Worldradio

March 1981 • Year 10, Issue 9 • 80¢

John Johnston, W3BE, of the FCC. *(N6WR photo)*

Amateur Radio in the coming decade

Joe Schroeder, W9JUV
As presented at SAROC, Las Vegas, NV, 3 January 1981

I assume you're all here because you'd like to know where Amateur Radio is headed for the next decade. Well, so would I! However, there are some pretty good indications of some of the directions it's likely to be taking, and I'd like to share my thoughts about those indications with you today.

First of all, of course, there's the new spectrum we picked up at the 1970 World Administrative Radio Conference — particularly the new HF bands at 10, 18 and 24 MHz. The first of these, 10.1-10.15 MHz, is scheduled to become available 1 January 1982, and I'm hopeful that — with some prodding — the FCC will be ready to let us on it then. The Canadians are a bit ahead of us on that band, by the way, having licensed VE3QB and VE3DPB to operate on the 10.1 MHz band with very low power, using commercial call signs VE9LFZ and VE9LIN, respectively. They've been on since Thanksgiving, putting good signals into Chicago with less than a watt and an inverted dipole. When we're likely to gain the use of the other two bands is much more nebulous, and I wouldn't be surprised if it was late in the '80s before we're on either. I wouldn't hold off buying a new piece of gear now just because it didn't cover 18 or 24 MHz!

Technologically, we're going to see a lot of changes, of course. SSB could be replaced by digitized speech or some other new voice mode, although I don't think for the Amateur Service it'll be the NBVM that had so much ballyhoo a year or two ago. Spread spectrum has been attracting a lot of interest recently, and the Amateur Radio Research and Development Corporation (a greater Washington, D.C. area club of amateurs and computer buffs) filed a request with the FCC just before Christmas for a Special Temporary Authorization to permit 24 club amateurs to experiment with spread spectrum on both the HF bands and 420 MHz line-of-sight and moonbounce. "Packet" digital communications, which has already been authorized on 220 MHz in Canada, will undoubtedly replace CW and RTTY to some degree — though like traveling via horseback or flying a hot air balloon, a lot of us will no doubt continue to exercise CW as a pleasurable skill for a long time to come.

We've already got rigs with microcomputers in them, and computerized log keepers, beam turners and other smart

(please turn to page 6)

The ARRL Forum

Norm Brooks, K6FO

Your reporter has been in attendance at many ARRL Forums, these many years, and I must report that the ARRL Forum at SAROC, 3 January 1981 displayed more criticism of the league than ever before.

Bill Stevens, W6ZM, Pacific Division Director of the League was the moderator, and was put to the test.

Where's Dannals?

There were no prepared speeches. The forum went immediately into a question-and-answer mode. Members immediately asked "Where's Dannals?" President Harry Dannals, W2HD, had been called away on business the day before. Members asked why the program had not been changed around, scheduling the Forum before Dannals left. Stevens answered that that had been considered, but decided against.

Women directors

A member asked why the League was so set against women in positions of leadership. He asked about an alleged statement that "Hell would freeze over . . . etc."

Stevens responded that the League is blessed with one woman director and two women assistant directors. He was able to introduce Mary Lewis, W7QGP, Director of the Northwestern Division, who was present.

Technical staff vacancies

It appears there are six vacancies on the ARRL technical staff, and that the League is looking all over the United States for talent to fill them. One member was critical of the salaries offered. He said the League is trying to get six technicians at $15,000 a year, when the kind of talent they need can get $24,000 a year in Silicon Valley. He suggested the League, instead, go after three better technicians and pay $30,000 a year.

The Washington office

The perennial question came up: Why doesn't the League have an office in Washington, D.C. and station a lobbyist

(please turn to page 4)

National search is launched to aid the handicapped

The first national search for ideas and inventions through which the full spectrum of personal computing technology can be harnessed to assist the handicapped was announced recently by the Johns Hopkins University.

To be conducted by the Applied Physics Laboratory of the University, and with the National Science Foundation and Radio Shack — a division of the Tandy Corporation — as cosponsors, the effort will be highlighted by a national competition for ideas, devices, methods and computer programs to help handicapped people overcome difficulties in learning, working, and successfully adapting to home and community settings. Categories that may be addressed include computer-based aids for the blind, deaf and mentally retarded; for individuals with learning disabilities, neurological or neuromuscular conditions; and the orthopedically handicapped.

One hundred awards will be made, including a $10,000 grand prize, personal computer equipment, other cash prizes, computer training, and certificates of merit. Entries will be sought from computer specialists, full-time high school and college students, and interested people generally — including those with handicaps. Regional and national awards will be made in all categories. National awards will be presented at a banquet in the fall of 1981 in the Washington, D.C. area.

Paul L. Hazan, director of the Personal Computing to Aid the Handicapped project, said the competition is a challenge to the American people to use their conceptual skills in bringing forth practical aids based on computer technology that will help an individual or group of people with a handicap.

"Just as important will be the opportunity provided the inventors and developers to make contact and form partnerships with the handicapped in a way that can lead to wide acceptance and use of the new computing technology," Hazan stessed.

Orientation meetings are being scheduled at major rehabilitation centers throughout the United States to bring together potential "inventors," handicapped people and professionals in habilitation-rehabilitation fields. Special presentations will also be made nationwide at chapter meetings of the Association for Computing Machinery (ACM), Institute of Electrical and Electronics Engineers (IEEE), and personal computer clubs.

Contestants will have until 30 June 1981 to prepare and submit their entries.

To obtain additional information including a descriptive flyer and contest application, write to: Personal Computing to Aid the Handicapped, Johns Hopkins University, Post Office Box 670, Laurel, Maryland 20810.

— Auto-Call □

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Worldradio (USPS 947000) is an international conversation. You are invited to take part. Our newspaper is written by its readers.

Our goal is to be a valuable resource of ideas and experiences beneficial to the Amateur Radio community. We publicize and support the efforts of those who bring the flame of vitality into this avocation.

Our readers are participants — an alliance of active radio amateurs who are concerned with reality, who use radio as a communications tool. We ask your cooperation in helping us develop the skill, quality and full potential of Amateur Radio.

We are positively-oriented. We print all the news of this great activity, and particularly desire an input of stories dealing with the dramatic, the personal and humanitarian uses of Amateur Radio.

Worldradio needs your help to reflect the invaluable service of Amateur Radio.

Through **Worldradio** you can make contact with other individuals who share your interests.

Worldradio is an independent newspaper. It is not affiliated with any other firm, group or organization. Its pages are open to all. Permission is hereby automatically granted to reprint from this publication. If there is something useful, we wish to share it.

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Controlled circulation postage paid at Sacramento, CA.

Microcomputers for the deaf

The Amateur Radio Research and Development Corporation (AMRAD) of McLean, Virginia, has published an abstract describing software which can be used on popular home computers for communicating with people who are deaf. Also announced in their September 1980 newsletter was the establishment of the Handicapped Educational Exchange (HEX) — a computer information storage and retrieval system which is available by dialing (301) 593-7033.

To communicate with HEX, you need either a 110- or 330-baud ASCII or 60 WPM Baudot terminal. The ASCII terminal may be either a computer or a printer which is equipped with a Bell 103 or 113 orginate modem.

For more information about this and other computer related services, contact AMRAD, Paul Rinaldo, 1524 Springvale Avenue, McLean, VA 22101.

— HANDI-HAM World □

Updated 2-meter repeater list

The Southern California 2-meter repeater list has been updated, to include all new repeaters and call sign changes up to the end of the year 1980. Karl Pagel, N6BVU, has also completed a 1981 list of 2-meter repeaters for the entire state of Nevada.

Anyone desiring either or both of these lists should send an SASE, 6″ × 9″ manila envelope, to: Karl Pagel, N6BVU, P.O. Box 6490, Orange, CA 92667. □

YLRL raises dues

YLRL (YL Radio League) has voted in a raise of dues, because of the rising cost of supplies and an increase of postage rates for DX-YLs. These new rates are effective for all 1981 (and later) renewals and new members.

USA: $6 Add $1.50 if 1st Class is desired, for a total of $7.50.

DX: $8.50 for surface mail. $12.25 for airmail. ($6 dues plus mailing cost.)

Please send all USA dues to YLRL Recording Treasurer: Jerrie Stonier, K6INK, 9945 Lull Street, Burbank, CA 91504. Send DX dues to International Chairman: Jeanne Doncaster, KA3CEO, 904 Kunkle Avenue, Greensburg, PA 15601. □

Chicago Skywarn Net

Jerry Lane, WB9NPC, has been chosen as chairman of Chicago area SKYWARN Net council. The council is organizing a net to provide severe weather information to the National Weather Service. Net operations will be on 2-meter repeaters in the Chicago area and will probably start this spring. Anyone interested in helping with this net should contact me on the 2-meter WCRA repeater or at my home by phone — Bill Thompson, WA9WXC; phone (312) 653-6096.

—WCRA Hamletter, Illinois □

HARTS announces special days

The Hong Kong Amateur Radio Transmitting Society (HARTS) has announced that the next "VS6 Activity Days" are scheduled for Saturday, 4 April and Sunday, 5 April 1981. As many VS6 stations as possible will be active using as many bands and modes as possible, 6 meters included.

HARTS invites amateurs worldwide to help make these days a success by working as many VS6 stations as possible. □

Beacon goes continuous

Peter Taylor, H44PT, the new president of SIRS (Solomon Islands Radio Society), has advised that as of 3 November 1980, the beacon station H44HIR operating on 50.005 MHz has been put into 24-hour continuous service. The beacon runs 10 watts to a vertically polarized dipole.

Reports on reception of this beacon can go to Peter, c/o SIRS, P.O. Box 418, Honiara, Solomon Islands.

H44PT also reports that in the near future, it is hoped that a 10-meter beacon will be set up as a Solomon Islands contribution to the IBP — International Beacon Project. □

COAX-SEAL address

On page 51 of our February issue, a new product called plastic COAX-SEAL was described. No address was provided, however, so here it is: **Universal Electronics, Inc., 1280 Aida Drive, Reynoldsburg, Ohio 43068; telephone (614) 866-4605.** □

High school net

Canadian, Hawaiian and stateside amateurs wishing to contact high school or college stations should check in Mondays and Wednesdays 2110 to 2230 UTC (1400 to 1530 local) on 28.530 MHz +/− QRM. Listen for Cherry Creek High School, WBØECQ, or McKinley High School, KH6NF, Honolulu.

For more information call Gene Okonski, KAØEUZ, or the CCHS Radio Club, 6446 South Magnolia Ct., Englewood, CO 80111.

—BARC'S BARK, Boulder, CO □

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A call for papers

Papers are invited for the 1981 Annual VHF Conference sponsored by the Electrical Enginerring Department. The 27th annual VHF conference will be held on Saturday, 17 October 1981, from 2:00 - 5:00 p.m., with a 6:00 dinner. Location is to be Western Michigan University, Kalamazoo, Michigan. Principle emphasis will be placed on engineering developments applied to radio communication, design and construction on the frequencies of 30 to 1200 MHz.

Papers are solicited from a wide range of areas including, but not necessarily limited to, those listed below:

Antennas & transmission lines
Audio frequency equipment used with VHF transmitters and receivers
Beginner & Novice topics
Contests and operating activities
Emergency operation and gear
Grounding and shielding
Keying, break-in & control circuits
Measurements & test equipment for VHF
Mobile and portable equipment and operating
Picture transmission & reception
Power supplies
Propagation
Receiving
Recent equipment / new apparatus
Regulations
RTTY
Satellites
Transceivers
Transmitting

One of the basic purposes of this conference is to provide a maximum opportunity to present findings by those experimenting, designing, constructing, testing, and inquiring into problems and methods applicable to VHF radio.

This is an opportunity for beginning or mature researchers to report their findings to their peers. We especially encourage the unexperienced inquirers to obtain some experience by presenting a paper at our VHF conference.

Authors wishing to present papers should send a synopsis (typically one or two pages with diagrams) describing the paper to: Dr. Glade Wilcox, W9UHF/8, Program Chairman, VHF Conference, Department of Electrical Engineering, Western Michigan University, Kalamazoo, MI 49008.

Deadline for submission of synopses is 30 June 1981. Speakers will be notified of acceptance by 1 October 1981. Final drafts may be given to the chairman the day of the conference. Awards for papers and the possibility of publication are being explored.

ED.: Dr. Glade Wilcox, W9UHF/8, says that they are especially appealing to the practicing radio engineer, as well as the amateur who is interested in an educational conference rather than a social swap-and-shop session. "We would like to raise the quality of the conference," he remarks, "and at the same time, give young pre-professionals experience in paper presentation." □

A great gift for your overseas amateur friend is a *Worldradio* subscription.

If you received this publication and are not a subscriber of WORLDRADIO, it was no accident. Please consider it an invitation to join. We can be very friendly.

Visalian gets the scoop on hostages

Scott Thompson, KB6CC, of Visalia, California, listened to history being made — about a half hour before most other people in this country. He was tuning his equipment for Reagan inaugural activities when the release of the American hostages from Iran was imminent.

He flipped to an international band "just to be nosy" and heard reports on the final preparations for release.

Scott, 32, learned of the progress of the hostages' flight about a half hour before the events were confirmed for Americans Tuesday, 20 January.

Tehran Radio was not coming in clear, so he listened to the British Broadcasting Corporation announce the jet's departure from Iranian airspace long before its confirmation in the United States. He guessed the aircraft must have crossed the Turkish border judging by the flight time.

"Unfortunately, they weren't saying where, so I figured out it was Turkey," he said. "I used a map. Hams have to have maps."

Earlier, Scott said, he heard a report from the overseas broadcast service that a Greek television team had seen the hostages loaded into a plane from a darkened bus.

Over the weekend, said Scott, he learned of the last-minute snag delaying the hostage release in a BBC announcement "when everybody else was announcing everything was going great."

