AT or true compatible; DOS 2.1 or greater; 512K memory; 1 floppy disk drive; 1 Serial communications port (COM1 or COM2); 80-column printer for printing memory data.

Radio requirements: Kenwood IF-232 RS-232 interface/12VDC P.S.; TS-940 requires the IF-10B; TS-711A/TS-811A require the IF-10A; TS-440/R-5000 require the IC-10.

Retail price is \$69.95. TS-COMM is available exclusively from HAM RADIO OUTLET in Anaheim, California. Telephone: (outside CA) (800) 854-6046; (inside CA) (714) 761-3033 or (213) 860-2040. □

Suction cup mounted antenna

Electron Processing, Inc. recently announced a totally new concept in antenna mounting. EPI's VAK-TENNA mounts to glass or any smooth surface with suction cups to provide a means of mounting an antenna where drilling holes is not possible. The antenna can be installed or removed in minutes without leaving any marks and without tools. Vertical or horizontal configurations can be used as desired.

The unique mount consists of two powerful suction cups capable of holding the antenna firmly for weeks without any loss of strength. The antenna is held 1" from the glass to clear the frames of most windows. In addition, the elements hinge allowing its use with bay win-

dows and at unusual angles.

The VAK-TENNA covers 30-500 MHz for receive and 50-250 MHz for transmission with up to 50W. Two telescoping elements extend to a full 79", yet collapse to 20" and can be folded to 12" for storage or transport. A 15' 50Ω RG-58 cable is provided for connection to the radio equipment. Standard connectors are either PL259, BNC, Motorola or F. Other connectors are available on special order.

Pricing starts at \$29.95 with quantity discounts available. For more details and ordering information, contact the Sales Department, Electron Processing, Inc., at (516) 764-9798. □



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The 1988 International Callbook lists 481,000 amateurs in countries outside North America. Its coverage includes South America, Europe, Africa, Asia, and the Pacific area (exclusive of Hawaii and the U.S. possessions).

The 1988 Callbook Supplement is a new idea in Callbook updates, listing the activity in both the North American and International Callbooks. Published June 1, 1988, this Supplement will include thousands of new licenses, address changes, and call sign changes for the preceding 6 months.

Every active amateur needs the Callbook! The 1988 Callbooks will be published December 1, 1987. See your dealer or order now directly from the publisher.

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
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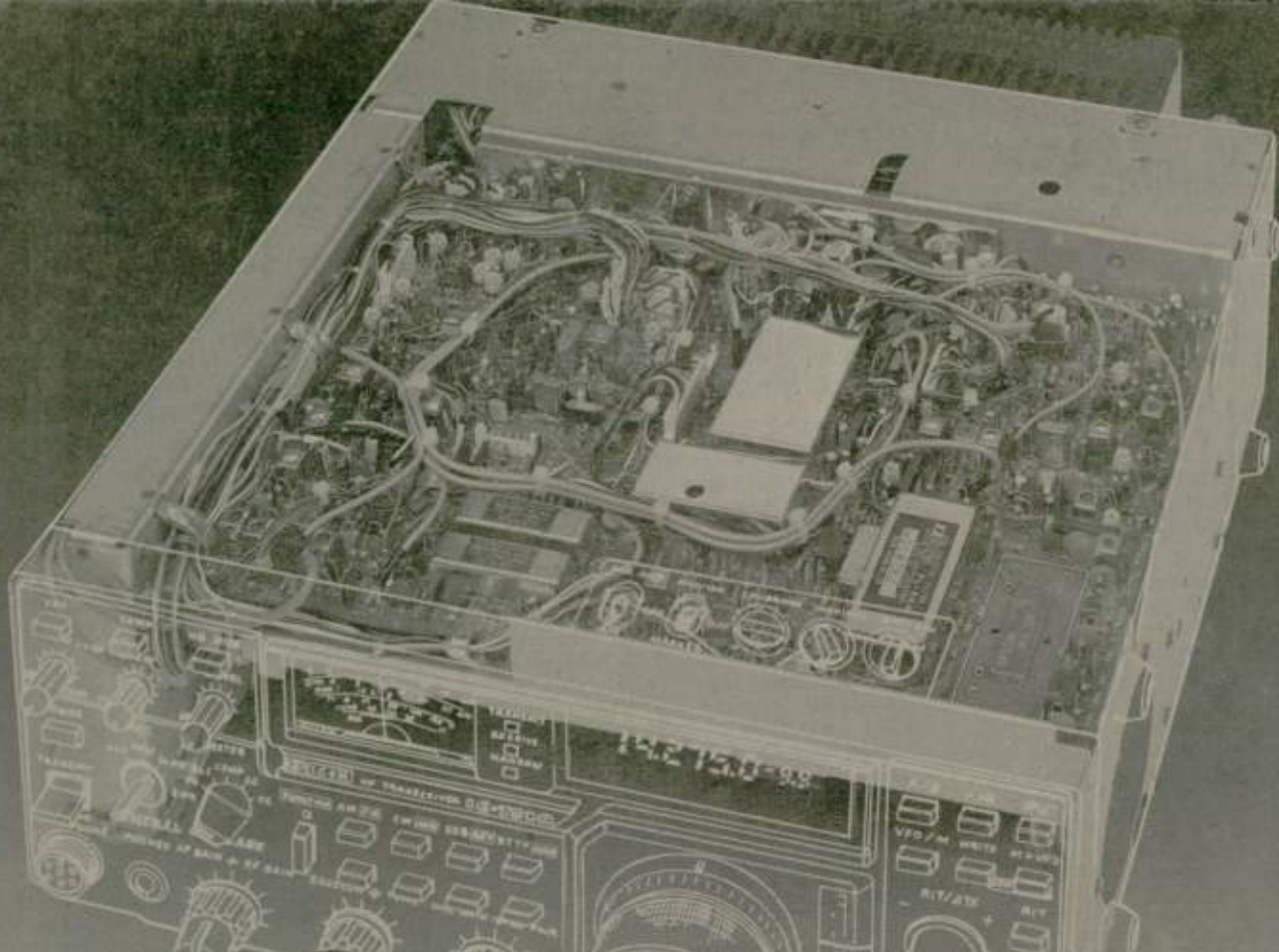
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