KB6CC tuned in early to listen to special events commemorating Reagan's inauguration broadcast from the new president's birthplace of Tampico, Illinois. But other hands, bristling with news of the hostages, kept his attention.

An Amateur Radio operator for 3½ years, Scott was skeptical about the reports he was hearing.

"I'm a doubting Thomas. I have been all along," he said. "I wouldn't believe it until they were on the ground and identified by fingerprints or families."

He receives broadcasts from more than 100 countries across the globe.

It's always neat to hear this stuff a long time before the news services carry it," Thompson remarked.

On the international events like the hostage crisis, he said, "Foreign broadcasts are usually a half hour ahead of what you can hear on the television."

— *Visalia Times-Delta* □

Scott Thompson, KB6CC, of Visalia, California, learned the news of the hostages' release earlier than most people in this country, 20 January 1981.

90/90 rule of project schedules – The first 90% of the task takes 90% of the time, and the last 10% takes the other 90%.

DON'T FORGET . . .
Include first and last names with call signs.

ARRL Forum

(continued from page 1)

there? In response, it was explained it would take $75,000 a year to hire a qualified lobbyist. He would have to be an amateur and a lawyer. A secreatary and office rental would eat up the rest of $250,000. Instead, Stevens continued, there are 125 amateurs in the D.C. area waiting to help, and are now doing so. The League is sending a four-page flyer entitled "Amateur Radio" to key people in Washington. If you know any key person who should be added to the mailing list, he offered, let a director know.

If, as a radio amateur, you approach a congressman or other government key person, always give a positive picture of Amateur Radio. On your first contact, *don't* play him a tape of jammers!

Lew McCoy

Members asked Stevens to explain why Lew McCoy, retired from the ARRL, was critical of League technical leadership. Stevens responded that it wasn't a League program, but a problem between two individuals. Later, when again pressed by a member, he promised to discuss the matter with Lew, and give the member an answer.

Gordon West

"Did you vote for the disqualification of Gordon West?" Stevens answered yes, on the recommendation of legal counsel. Gordon West, WB6NOA, was not permitted to run for ARRL Director because ARRL decided Article 11 of the ARRL Constitution disqualified him. The disqualifying activities mentioned were that Gordon operates a school and can purchase Amateur Radio equipment for it, and that he writes an Amateur Radio column for a CB magazine. (No mention was made that he writes the Maritime Mobile column for **Worldradio**!)

Some present felt it especially unfair that writing an Amateur Radio column for a CB magazine should be disqualifying, because he was probably doing Amateur Radio a great deal of good by doing so. Several commented that the League should have published in **QST** *why* he was disqualified.

Recall

When is the League going to become democratic? This question was asked with the suggestion that members should have the right to recall directors and vice directors. It was argued that if members had that right, the elected representatives would be more responsive to the membership. The directors present responded that unhappy members should write to their directors.

Most problems are usually those of communication. Another person to write to is your representative member on the appropriate ARRL Advisory Committee.

Mary Lewis

The crowd enthusiastically asked Mary Lewis, W7QGP, Director of Northwestern Division to say a few words. She briefly said she hasn't been to the smoke-filled rooms yet — her first Board meeting in Newington is coming up. She said she has been in medical research work for 10 years, and has heard a few words that would curl your ears. She doesn't think she will feel out of place with the otherwise all male Board.

Steve Place

Mary then introduced Steve Place, WB1EYI, Manager of the Clubs and Training Department of the League. Steve described his recent activities in bringing League training programs up to date. He plans to put on training seminars at all Division Conventions.

Local publicity

It was emphasized that local publicity about what local Amateur Radio clubs are doing is more important than any publicity piece put out by Newington. Your reporter told about the local Newsline of the John I. Sabin Pioneer Radio Club of Sacramento, California. This club maintains a recorder on telephone number (916) 484-7388, which gives amateurs news of current classes, public service activities and meetings of the Amateur Radio clubs in the Sacramento area. It will also record a message left by the caller.

If you'd like to hear how this works, call it and listen. Do it at night, when the telephone rates are lowest. If you call from afar, leave a comment telling Les Cobb, W6TEE, where you're calling from.

The technical articles

More perennial questions. When are you going to upgrade the quality of the technical articles? Why not go into the marketplace and compete for authors?

Stevens responded that these questions are interesting, because they infer the articles are not technical enough. He said he also gets the question "When are you going to publish articles for the Novices?", which infers that the articles are too technical! □

Silent Key is mourned

Submitted by Robert McKinley, Jr., W2OMR

Charles F. Johnson, Jr., K2ED, died 27 December 1980 after a long illness. He was a member of the Old-Old-Timers Club, the Quarter Century Wireless Association, and the American Radio Relay League which awarded him his DXCC award in 1948. During World War II, he served with the Coast Guard Reserve.

Mr. Johnson was recognized as an innovator in the field of business during his life. While employed at Botany Mills (he was hired in 1929), he introduced the idea of byproducts as well as the concept of national advertising and mass selling. The ideas were considered revolutionary at the time, but resulted in Botany Mills becoming a leader in the industry. He was elected president of the company upon the death of his father.

Writing was another talent of Mr. Johnson's. His reference work, *Call O' the Clans,* was first published in 1937 and reprinted in seven editions. In 1955, he wrote *How to Keep What You've Got — Hair, That Is!* Over the years, he contributed numerous articles to business and textile magazines and other publications. He was a member of the Authors Guild.

After the sale of his Botany interests, he devoted himself to real estate and estate management and held licenses as a real estate broker and a securities broker, up to the time of his death. He also operated his own firm for several years — Johnson Enterprises.

Breeding and racing thoroughbreds was another of Mr. Johnson's pastimes. He was long active with the Thoroughbred Breeders Association of New Jersey, and served as its president, chairman of the board, and trustee for many years.

K2ED is survived by his wife, Mrs. Dorothy Iyone Seaman; a son, Charles F. Johnson III; a daughter, Miss D. Ingrid Poppe; and two grandchildren.

— *The Daily Register, Shrewsbury, NJ* □

Correction

On page 37 of our December 1980 issue, we ran a short entitled "Mods to Yaesu FT 901 from W6TOG". Walt Gesell, WD9DYR — one of the amateurs to whom this information was attributed — wrote and informed us that Jerome Ginsberg, W6TOG, had informed *him* that the information in the article was incomplete, as it referred to other modifications included in a commercial kit. Thus, the tips in the short article would not be of much use to readers.

Apologies go to any readers who may have been interested (and/or puzzled) by the tips. □

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Super selectivity permits narrowing DELTA bandpass to suit the crowds. The four-position switch selects the standard 2.4 kHz SSB filter, adds a section of the 4-stage active audio filter, cascades an optional CW filter (for 14 poles of filtering), and cascades both filters with 4 stages of audio filters to give you the passband window you need with the virtually ultimate skirt selectivity required to knife through strong adjacent signals.

Built-ins to quiet the world. A *variable notch* filter is standard on DELTA. Vary from 200 to 3500 Hz to notch out interfering carriers or CW signals to a depth of 50 dB or more. *Offset tuning* for moving the receiver frequency ±1 kHz to reach that DX or to fine tune. *"Hang" AGC* to give you smoother receiver operation.

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Model 280 DELTA Power Supply	**169.00**
Model 282, 250 Hz CW Filter	**50.00**
Model 285, 500 Hz CW Filter	**45.00**
Model 234 RF Speech Processor	**139.00**
Model 214 Electret Microphone	**39.00**
Model 645 Dual Paddle Keyer	**85.00**

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Model 670 Single Paddle Keyer	**39.00**
Model 227 Antenna Tuner	**79.00**

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Coming decade

(continued from page 1)

toys will become more and more a part of the ham shack. Microwaves and satellites will also become a much more significant part of Amateur Radio in the next decade. Around-the-world communication via satellite would be taking place today if the AMSAT Phase III spacecraft hadn't gone into the ocean when the Ariane satellite failed last spring, and a new and even more sophisticated Phase III bird is scheduled for launch in early 1982. Despite the relatively limited range and short access times provided by today's low-altitude orbiting OSCARs, Nick Laub, W0CA, made WAC via satellite last year, and a number of satellite DXCC's have been issued.

However, the excitement of new bands, new modes and new hardware are not going to be our most serious concerns in the 1980's. Our real problems are going to be with politics and with people. Let's start with politics, which means the government — particularly the FCC.

"Personal Radio For Everyone" has been one of the predominant themes at the Carter FCC. Under Carter's chairman, Charles Ferris, the Commission has largely become indifferent to, or even negative toward, Amateur Radio in the past few years. Traditionally, the FCC has always been staffed with amateur license holders in key positions, and their amateur backgrounds were a valuable asset — both in their work and to us. That philosophy continued through the previous chairman, Dick Wiley, whose top technical aide, Bob Luff, was a very active amateur, but was completely reversed under Chairman Ferris.

Ferris is a politician from Capitol Hill, and, stinging from CB-generated criticism (some justified) that Commission amateurs were stifling CB expansion, so reversed the Commission's internal attitude toward Amateur Radio that an amateur license has actually become a liability for a Commission employee. As a result, no amateurs remain today in any really senior FCC position. Amateurs within the Commission have been keeping a low profile, while that "Personal Radio For Everyone" philosophy mentioned earlier has prevailed. That's why we have a proposal pending to establish a pseudo-amateur service, little or no exam required, just below 10 meters. Our delegation went to Geneva pushing to drop the CW requirement in international amateur regulations — a direct contradiction of the position we who served on the FCC's WARC Advisory Committee for Amateur Radio had firmly taken during several years of WARC preparation.

Fortunately, the election results in November should herald a radical change in the Commission's attitude toward Amateur Radio for the next four years. Barry Goldwater has said publicly that the first thing he wants after Reagan takes office is to see Chairman Ferris out. Commissioner Bob Lee — long a friend of ours — or possibly Washburn, is expected to become interim Commission chairman until Reagan comes up with a permanent choice for that slot. Under Lee (or Washburn) and their successor, we are definitely better off than we've been for the past few years, but it'll take a while before that really begins to show.

Compounding the Commission's negative attitude problem has been its preoccupation with money. In this area, the amateur service is rather vulnerable, since we're certainly one of the most expensive services the FCC has to oversee, on a cost-per-licensee basis. We've got five classes of license — each of which requires exams to be prepared, administered, graded and processed. We've got bands all over the spectrum, each with divisions for mode and license class; and we can handle third-party traffic, but with all kinds of strings. Due largely to costs, the FCC is cutting back on its commercial licenses, with the restricted Third Class Phone license already dropped and the First Class Radio Phone license almost certain to go in the near future. One of these days, the Commission is going to realize that exams are the most important function of their expensive field offices, and when they further realize that amateurs are the most frequent field office customers, the amateur exam program as we know it could very well go out the window!

Replace the FCC examiners with volunteers, as in the Novice program? The FCC's legal staff decided early last year that the Novice program as it currently functions is illegal. Cheating was so widespread when Tech and Conditional exams were part of the volunteer program, that the FCC finally abolished the Conditional class altogether and put Tech exams into their field offices. I see a severe crunch in amateur licensing, certainly accelerated by those who are selling exam answers and thus putting the exam's value into question. Though a "mail order" amateur license seems very unlikely under a Reagan FCC, there are bound to be some drastic changes in amateur licensing — probably a reduction in license classes and an accompanying elimination of most sub-band divisions.

Reporting on SAROC is our Norm Brooks, K6FO. Norm recently received the 99th certificate for Worldradio's Worked 100 Nations Award. *(N6WR photo)*

We'll also be facing regulatory and legal problems in Washington in the near future. The issue of third-party traffic, both domestic and international, is fraught with complications that the FCC's newly-released "plain language" proposed amateur rules don't even begin to address. Another problem we're already facing is Section 605 of the Communications Act — the so-called "secrecy of communications." California has already enacted a law making it illegal to even sell parts that can be used to intercept subscription TV (microwave or scrambled UHF band) signals, and similar proposals are in the Washington mill. In a recent ruling on a request for tapes of contacts made with the ill-fated People's Temple in Guyana, the Commission decided only amateur communications "intended to be broadcast to all amateurs" are not protected by Section 605. That means it's illegal for me to tell a friend where two other friends are meeting for lunch if I heard them arrange it on 2 meters — unless, of course, they preceded their discussion with a "QST!"

Another problem area that's growing rapidly worse is that of people. It's no secret that we're living in a new age, one in which the three C's — Courtesy, Consideration and Common Sense — no longer command the respect they once did. It's also no news that those virtues aren't as universal as they used to be in Amateur Radio, either. Listen to a pileup on the DX bands, where VFO swishers compete with name callers for attention, while out-of-U.S.-band "traffic cops" further compound the interference problem. Listen to 75 meters, where some groups meet nightly to decide who they're going to harrass next. Listen to 2 meters, where the simple carrier thrower is hopelessly out-classed by music players and foulmouths. What kind of mentality was possessed by those childish tricks on the 14325 kHz Hurricane Watch Net during Hurricane Allan, when hundreds of people in the Caribbean were losing their lives and some of those in the hurricane's path were depending on that Amateur Radio net for aid? Can we as amateurs afford to tolerate such actions, such *people,* in Amateur Radio? Can we get to them and somehow re-educate them? Or will they get to us, educating some of us in their ways while the rest of us give up in disgust? Such deviates are in the minority now, still a very small percentage of the million-plus world amateur population; but in the future?

The key to the future of Amateur Radio is leadership, and that brings me to the ARRL. The ARRL is the only game in town. Wayne Green could have been what in politics is called a "viable alternative," if he had the common sense to go with his brilliance. Unfortunately he does not, so he comes off as a wild-swinging loudmouth whose frequent good ideas are generally lost in his bombast. The ARRL's problem lies in the other direction, its traditional laid-back posture.

The ARRL is capable of strong, decisive work. The performance of Dick Baldwin and his crew at the 1979 WARC was truly brilliant. Our gains there were the well-earned culmination of several years of extensive preparatory work in all parts of the world. If the League could figure out how to perform in Washington as it did in Geneva, we amateurs would own the spectrum!

Instead, the League's domestic political program has always operated in pretty

much of a vacuum — and though it sounds that way, I don't intend that to be a criticism of the present Newington brass. Throughout its existence, the League has traditionally maintained an "ivory tower" stance, expecting that anyone with an interest in Amateur Radio would journey to Newington (or West Hartford, for the old-timers) for an audience. In the past that often worked, at least to a degree. Today it doesn't work at all. Anyone with the most rudimentary knowledge of how Washington functions knows that an effective on-going relationship with any government agency is achieved by means of a close, day-after-day, one-on-one contact with *all* the key people in that agency. The League has been flirting with the idea of a Washington office for several years, but so far, the best they've been able to do is send Perry Williams to Washington once every week or so, to make the rounds at the FCC. Within the severe limitations of his timetable, Perry is doing a remarkable job, but it's not really all that needs to be done. Although he is learning a lot about what's going on at the Commission, that is only half the job.

The League is an excellent administrator, a first-class publishing house, a very good service organization, and a mediocre leader. With respect to what happens in Washington, its position is all too often that of reaction — not direction. Other special interest organizations, such as the Aircraft Owners and Pilots Association and the National Rifle Association, seem to be able to do all of those necessary things — including lead — and do them well. Perhaps one reason for this is that both are headquartered in Washington. However, even then, the NRA felt it necessary to set up a well-staffed separate subsidiary organization, the Institute of Legislative Action, to pursue its goals on the legislative scene. Can we afford to do much less?

Can the ARRL change? Not within its present structure, in my opinion, though some of the directors are making a real effort to move it out of its rut. It certainly is capable of doing a better job than it is, and it's up to we who are league members to keep pushing it. After all, it is the only game in town!

Much of what I've said must sound like I'm really down on the future of Amateur Radio. I'm not. I'm not happy with much of the current state of affairs, and there are probably some tough times ahead. But I do like what I see in the proposed new rules, and expect a far more amateur-inclined FCC under the Reagan administration. One way or another, I expect we'll overcome — or perhaps muddle through — most of the problems I've discussed. Amateur Radio isn't going to go away, but neither is it going to stand still. In some respects, particularly technology, we're in what's likely to become the most exciting decade in the history of Amateur Radio.

It's always good to remember, whether you're a DXer who can't crack the pileup on a new country or you just lost the ducky off your hand-held on the first day of vacation, it's still only a hobby! Those of us who can keep that perspective should be able to enjoy Amateur Radio a decade from now, just as we do today. □

Smile!

Tania Miller, WB9TKC

Who was the fellow who used to give a CB friend a "radio check," telling him that his standing wave sounded terrible? And that he should go back to Radio Shack where he bought his CB to ask for a six-pack of standing waves?

Then he phoned Radio Shack and clued them in that he was sending his friend down there to buy it.

It was a Marissa ARC member from Cahokia, Illinois, Elige Fortenberry, WB9QPL!

—*MARC Harmonics* □

Contact Worldradio for hamfest prizes.

McCoy blasts ARRL Handbook

Norm Brooks, K6FO

"This is a crock!" said Lew McCoy, W1ICP, holding a *1981 ARRL Handbook* aloft. Lew was one of the featured speakers at SAROC, and his seminar on 3 January 1981 was "Antenna Tuners."

McCoy reinforced his critical comment on the handbook: "When I say the handbook is a crock, I'm saying it in plain, simple English." He was perturbed by handbook chapter 19, pages 19-11, 19-12, and 19-13. He claims the caption for *Figure 23* is erroneous and is doing a disservice to radio amateurs who may have purchased antenna tuners using that circuit. Let's go back and see where he's coming from.

The Ultimate Transmatch

In July 1971, Lew published an article in QST describing an antenna coupler called the "Ultimate Transmatch." He said that device, plus the Monomatch he had invented earlier, revolutionized Amateur Radio. Suddenly, all amateurs wanted a 1-to-1 standing wave ratio (SWR) when they hadn't worried about it before.

"Anything you invent when you're working at ARRL headquarters goes into the public domain — you can't patent it," he said. As a result, the transmatch circuit is being used in several commercial antenna tuners today; the name "transmatch" has become a sort of generic name, and has become a standard in the industry.

Harmonic attenuation

Lew's original transmatch used a split-stator capacitor on the input side, which Lew says was important in the suppression of second harmonics. When he first described his circuit in 1961, in an article on harmonic attenuation, we had very serious Novice harmonic problems. Our 80-meter Novice harmonics fell in the 40-meter Canadian point-to-point service band. The FCC was sending out 2,000 to 3,000 citations to Novices per month.

Lew was then the Novice Editor of QST, and was anxious to solve this problem. His circuit, using a split-stator capacitor, always had second harmonic suppression, regardless of the capacitor setting.

The T-network

Walt Maxwell, W2DU, head of RCA Space Labs, said you didn't need a dual capacitor. By eliminating one half of the dual capacitor, the circuit becomes a T-network and you can match everything that way; that seems to be the way present-day antenna tuners have evolved.

Lew is quick to point out there's nothing wrong with the T-network circuit under today's standards. The FCC requires only 40dB of harmonic suppression, and the T-network provides that. But Lew is critical of the caption under *Figure 23* on page 19-11 of the *1981 ARRL Handbook* because it says ". . . the T-network which can degenerate to a high-pass network under some conditions of transformation."

The spectographs

Still critical of the handbook, Lew claims the "SPC Transmatch" described on page 19-11 is really his Ultimate Transmatch drawn backwards, so the spectograph shown in *Figure 26B* is *really* that of the Ultimate Transmatch (as well as the SPC Transmatch), and the graph in *26A* is that of a plain T network.

More Handbook criticism

Lew says, "I'll go a little farther. Here on the next page (page 19-13) is a balanced antenna coupler." He points out that the circuit cannot stay balanced when the top switch to the link coupling coil is switched over to one side of the link.

He went on to tell of an ARRL member who approached him saying the handbook doesn't tell how to design an ALC (Automatic Load Control) Circuit. He defended the handbook at first, but when he looked — sure enough — "There's nothing about ALC in the book."

He said, "There are a lot of things that need to be in the *ARRL Handbook*, but what really got me was (the absence of) the base of a power transistor, a TO-3." He held up the book, "Here's all the base diagrams, and the TO-3 power transistor doesn't even exist!"

McCoy's early career

Lew embellished his presentation by recounting his early career. He was graduated from the University of Indiana with a degree in icthyology (That's the study of fish, in case you didn't know) and

(*please turn to page 26*)

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Laryl Myers, N7BMY

U.S. QSL Service, known as USQS, was licensed as a business one year ago for the purpose of providing a service to amateurs with American and Canadian call signs. Service is provided to hams who wish to do their QSLing between USA and/or Canadian stations. To clarify, USOS is a QSL bureau that handles cards from USA and Canadian amateurs that are *going to USA and/or Canadian* amateurs. **Please, NO DX CARDS, unless they go to a manager with a USA or Canadian call sign.**

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To receive cards on file we request a legal size self-addressed-stamped-envelope (SASE). Please put your call plainly on your SASE so we can forward any cards to you without mistake. Until the volume gets larger, 15¢ should cover your cards each time, unless it is requested to wait for more than one ounce. We will gladly take note of how many cards you wish us to send in each envelope. Keep SASE's on file, and make sure your correct address and zip is printed plainly. No charge for putting SASE's on file and returning it with any cards you have coming in. We also offer to put five SASE's on file for you for a fee of $1, to cover postage and envelopes.

PLEASE NOTICE: USQS is happy to see that our service is being used by **CONTESTERS!!** If you have ever worked a contest, you probably have a QSL or two on file. Many comments have been made and some have started taking advantage of affordable QSLing to acknowledge the contacts during contests. Talk about instant awards, think of the states, counties, prefixes . . . ! Remember ONLY domestic (U.S. and Canada).

When QSLing, I can't emphasize enough the importance of **printing clearly.** Make it clear to others what letter you intend to write. Many times it is extremely hard to guess if a call has a "L" or "I", "U" or "V", "Y" or "V", and many more. Remember that others are not familiar with your writing, as you are. Also be sure that if you use GMT for your hour reference, please use the correct date to correspond. Your QSL may be needed for someone's award and it must be correct or it gets rejected.

USQS is proud of Amateur Radio, and is also proud to offer what we believe to be a service that is in touch with the economic and need situation at present. The service is run by me, N7BMY. I am happy to be your QSL manager, operating as I have described. The listing in the 1981 Callbook is current and reflects USQS also. There is further explanation of USQS in the back under *Where to Buy*. Feel free to say QSL via N7BMY, and send me a SASE. **No charge!**

I hope you had an enjoyable winter and are on the way to a beautiful spring season. Keep up the good work, spread the word to your friends and read **Worldradio!**

Following is a list of calls for those who have received cards at the USQS and are on file without SASE's! If your or a friend's call appears here, USQS has gotten a card or two for you within the last month. These lists appear monthly, started in October 1980. Please post our address in a convenient place in your ham shack, it is: USQS (N7BMY), P.O. Box 814, Mulino, OR 97042.

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KA1AMR
WB1AOG
VE1ASJ
N1AUD
W1AX
WB1CJS
KA1CXC
WB1DHW
KA1DZT
AJ1E
N1EE
W1EKO
WA1EKV
KA1EKY
W1FM
KA1FSR
K1FWF
WB1FYQ
KA1GDP
K1GQ
K1GSI
K1HI
AJ1I
W1INF
WA1IOG
W1IS
K1KCJ
K1KI
N1NH
AE1P
KA1R
K1RM
K1RX
K1SA
W1SR
AF1T
W1TN
N1TZ
W1UD
WA1UZH
K1XA
N2ACL
KA2ASA
W2BVR
AC2D
K2DI
VE2DKV
WB2DRV
KA2DUP
W2DW
W2EYW
W2GD
N2HF
KA2HLJ
K2HV
K2HWW
N2IC
KA2IKA
KA2IOV
KA2IRY
K2ITG
N2JB
WB2JJT
W2JUM
WA2JXC
K2KIR
W2KNS
AF2L
KE2N
N2NSD
WB2PWR
WB2QIX
VE2QST

K2RM
WB2RNT
W2RQ
K2SCU
WB2SJG
WA2SUH
WA2SVT
AC2U
N2WT
WB2ZGN
W3ADE
KA3AMX
N3BCZ
KA3BER
N3BKG
VE3BQL
KA3CFG
KA3CJD
VE3CWA
WB3CYA
WB3DCT
KA3DOJ
W3DP
WA3EFE
KA3EJJ
KA3ENP
VE3EVL
KA3EXO
W3FAF
VE3FGU
KA3FQK
W3FZV
WB3GRE
K3JL
VE3KK
VE3KTZ
VE3KZ
VE3LMT
VE3LPE
K3NB
K3ONW
VE3OT
N3QA
W3QQ
K3TA
K3TX
K3UA
K3WW
W3YDZ
AA4AG
KA4AHP
WD4AHZ
K4AMC
KA4ANF
KA4AZT
N4BAL
KA4BCM
N4BOS
KA4BRW
WD4BZR
KA4CKL
K4CKS
K4CMA
KA4CQJ
N4DW
KA4EQW
K4EXC
K4FU
KB4G
K4HAV
KA4HTZ
KA4IUS
WD4JSX
KA4JUA

WB4JXL
WN4KKN
AK4L
NE4L
W4LII
K4LPA
K4MC
KA4MQE
KA4NGW
W4OGG
KA4OQQ
W4OYI
KA4OYW
W4PCJ
W4PUR
WB4QBB
VE4QST
WA4RAF
N4RJ
WA4RRC
N4SA
KA4SDS
WA4SZG
K4TF
N4UZ
WB4WHE
N4WW
W4WWQ
W4YE
N4ZZ
WA5AFG
W5ASP
AA5B
N5BA
KB5CA
N5CAY
WD5CAY
N5CG
WD5CHB
K5CKQ
N5CKX
K5CM
KC5CW
WB5CYK
KA5DWF
K5DX
KN5E
W5EA
KA5EDR
KA5ELW
WD5EWP
K5GXG
KM5H
KN5H
KA5HDV
K5JW
AF5K
KM5K
KA5KGJ
KA5KGZ
W5KL
WB5LIS
WB5[illegible]NH
WA5MLT
W5MYA
WB5NBC
K5NE
W5NR
W5NYA
KD5O
W5PLN
WB5PRD
KM5R
WB5RXZ
K5TM

KB5UL
W5VD
W5VCV
WB5VZL
K5WA
N5XA
W5XX
K5ZD
WB6AKR
WH6ALV
VE6ASI
N6ATS
N6AW
WD6AXY
AA6BB
W6BIP
N6BK
N6BT
N6CRW
WD6DUH
KD6DY
AI6E
WA6EJL
K6EPT
WB6FCR
AC6H
KA6HMS
K6HNZ
N6HS
N6IU
WA6KMW
N6KT
K6LL
KB6LO
K6M
KN6M
WA6MBE
W6MMG
WB6NBR
N6NF
N6OI
WA6OJT
N6OP
VE6PD
N6PE
K6PFW
KN6Q
W6WLV
W6QUV
N6RZ
W6SKQ
W6SZN
W6UQF
N6VI
K6XO
KB6ZA
N7AGP
KA7ANH
N7AYF
WB7AYN
AI7B
N7BES
N7BJX
N7BXE
N7BXX
N7CG
VE7CHE/KH6
W7CQR
VE7CVM
K7CWP
N7DD
VE7DFY
KA7DNJ

WB7DWP
KA7ESS
WB7FDQ
KB7GF
KB7HH
KC7I
K7JH
K7JTV
WA7KNK
K7LXC
KB7MO
K7NHV
WB7NWW
WB7OTC
WB7QAC
WB7QEL
W7QME
W7QMU
WB7QYI
WB7RBN
W7ROL
K7SFN
K7SS
WA7STA
N7SU
W7TC
WA7UEC
WB7UUI
W7WHB
K7WWP
W7YS
WA7YXQ
KD7Z
N8BQZ
K8DL
WD8DTG

N8II
K8IP
KA8KQE
WD8LXX
K8MFO
K8MR
K8OAS
K8OZ
K8PGJ
WA8PIM
WA8PRS
W8RC
WD8RRC
K8TD
W8UPH
W8VIF
K8AMC
W9ATV
KA9CHN
WD9DMV
K9ENS
W9FI
WB9FLJ
KA9FNK
KA9GWL
KA9GWN
KA9GYD
KA9HPG
WD9HZF
WD9IDO
WD9IRN
WB9JKP
K9MWM
W9NA
W9NEC
W9NEL

W9NIC
WB9OHF
W9OWT
KB9PN
W9TT
WB9ULS
WB9WXH
K9ZO
N0ACL
WD0ADD
N0BCN
W0BF
N0BLB
WB0BNR
KB0C
WD0CEO
WD0CHC
KA0CPO
K0CW
KA0DMN
KA0DPD
KA0DXR
WD0EIF
W0ETT
K0FA
KA0GDS
WD0GIL
WD0GMT
K0GU
KA0GRO
W0GW
WD0HAD
KA0HJI
W0HSC
WD0HSP

N0HY
KA0ICM
K0II
KA0JNS
KA0JQF
WB0JWQ
KD0L
N0LL
WA0MTM
WB0MWJ
AD0O
WB0OOW
KB0PR
WA0PTV
K0PVI
WB0PYL
KB0QA
W0QKY
KB0RC
AB0S
K0SI
W0SLD
K0SR
W0SS
WB0SXJ
W0UBT
W0VB
AC0W
WB0WLC
N0WTP
W0YK
K0YXU
K0ZX

6-meter WAS

Submitted by Tania Miller, WB9TKC

On 17 November 1980, Don White K0RIR, got his last state, qualifying him for a WAS on 6 meters. He began 20 years ago, when not every state had a 6-meter sideband-equipped Amateur Radio operator. Relatively few are on 6 meters today.

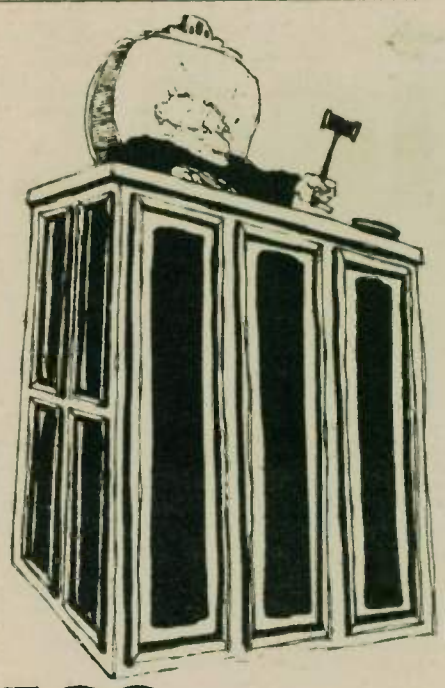
Don White has a Technician license, the original experimenter's license.

—MARC Harmonics

Correction

A correction was recently called in for the Nets listed in DX World, page 31 in our February issue. The frequencies for W7PHO Family Hour(s) should be as follows:

14.225 MHz 1530 UTC Daily
28.575 MHz 2315 UTC Daily
21.345 MHz 2330 UTC Daily



FCC HIGHLIGHTS

Bill Grenfell, W4GF

The 160-meter band is now cleared of Loran operation, except for the Canadian Newfoundland chain. The World Administrative Radio Conference (WARC) at Geneva, 1979, amended the previous Region 2 (North and South America) portion of the sharing footnote (198) on the 1800-2000 Kc/s band to terminate all Loran operation by 31 December 1982. This provision is in footnote 489 of the new international (WARC '79) Radio Regulations Table of Frequency Allocations. Operation at full power and throughout the band will be limited only by the protection needed to preserve the usefulness of the Canadian Loran-A chain (Long Range Aid to Radio Navigation). If all concerned proceed without delay, an appropriate amendment of the rule governing operation in the 160-meter band could be adopted and implemented by this summer.

•

FCC's change in amateur tower clearance procedure may be in use by the time you read this. For amateur licensees, it will reduce the number of forms and the time required for a clearance. FCC will gain cost and workload reductions. Form 714 will not be used and filing for a license amendment via Form 610 will not be required. When the new form is available and the rule (97.45(a)) amendment is in effect, amateurs proposing an antenna which exceeds the height limits specified in rule 97.45 may apply for approval of the antenna via the new form. If the antenna is approved, the notice of approval will in itself constitute an amendment to the applicant's license. All antennas over 200 feet high, and many within four miles of an airport runway, may require a clearance before erection.

•

Copies of FCC's January 1979 edition of the amateur rules are still available from the Superintendent of Documents, U.S. GPO, Washington, D.C. 20402, for $1.40, Stock Number 004-000-00357-8. Several rules have been amended since that edition was published, and the proposed plain language version of the amateur rules may possibly be in effect next fall.

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Copies of the proposed plain language amateur rules are being made available to ARRL affiliated clubs and members. See QST February 1981, page 10.

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Amateur operator license totals at the beginning of 1981 were: **Novice Class, 72,588; Technician, 70,061; General, 123,904; Advanced, 88,715; Extra, 26,613; Total, 381,881.**

•

Some members of the FCC are resigning, now that a Republican President is in office. Democrat FCC Commissioner Tyrone Brown resigned as of 31 January. This opens the way for the President to appoint a new commissioner to fill the balance of his seven-year term, which expires in 1986. Former Chairman Charles D. Ferris, also a Democrat, is leaving as soon as he has accumulated enough time to qualify for retired pay, which is likely by mid-April of this year. Long-time commissioner Robert E. Lee, a Republican and now acting chairman, has said he will leave at the end of his present term, which expires 30 June 1981. He was first appointed a commissioner in October 1953! Democrat commissioner James H. Quello's seven-year term ended 30 June 1980. He has continued in office without confirmation by last year's Congress. Since he was originally appointed by a Republican, it appears likely he will be asked to serve another term. This would still leave three vacancies to be filled, with two Republicans and one Democrat.

No more than four of the seven may be of one political party. The other commissioners continuing to serve are: Democrat Joseph R. Fogarty and Republicans Anne P. Jones and Abbott Washburn. The rumored "front runner" for appointment as the new FCC chairman is Mark Fowler, long-timer advisor to President Reagan on broadcasting.

•

The unlicensed Seatte broadcaster caught by FCC, which I reported in December 1980 HIGHLIGHTS, was fined $750 by FCC for violation of the Communications Act of 1934. He was operating just outside the Amateur 7 and 21 MHz bands.

•

An unlicensed 27.9 MHz station operator was fined $1,500, sentenced to a weekend in jail and placed on two years probation by a U.S. District Court in California. Although a first offender may be fined as much as $10,000 and/or sentenced to a year in prison for such a violation of the Communications Act, actual imprisonment has been almost unheard of in many years and, therefore, this case is something of a landmark.

•

John Munson, Jr., K6EOA, was fined $500 and put on three years probation for threatening FCC engineers who were investigating complaints of jamming activities by him. He must: refrain from threatening or harrassing certain other amateurs or FCC officials; not use his amateur equipment; comply with instructions of his probation officer; obtain weekly psychiatric treatment from an M.D.; and obey all other laws during his probation. Failure to comply with any of these conditions could put him in prison for the balance of the three years. FCC has initiated proceedings to suspend his license. (*HR Report*, 16 January 1981).

•

Jamming of HF nets and 2-meter repeaters continues to dominate the FCC's Field Operations Bureau's enforcement attention to the Amateur Service. The task for the Bureau's personnel is not easy. They need to obtain solid evidence that the interference is deliberate and that it is sufficient to support sanctions which will be real deterrent to any further violative operation. They must then decide on what kind of penalty to seek and go through the necessary steps to see that it is applied to the guilty person. Probably the most effective punishment to an FCC licensee is revocation of his license. While this takes care of the individual found guilty, it seems to cause very little disturbance to other amateur licensees. Therefore, the Bureau must also look at and consider the use of other forms of sanctions which they hope will improve the "ripple" effect. One likely approach which I believe would really catch the attention of many of the active amateurs is to impose stiff fines on jammers and other deliberate and repeater violators. The Commission has the authority to do this under the Section 503(b) of the Communications Act. Up to $2,000 for each day of the violation, not to exceed $5,000 for the same violation, may be assessed by FCC!

•

Volunteer help to FCC would be authorized if Representative (California) Dannemeyer's bill, H.R. 8445, is approved by Congress. It would permit FCC to recruit and train licensed amateurs, and accept and employ their voluntary and uncompensated services. This may be the way whereby amateurs would be able to engage in self-enforcement to the maximum extent possible.

•

A recent reciprocal operating agreement with Tuvalu adds another to the list of more than 50 countries which will issue a permit to U.S. amateurs to operate in their territory.

FCC confirms that negotiation with Italy for amateur operating reciprocity is under way.

•

Amplifier modification instructions to add the 10-meter band, furnished by the manufacturer, is a practice which may specifically be approved by FCC in an upcoming Notice of Proposed Rule Making. While there is no prohibition in the rules against the practice, some manufacturers of HF linear amplifiers for amateurs have not felt free to issue instructions on how to add the 10-meter band.

•

Petitions recently dismissed by FCC: RM 2892 requesting interim licensing because of delays in issuing amateur licenses; RM3426 requesting the wait period after an examination failure be made 60 instead of 30 days; RM3454 requesting amateur examination elements 4(a) and 4(b) be reciprocally creditable with commercial examination element 4; RM3455 requesting amateur mail examination of U.S. citizens in other countries. Rule-making petitions which are frivolous, repetitious or moot may, and are likely to be, summarily dismissed by the FCC staff.

If your club is involved in any emergency situations, send the story and pictures to **Worldradio.**

See your group in print and help your fellow amateurs with shared experiences. Your story may help others be better prepared.

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Thank you!

ED.: On page 19 of our February issue, we ran a letter from Tom Harrington, W8OMV, regarding international 10-meter beacons. Shown here is the updated list of those beacons, which he referred to in his letter.

International 10-meter beacons

Frequency	Call sign	Location	Lat/Lon	ERPW Aerial	MASL beam direction	Mode	Status	Info
28.175	VE3TEN	Ottawa		0	0		Reg 2	VE3QB
28.200	*		Common Frequency	0	0			
28.205	DL0IGI	Mt. Predigtstuhl	4742N,1253E	100 dipole	1650 N/S	F1		DJ5DT
28.207	WD4MSN	Florida	2656N,8222W	45 ground plane	0		EV&W/E	WD4MSN
28.210	3B8MS	Mauritius		0 ground plane	0			
28.212	ZD9GI	Gough Island	4021S,9952W	0	0		Not yet op.	
28.215	GB3SX	Crowborough	5102N,0008E	10 dipole	167 N/S	F1		G3DME
28.220	5B4CY	ZYY1	3445N,3319E	26 ground plane	20 omni	F1		
28.222	HA****			0	0		not yet op	
28.225	VE3TEN*	Ottawa		0	0		reserv non-op.	VE3QB
28.227	F****			0	0		not yet op	
28.230	ZL2MHF	Mt. Climie	4109S,17509E	50 vertical dipole	890 omni	F1	Reg 3	
28.235	VP9BA	Bermuda		0	0	F1	Reg 2	
28.237	LA5TEN	Oslo		0	0			
28.240	OA4CK	Lima, Peru		0	0		Reg 2	OA4CK
28.240	PY1CK	Rio de Janeiro		0	0		Reg. 2 non-op.	
28.242	ZS1CTB	Cape Town		0	0		Not yet op	
28.245	A9XC	Bahrain	2609N,5028E	0 dipole	0 NW/SE			
28.247	EA2HB			0	0			
28.257	DK0TE	EH26C Konstanz		40 ground plane	440 omni	F1		DL7KH
28.260	VK*			0	0			
28.265	VK**			0	0			
28.270	VK***			0	0			
28.272	TU***	Ivory Coast		0	0		not yet op	
28.275	VE7TEN	Vancouver, B.C.		4	0			
28.277	DK0AAB	Schles Holstein		0	0			
28.280	YV5AYV	Caracas		0 TH6	0 EU,W,VK in 24HR SEQ	F1		DL7KH
28.284	VP8ADE	Acelaide Island	6734S,6808W	O V-beam	0 TO UK			VP8SB
28.287.5	W8OMV	Tuckasegee, N.C.	3535N,8233W	20 ground plane	0 omni	F1	operational 4/81	W8OMV
28.290	VS6HK	Cape d'Aguilar	2212N,11415E	4 ground plane	0 omni	A1		
28.888	W6IRT	N. Hollywood	3412N,11828W	7	0	A1	Reg 2 not IBP	W6IRT
28.894	WD9GOE			0	0		Reg 2 not IBP	
28.992	DL0NF**	FJ47A		1 Delta loop	630 E,W	A1	Not IBP	DL8ZX

Frequencies ending in 2 or 7 should have .5 kHz added.
This list by IARU Coordinator, Alan Taylor, G3DME, from Tom Harrington, W8OMV.

Amateur Radio Call Signs

Amateur Radio operators have continually expressed an interest in what are the latest call signs which have been systematically assigned. To further our policy of making the new call sign assignment system public, a list of the last call sign issued, by group, for each radio district and non-contiguous area is published. The following is a list of the last call signs assigned as of 1 January 1981.

Radio District	Group A	Group B	Group C	Group D
0	KG0P	KB0UH	N0CFP	KA0KBK
1	KB1S	KA1MZ	N1BGZ	KA1GIT
2	KJ2P	KB2VT	N2CFN	KA2KYY
3	KC3A	KB3MZ	N3BPP	KA3GVI
4	NI4D	KC4TG	N4DZH	KA4SWY
5	KO5D	KC5EM	N5CQX	KA5KRK
6	KU6D	KD6OP	N6DUQ	KA6OCI
7	KF7N	KB7SA	N7CFD	KA7JJI
8	KJ8T	KB8YH	N8CHE	KA8LRX
9	KD9Y	KB9TV	N9BVY	KA9JWD
N. Mariana Is.	AH0A	AH0AA	KH0AC	WH0AAE
Guam	AH2J	AH2AG	KH2AM	WH2ACR
Johnston Is.	None	None	KH3AB	WH3AAB
Midway Is.	None	AH4AA	KH4AC	WH4AAF
Hawaii	NH6I	AH6CF	KH6LF	WH6ANJ
Amer. Samoa	AH8A	None	None	WH8AAK
Wake Wilkes Peale	None	None	None	WH9AAA
Alaska	NL7R	AL7BQ	KL7LF	WL7AOQ
Virgin Is.	KP2B	KP2AC	NP2AH	WP2ACH
Puerto Rico	NP4E	KP4BV	NP4BP	WP4BSK

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A new edition of the world's most famous linear amplifier

The 2K Classic represents the culmination of fifteen years experience in developing, manufacturing and improving the 2K series. It remains as always a "workhorse", engineered and built to loaf along at full legal power for days or weeks without rest. A look inside shows why! No expense has been spared to make the 2K a truly "Classic" Amateur amplifier. Heavy duty, top quality components along with its rugged construction assures you of trouble free operation. The 2K Classic offers engineering and features second to none. It will put your signal on the air with greater strength and clarity than you ever dreamed possible. The 2K Classic operates on all amateur bands, 80 through 15 meters (export models include 10 meters).

Features:

- Two rugged Eimac 3-500Z grounded grid triodes
- Pi-L plate circuit with silver plated tank coil
- Resonant cathode pi input circuit
- Maximum legal input on all modes
- Price: $1195.00

The 1KD-5 ...Another fine member of the famous Henry Radio family of superior amplifiers. And we're still convinced that it's the world's finest linear in its class. The 1KD-5 was designed for the amateur who wants the quality and dependability of the 2KD-5 and 2K-4, who may prefer the smaller size, lighter weight and lower price and who will settle for a little less power. But make no mistake, the 1KD-5 is no slouch. Its 1200 watt PEP input (700 watt PEP nominal output) along with its superb operating characteristics will still punch out clean powerful signals...signals you'll be proud of. Compare its specifications, its features and its fine components and we're sure you will agree that the 1KD-5 is a superb value at only $695.

The 2KD-5 We have been suggesting that you look inside any amplifier before you buy it. We hope that you will. If you "lift the lid" on a 2KD-5 you will see only the highest quality, heavy duty components and careful workmanship...attributes that promise a long life of continous operation in any mode at full legal power. The 2KD-5 is a 2000 watt PEP input (1200 watt PEP nominal output) RF linear amplifier, covering the 80, 40, 20, and 15 meter amateur bands. It operates with two Eimac 3-500Z glass envelope triodes and a Pi-L plate circuit with a rotary silver plated tank coil. Price $945.

And don't forget the rest of the Henry family of amateur amplifiers...the Tempo 2002 high power VHF amplifier and the broad line of top quality solid state amplifiers. Henry Radio also offers the 3K-A and 4K-Ultra superb high power H.F. amplifiers and a broad line of commercial FCC type accepted amplifiers for two way FM communications covering the range to 500 MHz.

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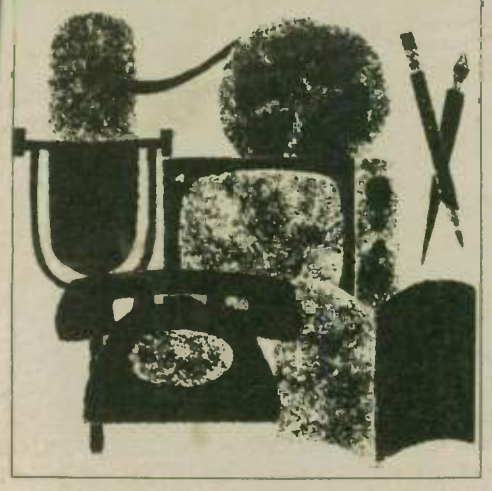


ARES group is in demand

To Amateur Radio Operators
Southern Alameda County, California

Dear fellow amateur:

You will be pleased to know that the City of Fremont's Office of Emergency Services has requested that we provide communications in an official capacity for the city during any emergency that may develop in the future. Although the exact plans are not ready, we will be in a position to have at least one communicator in a new communications complex located at city hall. It is hoped we will also provide a communicator at the fire department, Red Cross, school district office, as well as disaster shelter operations and evacuation points.

A reorganization of our local ARES group will be taking place in the near future. It is my hope that a more effective network will result in this change. Present AEC's will continue at this point until the reorganization is complete.

Thank you for your past efforts . . . and future efforts.

Stuart H. L. Langs, M.A., AA6SL
Emergency Coordinator □

Praises given to club

5 January 1981

Mr. Jerry Malin
Mecklenburg Amateur Radio Society
Charlotte, NC 28203

Dear Jerry,

I want to take this opportunity to personally thank you, Jerry Hutchinson, and the members of the radio club that participated in the McGuire evacuation drill on Saturday, 6 December.

Thanks to you and the members, we had, without a doubt, the best communications of all. I can assure you that the radio club will be deeply involved in all our future planning, including our preparations for the hurricane season on the coast.

I was very impressed with professionalism and dedication of the club members who responded to the evacuation drill.

Sincerely,
Mike Howes, Director
Safety Services
—Mecklenburg ARS News, Charlotte, NC

W2GHK 'rises to the top'

Stuart (Stu) Meyer, W2GHK, was recently elected president of the Institute of Electrical and Electronic Engineers Vehicular Technology Society. He previously held the position of vice president and has also served as treasurer.

The activities of the IEEE Vehicular Technology Society relate to electronic and electrical automotive technology, mobile radio communications on land, sea and air, and the use of electronic technology for the control of ground transportation systems.

"Stu" rose through the ranks of the Washington, D.C. VTS Chapter, starting as secretary-treasurer, then vice chirman and chairman. While chairman, his local chapter earned the "chapter of the year" award. He was also chairman of the IEEE 1976 annual Vehicular Technology Conference and has the same role in its 1981 Conference. Other industry activities include: chairman of the engineering panel, communications division, Electronic Industries Association (EIA) and a director of The National Association of Business and Educational Radio (NABER). He is a life member, fellow and executive vice president of the Radio Club of America.

He was first licensed as an Amateur Radio operator in 1933 when he was issued the call sign W2GHK. He has held this call sign continuously since that date. He is the president of the Foundation For Amateur Radio (a consortium of 50 clubs in the greater Washington, D.C. — Baltimore, Maryland area). He has been chairman of a number of Amateur Radio conferences and conventions, including the 1975 ARRL National. He is also QSL manager for a number of DX stations around the world and his "DXpedition of the Month" program has sent out more than one million QSL cards since 1962. "Stu" is the recipient of the "DX Hall of Fame" award as well as many other awards. His personal Amateur Radio interests are predominantly DX-oriented. He operates both SSB and CW on the High Frequency bands from 160 through 10 meters. He holds an Extra Class license and is a charter life member of the ARRL.

Stu Meyer, W2GHK

W2GHK is employed by the E.F. Johnson Company as manager of its Government and Industry Relations Office in Arlington, Virginia. He has held managerial and engineering positions with RCA Corporation, Aerotron, Hammarlund and the Allen B. DuMont Laboratories. His career in land mobile radio started when he joined the Link Radio Corporation after his discharge from the U.S. Navy in 1945. During his tenure with Fred Link, he rose to the position of Chief Engineer.

Stuart Meyer received much of his technical and engineering education at the U.S. Naval Academy and the Naval Air Technical Training Command as well as with the DeForest Institute. □

HANDI-HAMS show off shacks

When winter snow or cold slows outside activities to a standstill, it's sometimes warming to sit inside and remember summer activities — like the radio demonstrations that two HANDI-HAM members put on for children with handicaps last summer.

Alta Mitchell, WAØVTZ, of Rochester, Minnesota, welcomed the children from the Rochester day camp into her "shack" for an eye-opening demonstration. Alta, who is handicapped from polio, was able to show the children how radio works and how amateurs talk to each other all over the world.

The Menomonee, Wisconsin day camp also got a demonstration — from Sam Jenkins, WD9HML.

Demonstrating your Amateur Radio station can be an exciting way of providing a service to handicapped children in your area.
— HANDI-HAM World □

State Police officially recognize Amateur Radio Service

Connecticut State Police Headquarters has issued Special Order 104-A, titled "Amateur Radio Communications". This order is to inform CSP field services of the systems and capabilities of Amateur Radio and provide guidelines for interfacing Amateur Radio at the troop level.

It sets the policy that troop commanders may meet with local Amateur Radio groups to develop plans for supplementary communications in emergency or unusual situations.

The order lists four areas of potential amateur assistance: 1) observation of local conditions; 2) point-to-point communications; 3) mobile operations, including 4-wheel drive; and 4) portable operations (searches).

The special order explains for CSP personnel how amateur autopatch works and lists guidelines for amateurs in reporting incidents to the State Police.

Types of incidents that should be reported include: accidents, medical emergencies, incidents involving threat of injury, road conditions posing a threat to motorists, a crime being committed that the caller is witnessing, road blockages or lane closings, and disabled vehicles within the travel portion of the highway.

When reporting an incident, the Amateur Radio operator should:

1. Identify the call as "Amateur Radio."
2. Identify FCC-assigned call sign.
3. Report the nature of the incident.
4. Give exact location: highway route, exit number, direction of travel, major landmark, street and number.
5. Give extent of injuries, if any. Are victims trapped?
6. Describe vehicles involved: registration number and state.
7. If a truck accident, is it carrying dangerous cargo?
8. Add any information to assist responding trooper(s).

Additional recommendations:

1. Remain calm. Be specific and concise.
2. Ask the dispatcher if he has already had a report on the incident you are reporting.
3. Release the microphone button frequently to allow the dispatcher to interrupt if necessary.
4. Remain on the scene until all necessary information has been provided and any questions that the dispatcher may have are answered.
5. Report incidents in which assistance is obviously needed, such as an accident with injuries or in the travel lanes, or incidents in which those involved have requested assistance.

While the Connecticut State Police invite and encourage citizen involvement, the new special order cautions against overstepping one's bounds. No Amateur Radio operator should ever place himself in civil or physical jeopardy while assisting the department.

Bill Clede, Chairman
Connecticut State Emergency
Communications Committee, FCC
The Wavelength, Middlesex ARS, CT □

AMATEUR RADIO IN PUBLIC SERVICE

Long arm of the law given a helping hand

Submitted by Mike DeHart, KB6ZF

The "long arm of the law" —deputies and California Highway Patrolmen investigating an accident in Mentone on 29 December 1980—got an extension from a man in Yorba Linda.

A 20-year-old Redlands man was arrested for driving under the influence of alcohol and misdemeanor charges of hit and run after a non-injury accident at Agate and Mentone Boulevard shortly after 11:00 p.m.

But some of the events that led to his apprehension were channeled through Yorba Linda via radio waves and relayed to the Yucaipa sheriff's substation by telephone.

The unusual sequence began when Stan Fox, long an Amateur Radio enthusiast, was returning from an evening walk to his home near the accident scene.

Fox was talking with Dick McKeever of Yorba Linda on a hand-held radio when he heard the crash of the collision and told his friend he was going to check out the situation.

One car had already left the scene when Fox arrived, but other witnesses noted its direction of travel, and Fox and others followed a trail of water leaking from the car's damaged radiator.

Meanwhile, McKeever had telephoned the Yucaipa sheriff's substation and was able to relay information he was receiving from Fox.

Four occupants, thought to be involved in the accident, had reportedly switched vehicles and were starting to drive off, but a sheriff's deputy was able to stop the car. The car originally involved in the accident was located behind one building, Fox said.

CHP Officer Bob Saiz took the man into custody. There is a possibility the man may also be charged with pointing a gun at a sheriff's deputy, CHP officials said.

Fox and McKeever were able to communicate using the Keller Peak repeater, Fox said. Both Fox, WA6BLI, and McKeever, N6BAW, are associated with the Walnut Hill Repeater Association.

Although this was the most exciting incident he has been involved in, Fox said, the radio group has an active public service record and recently assisted U.S. Forest Service officials during tree planting operations in the wake of November's Panorama fire.

—Daily Facts, Redlands, CA □

Christmas spirit thrives in Oregon

James L. Smith, W7LZA; formerly W6YRU

Members of the Clatskanie Amateur Club (Oregon) volunteered for one day to man the Salvation Army kettles in Clatskanie's first kettle campaign, Christmas 1980. For the record, "the club day" amassed the largest collection during the Campaign. Ken McClain, WA7OOB, was chairman of the group.

Clatskanie has a population near 1,700 and there are 15 active radio amateurs in the club.

Part of the proceeds from the kettles were used to buy gift certificates for food and clothing for two families. The remainder was banked for emergencies in the future. □

Are you involved in public service?

Send NEWS and PICTURES to WORLDRADIO

Mac Owens, W7AMR, sits at Northwest Shrine Amateur Radio Club's station, located in Portland Hospital for Crippled Children. Mac was the backbone of the station's construction two years ago.

Shriner Station helps crippled children

Roy Devish, W7AZI

Our club was formed by Shriners with the objective of bringing Nobles together in a closer bond of friendship and to encourage, promote and create enthusiasm among its members through Amateur Radio operating, for the betterment of Shrinedom. Also, to benefit the patients in our hospitals.

We currently have 55 members representing Afifi, Nile, Al Kader, El Katif, Gizeh, Hillah, El Korah, Algeria and Al Aska Temples, but we are anxious to recruit more of you who are amateurs. We meet on Sundays at 0900 PST on 3924 kHz and on Thursdays at 1900 PST on 7272. We also have two regular meetings a year to elect officers and to take care of business not handled on the air.

The present officers are Roy Devish, W7AZI, President; Howard "Brick" Sargent, K7BCX, Vice President; and Gene Tomlinson, WA7ILO, Secretary-Treasurer.

A radio station has been set up and operating for two years at the Portland Hospital for Crippled Children. Mac Owens, W7AMR, has been the backbone of its construction and operation. His success is shown by the excitement and enthusiasm of the patients who have sent and received over 750 messages to and from loved ones at home. We all feel proud of Mac and his crew of George "Smitty" Schmidt, W7PPD, Bob Paine, K7CC and Brick, K7BCX.

The Spokane Shriners Hospital has a newly installed station, thanks to a lot of help from the Spokane Dial Twisters Radio Club (K7LRD). There have been generous donations of money and equipment for this station, largely promoted by Bill Bennett, W7PHO. Operators using the K7LRD call are Hank Cruse, W7UOJ, Bob Schwartz, W7EOC and Les Morgan, W7QZI.

There are similar clubs in other parts of the United States providing radio communications for patients and families at various Shrine Hospitals and we hope to link up hospital to hospital contacts too. Listen for the Philadelphia Hospital on 14.328 at 2400 UTC on each Thursday and Houston Hospital on 3905 at 2330 UTC on Sundays.

We are proud of our activities and invite our fellow radio amateurs to become actively involved. □

Amateur Radio serves the people

Tania Miller, WB9TKC

Public Service is supposed to be the first reason for Amateur Radio's existence, according to the FCC's license manuals and study guides. The Marissa ARC recently ran an article on using 2-meter rigs, realizing the number of handi-talkies available, for emergency communications, telling clubs who may be interested how to get started in it. The article told of RACES, ESDA and AREC.

RACES is defined by the FCC and the Federal Emergency Management Administration as "An Organization of Amateur Radio operators who provide radio communications needed by federal, state and local governments in time of emergency." It was created in 1952 and is governed by subpart "F" of the FCC rules and regulations.

RACES goes into operation whenever there is a declaration of an emergency by the radio officer who heads the RACES system. In our area, Ed Matysik, W9RQR, is the radio officer for the St. Clair County RACES system.

In 1975, Illinois abolished "Civil Defense." It was just a name change, but it changed the law. Then it became effective locally from "Civil Defense" to the "Emergency Services and Disaster Agency" — ESDA. So people seldom hear the term "Civil Defense" anymore in Illinois.

The federal government changed the name of the Federal Defense Civil Preparedness Agency into the Federal Emergency Management Administration two years ago, so the federal government doesn't use the term "Civil Defense" anymore, either.

AREC works with ESDA but is not connected with it. To be a RACES member, your call sign, license class, home and work phone, etc. must be on file of working with your county ESDA.

AREC is not as stringent. This is a local "Amateur Radio Emergency Corps." AREC has a local emergency coordinator who, many times, is also the ESDA coordinator/director.

In the late '50s or early '60s, there were earthquakes along the Madrid fault in Southern Illinois. Amateurs were running 2-meter AM equipment, and the mainstream was on 145.65 MHz where info was called in. St. Clair County reported telephone and power lines down besides other damage. Storm situations were similar. Net control was rigidly operated to keep accuracy in and rumors out.

RACES came on many times, picking up info about tornado clouds well before any echo sightings on radar at the National Weather Service, relaying to them so they were pre-alerted before anything was seen on radar or before their computers analyzed what was seen as a warning for their area.

During snow and ice storms, RACES gets into the worst areas for those without heat or electricity, telling people where shelters are in their area.

Any radio club interested in setting up an emergency net for severe weather conditions can contact their county ESDA coordinator. If none is set up, find someone with the initiative and time to fill out necessary forms to be the official radio officer for RACES.

Section 97, sub-part "F" of the FCC rules and regulations will spell out the procedure for you.

RACES has direct communications with the weather service both by radio and the NAWAS circuit (North American Warning System)—a direct, underground telephone line linked through microwaves and back through the underground line to the weather office.

All state police have NAWAS on a national circuit. You could make a direct emergency call to the national warning system in Boulder, Colorado, which has switch circuits so you can talk directly to the National Weather Service or to the state warning point. In Illinois, the system is in Springfield. They can also send a special pulse rate to ring your phone (NAWAS line) in your own district when a serious emergency is approaching.

This is more needed in sparsely settled areas where we don't have the concentration of radio amateurs a metropolitan area has. You can form AREC if you want to begin a simple emergency weather net; later you may choose to work with ESDA.

Yet, all the information on earth won't do any good unless there are amateurs with the dedication and time to help. Articles like this are printed just in case someone is interested.

—*MARC Harmonics* □

Amateur Radio makes the world that much closer. Get close to Amateur Radio; read **World-radio**.

Amateurs to assist Dept. of Forestry

Amateurs in San Bernardino County have been asked to assist the California Department of Forestry during wild land fires. 2-meter communications will be provided for reconnaissance from the fire scene to central headquarters. Logistical support traffic will be passed from the fire camps to headquarters. Message traffic will be accepted for the National Traffic System, from out-of-state firefighters.

Interested volunteers please contact, Thomas Markley, WA6IKH, 17400 Valley Blvd., #70, Fontana, CA 92335; or telephone 714-350-2194.

Santa-Vision 1980 was best ever

Joe Moell, WA6JFP

For the fifth year, Santa Claus appeared on hundreds of TV sets at St. Jude Hospital and Rehabilitation Center in Fullerton, California, and took the Christmas requests of pediatric and rehabilitation unit patients via Amateur Radio.

Santa-Vision 1980, on 18 December, was the best ever as St. Nick's "North Pole" headquarters was the spacious office of the hospital's Community Relations director, and an improved video distribution system allowed production of a 2-hour live program that was watched in its entirety by many of the patients.

Once again, Santa's elves came through with detailed information on each patient to fill his big red book. Santa knew the name and extra information about each patient as soon as he heard the room and bed number, much to the delight of everyone he talked with.

The most common Christmas request was, as one rehab patient put it, an "honorable discharge." Some, however, had more in mind. One little girl grabbed her coloring book immediately at the beginning of the TV program and found a blank page to write down her entire Christmas list, so she could be ready when the radio amateurs got to her room.

Even a comatose 4-year-old was visited. Santa gave best Christmas wishes and encouragement to the seriously ill youngster, much to the delight of his parents, who got a videotape of that part of the program to show him upon awakening. The boy has since recovered and gone home.

Santa and his crew also visited Children's Hospital of Orange County in the city of Orange, California, on 22 December. CHOC is a sister hospital to SJH&RC, but its master TV system does not include origination facilities, so Santa's visit there was by Amateur Radio only. □

Jack Lemaster, WB6ECB, has delighted patients as Santa since the TV program was pioneered at St. Jude's in 1976. Here he is in his North Pole office surrounded by a few favorite toys.

As he listened intently to the sounds of the cold North wind and the merriment of Santa's elves, this youngster had a lengthy chat with St. Nick. Operator is April Moell, WA6OPS.

A no-code license? Jim Brown, W6VH, objects strongly! But no wonder. As the recently-elected president of the Society of Wireless Pioneers, he has good reason to know the value of CW. And we have good reason to respect his judgement; he's had a distinguished career, even a judgeship.

As for code, he believes, "Every radio amateur should acquire proficiency. We never know when we'll need it. Besides, we should not hand out licenses on a silver platter, as it were. The knowledge of code has always been a matter of pride to amateurs — a sort of glue binding us all together."

The more than 3,600 members of the Society have all actually earned a living with CW, especially as ship or shore operators. They are dedicated to perpetuating the history and traditions of wireless telegraphy.

James Harvey Brown wears many different "hats". It all started in a high school electricity class in 1920, when he was inspired to earn a commercial ticket. He accomplished that the following year, then gained his Amateur Radio license early in 1922. "As you know, there wasn't even a W before the number 6 in those days." He had both 6BKI and 6VH, finally settling for the one: W6VH.

His dream of being a sea-going Chief Operator came true with passenger ships, such as the *Ecuador, President Wilson*, the *Harvard* and the *Yale*. Exciting times.

After 2½ years, he operated "on the beach" near San Francisco at KFS, the shore station of the Federal Telegraph Company. At first, there were spark transmitters. Later, they operated from Daly City, keying the big rig at Palo Alto which fed antennas on towers on the salt flats.

Streams of messages would flow from ship and shore alike. He would wear earphones, "cans," with 600 meters on one ear and 2400 on the other — monitoring both frequencies simultaneously and handling as many as 200 messages at a stretch. Of particular challenge were the Japanese passenger ships bound for South America but stopping at San Francisco. Hours of traffic would come in English letters but Japanese words!

Moving to Long Beach, he picked up a new cap, that of a disc jockey at KFOX. He ran the board and played specially-selected records every single day, seven hours a day, for 2½ years. Jim gathered a lot of Hollywood fans, (including Bing Crosby, as well as singer/writer Harry Barris, who became a good friend). Then he served many years at KFAC/KFVD, Los Angeles, arriving at NBC Hollywood in 1937.

Meanwhile, he'd been seriously thinking about still another kind of hat and finally took the plunge in 1934 by enrolling in law school in his "off hours." Diligence was rewarded in 1939 when he was admitted to the bar.

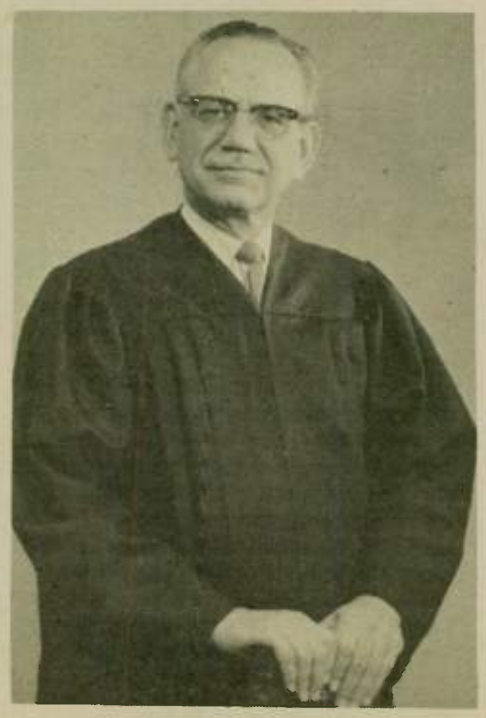
Across the street from NBC, he opened a law office but continued his work as an engineering supervisor. Jim even became president of the engineers' union, now known as NABET.

Everything was interrupted by the war. The Navy presented a new hat in 1943. He became a designer of Airborne IFF and radar beacons. But after peace was declared, he returned to NBC and his law practice. The latter won out, having become quite heavy.

His interest in his fellow man and his concern for civic affairs led to a big step. James Harvey Brown was urged to run for the Los Angeles City Council, a most important post. He served six years, representing the populous Hollywood area as well as a large section of the big city. One accomplishment was helping the city convert a crime-ridden slum into space for the great Dodger Stadium. It changed a costly area into a decided asset for the city.

Also, Jim chaired the committee which set up the city's centralized computer system as well as countless other vital projects. For instance, he was chairman of the State, County and Federal Affairs Committee which meant many trips to Sacramento, representing the city to the state government. Financial problems were also among his special assignments.

With such a rich background, it was not surprising when he was appointed to the Los Angeles Judicial District as a municipal judge in 1964. His experience was to be varied: years in traffic court, speaking with hundreds of citizens daily . . . long trials, such as a Laetril case in which his judgement was verified later by the U.S. Supreme



One of the many roles James Harvey Brown, W6VH, has filled in his life is judge.

Court . . . a long series of Black Panther preliminary examinations . . . and the typical heavy schedule of routine cases.

Even after retirement, he was called by the Department of Motor Vehicles to be special consultant for the new system of traffic trials, increasing efficiency.

Meanwhile, there was always that one important hat to wear as often as possible — the Amateur Radio operator. Proud of his ability with a key, he still divides his time between phone and code. W6VH always has "high and low" band mobile rigs so he can keep in touch with his many friends. "I've been so fortunate, I've had so many amateur 'neighbors!' Meaning, I've kept skeds with many close friends I've never had the pleasure to meet in person, plus so many long-time pals I can see frequently."

His attractive wife, Margaret, accompanies him to many club functions, such as those of the 50 Club (a group of professional people who are also amateurs), QCWA, OOTC, Morse Telegraph Club and other amateur groups. They also attend the prestigious events of the Pacific Pioneer Broadcasters. He is a former officer of the California Judges Association, as well.

Judge Brown retains his strong feelings about "the ballot box." He urges us all to take a greater interest in government matters.

"I particularly urge everyone to study propositions carefully, to read the literature received with ballots. Possibly but one person in five bothers to study these things. If you find yourself **uncertain** about a proposition — vote no! However, do take the time to learn the truth!"

W6VH's enthusiasm as an Amateur Radio operator brings us to the observation that we never know whom we'll meet next on the air in this Wide Wonderful World of Amateur Radio — our next QSO may be with a judge!

If so, you might pose the classic question: If I were really guilty, should I choose judge or jury? □

Info needed on Gernsbach book

Recently, we received a letter from Rev. Charles G. Denniston, W8TET, asking for information on books by Hugo Gernsbach. Perhaps some of you readers can help him out.

Rev. Denniston is particularly interested in one article written by Mr. Gernsbach about 40 years ago, about a small TRF receiver referred to as "the 12,500 mile receiver." Rev. Denniston said he read the article when he was building his own first TRF receiver, so followed the directions given in the article.

"I built it (the receiver) and enjoyed it," wrote Rev. Denniston, "but across the years, I have lost track of it and even the booklet I got it from. I have looked in vain for early books by Hugo Gernsbach that might have this article in it, but no luck."

If anyone does have information about this article or the booklet in which it can be found, you can write to: Rev. Charles G. Denniston, 216 South Ann Street, R. 1, Ashley, MI 48806. □

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OFF THE AIR

The Colvins return

15 January 1981

Dear friends,

We concluded our operation as FGØFOL/FS here (French St. Martin), today.

During our nearly one-month stay here, we — for all practical purposes — had this country all for ourselves as far as Amateur Radio is concerned. Operating all bands 10 through 80 meters, half CW and half SSB, we made 10,000 QSO's with amateurs in 149 countries. This is our best record for one stop since leaving the USA on 1 October last year.

Our very long call slowed things down a little — but the rare call more than offset that problem.

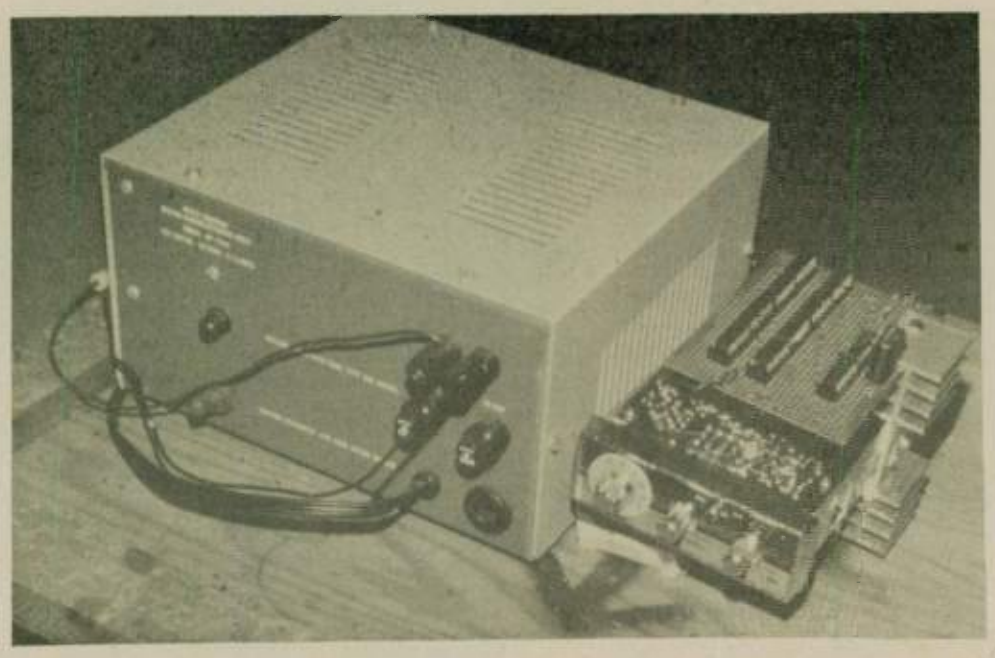
This place has been the most expensive of all the countries that we have visited. All French countries tend to be expensive, plus the fact that the period from Christmas through New Year is the very peak of tourist activity in this part of the world.

We found band conditions good, and we could generate pile-ups of stations wanting to work us at any time, on some band, during any 24-hour period.

We go next to Guadalupe, where we will operate under Iris's call of FGØFOK.

73 es 88

Lloyd Colvin, W6KG
Iris Colvin, W6QL □



Canadian 10-meter radio beam

Here is a picture of the 10-meter radio beacon VE8AA taken 10 November 1980. The location of this installation is Contwoyto Lake, NWT, just south of the Arctic Circle and a few miles west of Long. 110. This is about half-way between Yellowknife and Cambridge Bay. The site is a remote weather station.

The credit for establishing the beacon goes to Fred Toy, VE7HE, and Ron Kaye, VE7XR/VE8. Technical and operational details were supplied by G3DME, the 10-meter radio beacon who is the international coordinator. You will remember publishing an article by him in an issue some months ago.

The large unit on the left in the photograph is the 12V power supply. The transmitter is a converted CB set. Note the keyer and timer mounted on top. The antenna is a quarter-wave vertical drooping ground plane about 8 to 10 feet above ground. Power to the antenna is less than 10 watts.

Reports have been received from several continents, which proves what can be done with low power.

Reception reports can be sent to the undersigned for forwarding to VE7HE, VE7XR/8 and G3DME.

73

Al Miller, VE7KC/8
Penticton, British Columbia
Canada □

Let Worldradio know what you do in Amateur Radio, many others will be interested in your experiences

Remember those 'Spark Forever' days?

You might be interested in this picture of Station 8AIB, taken in the very early '20s. The licensee was Charles Fertick, later W8BQT. Housed in a backyard shack at 62 Vincent Street, Dayton, Ohio and operated by the following amateurs: Charles Fertick, 8AIB (SK); Clinton A. Petry, 8AWN (SK); Robert E. Baird, W9NN; and Allen E. Apple, K4ILX.

On the floor beneath the CW rig is a 1kW Spark set, Benwood Rotary gap, "Coffin" Transformer, 2-foot OT, 40-plate condenser immersed in oil, ½-inch glass plates. Antenna was 60 ft. L, 6 wires with fan type feed line. 4" OT coupling running 5-½ amps into ant. Best DX was a United Fruit boat off Brazil in late 1920, signing "DZ" . . . took till 1952 to confirm this when W9NN worked VP1AA, Belize, who confessed to being the operator at "DZ."

CW was pair 50 watt RCA, large chemical rectifier. RCA open inductance, resistance wire wrapped on piece of asbestos to drop filament voltage. Antenna matching by adjusting clips on the big induction coil. Homemade receiver used two variometers and a vario coupler, two-filament Audiotron detector tube feeding two VT2 amplifier tubes. A series variable condin receiver antenna line. Our ground system was an acre of copper ribbon obtained from old Dayton street car field coils.

Each of us had our own keys, phones, etc. Note the unique antenna change-over switch, 110 and 220 AC line on wall, stack of spark and CW QSL's. Faded pictures are of W9NN, 8AIB and 8AWN.

We two remaining op's, W9NN and K4ILX, would love to hear from any old-

timers who used to work us back in the "Spark Forever" days!

73,
Bob Baird, W9NN
Charter Member QCWA #52
60 Year Award

Canadian eager to see more VE stories

I didn't even know you guys existed until six months ago! I discovered your newspaper in August and have been anxiously waiting each month for the next edition! It is probable that my father, VE3LHS, and I will be life subscribers, but until something is definite, I look forward to the periodical at the local ham shop.

One comment regarding the paper, if I may. There seems to be a definite lack of Canadian news and I am wondering if very few VE amateurs submit articles. I would be very happy to see some VE submissions, if at all possible.

I look forward to the next edition.

73
Cyril Stanway, VE3IFS
Ontario, Canada

P.S. An addition to the "The fickle finger factor" (December, page 29). "He who is applying for an award is always one card short for that award, regardless of the number of QSO's had with that country, state, etc."

ED: Take note, all you VE readers. U.S. readers who have ever visited Canada could also submit Amateur Radio-related stories!

W5JJ Comments on pacemakers

Referring your query, page 53, about experience with heart pacemakers. I've had one implanted in my chest for 11 months. My radio activities go on as before: HF station that can (and sometimes does) run a full 2kW and a 144-MHz often sits on my operating desk, using an indoor antenna. And my YF uses a microwave oven! All these are with the blessing of the doctor, who implanted the pacemaker.

He did warn me of one no-no: don't lean over a car engine when it's running! That is, don't lean over the engine compartment with the hood up. The RF from the spark-plugs raises havoc with pacemakers. I even avoid being too cozy with motorcycles, but do run my power lawnmower with no ill effect. I hope this lays (to rest) some of the wild fiction that gets flung about by those who like to stir up anxieties.

73
Carl Drundler, W5JJ
Warr Acres, Oklahoma ☐

New Zealander thanks U.S. amateurs

I have visited the United States several times and with the kind help of the FCC, always operate ZL1BAK/W. I have had many contacts on 2 meters.

Through the columns of your magazine, I have always received the utmost courtesy and kindness from everybody, especially radio amateurs and their wives. Highlights of my visits have been operating mobile from Greyhound buses from the West Coast to the East Coast. Also, operating from the Queen Mary with the kind help of my friend Nate Brightman, K6OSC, and the Long Beach Radio Club.

With all the goodwill in the ham fraternity, I feel rather sad that in one area we seem to fail miserably. Often, when the OM passes on, wives seem to lose some of the friends and involvement that had existed. As a widower, I know the pleasure that my XYL had meeting and talking to friends around the world. Sharing my hobby was a pleasure to us both. It is a pity that widows cannot continue to enjoy these happy associations when left alone — a time when help is needed.

I appreciate my hobby more than ever because of these friendships. Perhaps if somebody has the answer, they will rush to have it printed and share the solution with us all.

I send greetings to all your readers — amateurs and their loyal wives everywhere.

Yours sincerely,
Denny Burrage, ZL1BAK/VK5WY/ G4GUU/W6/W4 portable
11 Bannister Place
Avondale, Auckland, New Zealand ☐

Silent Key

Mrs. Bertine E. Leach of Elsinore, California, wrote to us recently to inform us of the death of her husband, Frank Kenneth Leach, W6CXH. Mr. Leach turned 80 just seven days before his death, which occurred 8 November 1980. He had been an Amateur Radio operator since 1917.

Mrs. Leach said she just wanted us to "let his many friends know". Our sympathies are with you, Mrs. Leach, as are those of the many amateurs your husband contacted during his years on the airwaves. ☐

American Radio Relay League

J.A. "Doc" Gmelin
W6ZRJ
Past Director, Pacific Division, ARRL
Honorary Vice-President

While operating recently on a local 2-meter repeater on my way to work, a station called and asked me if the ARRL's proposal for expanding the 40-meter phone band was causing any controversy.

Well, I had just read the editorial in December 1980 QST by David Sumner, K1ZZ, on this very subject (and also several letters to the editor), so I knew that indeed there is some difference of opinion as to whether or not the 40-meter phone band should be extended.

In this particular proposal, which was passed at the July Board of Directors meeting in Seattle, the plan is to open 7075 to 7100 kHz to Extra Class phone operation. Since this would probably take away a large chunk of CW space now open to General and higher class, a related proposal is that the new 50 kHz band at 10 MHz be open for only CW and RTTY operation when these frequencies do become available.

Having been involved with phone expansion proposals since the late 1940's and the first incentive licensing proposals, I do know how controversial such proposals can be. The fact of the matter is, phone band expansion is a complex issue involving much more than just a need for more phone frequencies.

In the case of the proposed 40-meter phone expansion, the proposal is no less complicated than other proposals over the years, and in fact, may be more complicated than any of those previously made.

The problem is that frequencies available on the 40-meter band are not the same throughout the world—not only in regard to frequencies intended for phone, but in terms of the extent of the available 40-meter band itself.

When I became an active amateur in 1947, the 40-meter band extended from 7000 to 7300 kHz, pretty much worldwide. That is, while some countries did not give their amateurs the full extent of this band, at least part of the band was not shared with high-power broadcast stations. However, at the World Administrative Radio Conferences of ITU during the past 35 years, a few amateurs have lost the use of a large part of this band.

As a special note: amateurs have, generally, not lost frequency space, although some amateurs have lost the use of part of the 40-meter band. This is partially due to the fact that, even though amateurs worldwide have lost some portions of the spectrum, they have gained other portions. One example is the 15-meter band, 450 kHz wide, which we gained in the early 1950's.

Amateurs in the United States have continued to have use of the full 300 kHz of the 40-meter band, which is something of a victory considering the international pressure to give the band to the broadcast service.

However, this has been something of a hollow victory for two major reasons: much of the band is shared with high-power broadcast stations, and amateurs in many other countries cannot work on the band above 7100 kHz. So, in effect, the 40-meter band world wide is only 100 kHz wide—from 7000 to 7100 kHz.

The band from 7100 to 7300 is usable during the day, but at night, when the skip opens, the QRM from the high-power broadcast from other parts of the world makes it difficult—if not impossible—to work even U.S. stations.

The top end of the band has been available for U.S. voice operation for several years. The U.S. amateur can now operate phone from 7150 to 7300 kHz. Novice CW operation is permitted from 7100 to 7150 kHz, but amateurs in countries that allow amateur operation above 7100 kHz, only allow voice operation up to the 7150 kHz frequency segment.

What is the extent of the band worldwide? In ITU Region 1—mostly Europe and Africa—the band runs from 7000 to only 7100 kHz. In Region 3, which is mostly the Far East and Asia, the band varies from a limit of 7100 kHz to 7150 kHz and higher.

It is only in Region 2, North and South America, that any countries allow operation to the full 300 kHz we enjoyed when I first became a radio amateur.

And it is only in a few countries—i.e., the United States and Canada—that there are any sub-band allocations at all. In most countries, phone is allowed over the entire band.

However, phone operation is not found throughout the band. By agreement among amateurs, there are sub-band allocations—at least for phone and CW.

So what is the problem with the 40-meter band, which has led to the cry about extending phone band operation in the United States? After all, there is now half the band (7150 kHz to 7300 kHz) for phone and half (7000 kHz to 7150 kHz) for CW.

The problem has to do with a desire to work stations in other countries, although few amateurs in other countries can work phone in the U.S. phone segment. In fact, most countries can't work on the U.S. phone frequencies at all, as explained above.

This has led to the plea to give U.S. phone operators at least part of the worldwide segment from 7000 to 7100 kHz for phone operation, so that we will no longer have a need to work DX on phone as a split-frequency operation.

As a friend of mine once put it, "We can then work the DX right on 'their own' frequency."

U.S. amateurs will probably never be able to always work phone DX on "their own" frequency unless the entire limit of all bands is open to U.S. phone operation. DX stations will sometimes work on the same frequencies as U.S. amateurs when using phone, but they often avoid U.S. phone frequencies because the QRM is so bad.

When I first became a Director of the ARRL, I was asked by DX operators to try and eliminate the "unfair" advantage Canadian amateurs seem to have in phone operation, since the Canadian phone bands extend farther than U.S. bands. It was hoped U.S. amateurs would be given at least the same phone bands as the Canadian amateurs.

I discussed this problem with Noel Eaton, VE3CJ, then Canadian Division Director and now President of the IARU and International Vice President of the League.

Noel is a real gentleman and statesman whom I have come to respect a great deal. He politely told me that the sub-bands Canada gets will be decided "by Canadians" and not by the wishes of U.S. amateurs. After all, Canada is a sovereign nation.

This has proven to be the case over the years, since in every case where the United States has extended their phone bands, Canada has made an equal expansion, enabling them to have a phone segment free from U.S. amateur phone operation.

This is also true in most other countries of the world, and will always be the case unless U.S. amateurs are given the entire extent of each band for phone operations. Foreign amateurs want some phone bands free of U.S. operations.

The fact that foreign amateurs operate in what we might call the U.S. CW band is what causes controversy regarding the League's proposal to extend the 40-meter phone band.

So much foreign phone operation is now found in the segment 7075 to 7100 kHz,

that U.S. CW and RTTY operators are having a difficult time in this segment. In effect, the CW band really runs 7000 to about 7075 kHz, if we consider that the Novice segment 7100 to 7150 kHz, should be used for Novice operation rather than General CW operating.

And when one considers that the bottom 25 kHz of the band is for Extra Class only, then General and Advanced Class amateurs only have about 50 kHz of really usable space. Part of the cry about the proposed phone band expansion is that if the expansion is made, then 7000 to 7025 kHz should be reopened for General and Advanced Class operation.

If the segment 7075 to 7100 kHz is opened for U.S. phone operation, the General Class and Advanced Class U.S. amateurs will be left with only about 25 kHz of usable CW frequencies, 7025 to 7050 kHz.

What about 7050 to 7075 kHz? That's where the foreign phone will move in order to avoid U.S. phone operation. Oh yes, DX stations will often work in the U.S. segment, but when DX wants to work DX, they often have to avoid U.S. phone segments, because U.S. amateurs will, in many cases, not let DX stations alone.

This is due to the fact that there are far fewer DX stations then U.S. stations; thus, it is more difficult for U.S. stations to work DX stations than it is for DX stations to work U.S. amateurs.

What about the new 10 MHz band? Well, there is some talk that the band should be for Extra Class CW only. That won't do much for the General and Advanced U.S. amateurs.

Determining U.S. sub-bands is not easy. There are many other factors which should be considered, and we will do so next month. □

Let Worldradio know what you do in Amateur Radio; many others will be interested in your experiences.

ARRL announces

Labre, the IARU Society in Brazil, announced a new 6-meter beacon for propagation and research purposes. PY2AA operates on 50.055 MHz at 25 watts output power to a ground plane antenna. Reception reports will be appreciated and should be sent to: PY2AA Beacon Project, P.O. Box 22, 01000 Sao Paulo SP, Brazil.

— *The Harbor Beam, Michigan City, IN* □

Malicious interference

Fred Holler, Jr., W2EKB

I received a letter from the ARRL recently, written by Hal Steinman, K1FHN, who is apparently a member of their Interference Task Force. He states that the problem of malicious interference, in many cases amateur-to-amateur and not RFI, has reached serious proportions. I brought this letter to the attention of the Board of Directors, as reported in recent meeting minutes.

They suggested that I contact the FCC Engineer-In-Charge, Ennis Coleman, with whom I am acquainted, in order to determine what course of action we at SJRA should take. Ennis told me that his field staff, backed up with some sophisticated mobile equipment, have had good success in tracking these people down, but that they would appreciate the following information on any malicious interference:

a. Frequency
b. Time of day
c. Approximate length of transmissions
d. Type of interference — music, profanity, carrier and stupid noises.

He asked that any SJRA member call his office at (215) 597-4411 and report incidents as they occur. I am sure he would also appreciate any line-of-bearing data (of the direct signal in case of a repeater, naturally).

Do not act as a policeman even if you locate such a person in the act of interference; make a full report. Ennis has plenty of U.S. Marshals at his disposal and he will handle that.

Harmonics, New Jersey □

Here's how the Russians handle interference

Officials from the 104th Militia Detachment of Moscow and the USSR Ministry of Communication inspected the illegal radio station of an individual calling himself on the air "The Inspector." N. G. Gutorov had been broadcasting music on 1700 kHz and below and had "impolitely rebuffed an invitation to go to a radio club to learn Amateur Radio." (Russia's CB band is located near this frequency.)

He was sentenced by the Tushinskiy Rayon Court (Moscos) to five years in prison. (Translated by Dex Anderson from USSR "Radio" Magazine.)

— *W5YI Report (Linear Lines, South Carolina)* □

Seeing double?

If you should receive duplicate issues some month, and one of them has only your name, call and address, and no computer number, you have been selected to pass the extra copy on to a ham who may be interested in seeing the paper. Pass it on.

STATION Appearance

This month's award of a one-year extension of a reader's **Worldradio** subscription goes to Larry F. Lewis, KØRI. He tells us his story.

"As you might be able to gather from the picture, my interests in Amateur Radio are really varied.

"I operate all bands from 160 through 432, with the exception of 6 meters, which I swore off a long time ago. The HF transceiver, out of sight behind me, is a Ten-Tec OMNI. With the Dentron Super-Tuner next to it, I am able to erect some sort of an antenna system for all the HF bands, no matter what conditions I find as I move around during my military career.

"The Ten-Tec Argonaut above the antenna tuner is used on HF QRP at home or in the car, and serves as the exciter/receiver for VHF transverters on 144-220-432 MHz. Also pictured are amplifiers for 144 and 432 and some additional VHF gear.

"One of the handiest pieces of gear in the shack is the Autek keyer that is located under the lamp. This keyer sure saves a lot of wear and tear on the arm when running meteor-shower schedules on CW. Incidentally, all the QSL cards pictured here are from 2-meter operation from California or southern Georgia. This brings me to the two things I like best — 80-meter ragchews in the Novice band and the study of VHF/UHF propagation.

"As you can tell by the snappy way I am dressed, I am a captain in the Marines. I have been here in Monterey for about two years after returning from Japan. While here, I have been in school working on my Masters degree and am about to wrap up my thesis on the study and prediction of VHF/UHF ducting over water. Come the end of March, I will pack up everything and move to the Washington, D.C. area for my next assignment.

"Not pictured, because she is the one who took the photo, is my XYL — Bonnie, WAØMKS — who has been too busy lately with the kids to spend much time on the air.

"Thank you very much for putting together such a fine publication each month. It truly reflects the diversity of interest and the special sense of brotherhood that all amateurs share."

Regards,
"Lou" (Capt. Larry Lewis, USMC), KØRI
Monterey, California

Editor's Note: While a correspondent in Viet Nam in 1966-67, much time was spent with Marine units. The spirit and ability of the Corps is not just legend but reality. On occasion, the press reports on thoughts in Congress to abolish the USMC. Such is proof positive of the lack of awareness of most politicians. We're very pleased to have a Marine captain among our readers. N6WR) □

17-year-old earns Extra Class license

Submitted by Joseph Plesich, W8DYF, Counselor

Mike Williamson, 17, a senior at Toronto High School has recently passed the Amateur Radio Extra Class examination which was administered by an engineer from the Federal Communication Commission in Pittsburgh.

To qualify for the Extra Class license, Mike, WD8PPA, passed a rigorous test in radio theory and a 20 wpm Morse Code test. There are only four other Amateur Radio operators in the Steubenville-Weirton area who hold this license, and of these, Mike is the youngest.

Mike is a member of the Steubenville Area Amateur Radio Club and the Amateur Radio Emergency Corps. With all his interest in radio, he has not neglected his school work. He ranks near the top of his class and has recently been the recipient of the Bausch-Lomb Award for excellence in science.

Mike is the son of Mr. and Mrs. Richard Williamson of Toronto, Ohio. He plans to attend the University of Akron and major in engineering. □

Mike Williamson, WD8PPA, operates a 2-meter handi-talkie.

Helvetia Award

Only contacts made after 1 January 1979 have validity in sending for this new, attractive award.

Mail your list and confirmations for each of the 26 cantons worked on CW and or Phone, RTTY or SSTV to Award Manager: Walter Blattner, HB9ALF, P.O. Box 450, Locarno 6601, Switzerland. □

W8BI to award certificates

Special Event Station W8BI will be operating from the Dayton (Ohio) Amateur Radio Association's communications van on hamvention days 24-26 April 1981. Special Dayton hamvention certificates will be sent to anyone contacting W8BI, as long as a large stamped envelope is sent along with QSL.

QSL's should be sent to: W8BI (Special Event Station), P.O. Box 44, Dayton, OH 45401.

Frequencies on which to work W8BI are:
Friday, 24 April 1800-2200 UTC
Saturday, 25 April 1400-2200 UTC
Sunday, 26 April 1400-1800 UTC □

Quarter Century Award is now available

The Quarter Century Award (QCA) is being reviewed by the British Amateur Radio Teleprinter Group, and is now available to any amateur or SWL (not necessarily a BARTG member) who can provide evidence of having worked/heard 25 different countries using the RTTY mode. The status of a country is determined by either the ARRL DX list or the Geoff Watts DXNS listing.

A contest entry for the BARTG Spring RTTY Contest can be accepted instead of waiting for QSL cards to arrive. There were over 50 different countries active in the 1980 contest. Endorsement stickers are available for attachment to the original award. These go up in steps of 25 countries as far as 200, although so far, no one has reached this magical figure.

So have a hard look at those QSL cards most of us have tucked away out of sight. For full info on how to apply for the award, send a SASE to the Contest and Awards Manager, Ted Double G8CDW, 89 Linden Gardens, Enfield, Middlesex, England, EN1 4DX.

— Canadian AR Teletype Group, Ontario, Canada □

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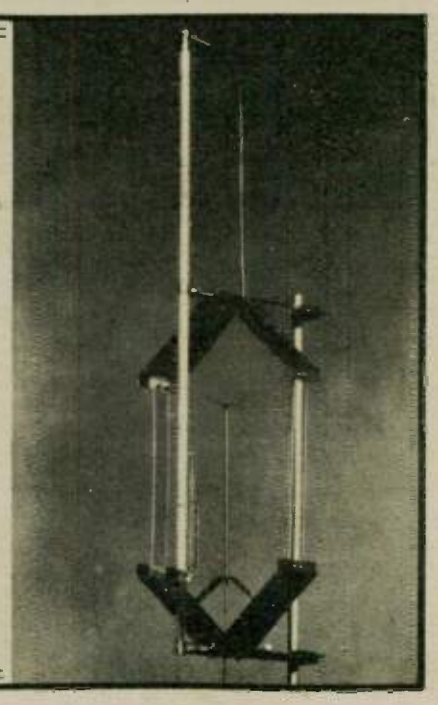
send NEWS and PICTURES to
Worldradio



Happy Flyers

HAMS & PILOTS

SERVICE

"THERE IS NO LIMIT TO WHAT YOU CAN DO – IF YOU DON'T CARE WHO GETS THE CREDIT"

INTERNATIONAL COMMANDER, Hart Postlethwaite, WB6CQW
1811 Hillman Ave., Belmont, California 94002 (415) 341-4000

International Vice Commander, Paul Hower, WA6GDC
Box 2323, La Mesa, California 92041 - (714) 465-5288

ELT repeater monitor

Our first two columns in 1981 have carried information designed to interest you and your group to install an Emergency Locator Transmitter (ELT) receiver at selected repeater sites. We first attempted to provide some background and show the need. Last month we asked: "Is a life worth saving". It is hoped that the discussions and observations on the value of a life (even someone we do not know), have whetted your appetite and that the information this month will be acted upon by many amateurs, anywhere the ELT is in use.

A quick review is in order for those who did not read the previous articles. The ELT was mandated by Congress (rather than the FAA). Rumor has it that this law was influenced by the death of some flying legislators. In any event, the little impact-activated transmitters are now required in all U.S. piston-powered planes, with very few exceptions. The law requiring these transmitters was enacted quickly enough that the first group of transmitter specifications contained numerous problem areas. Some were obvious in a very short period of time. The most famous was probably that of batteries that corroded. When this conductive corrosion spread onto the printed circuit board, it provided a path to turn on many brands of ELTs. The result was about 6,000 ELT activation reports on planes that were later found on airport ramps. Although the FAA issued orders to correct that problem, the damage to the Search and Rescue (SAR) community has been almost irreparable. The FAA began to turn the volume down on their monitors (off in some areas) on the 121.5 meg International Distress frequency. We then lost the ability, in numerous areas, to call Mayday via voice and receive the almost instant answers we were accustomed to. Thus, that which was intended to be an aid to safety, became a loss to the pilot and flying community in another area.

A second disadvantage was that the SAR community (nearly all volunteers) was plagued with increased calls for their services to locate and silence these false alarms at airports. When one realizes that these volunteers are called away from their jobs for SAR, it is easy to see the problems which could arise with your bosses. Instead of a call-out every couple of months, some areas had calls every two weeks or less — in some areas, almost daily. The natural reaction was distrust in the reality of the need to respond to a call-out during a work day. I know of areas where the person in charge of locating a crew to look for the ELT had many on the list with notations not to call them for ELT searches.

In addition to the nuisance of being called out for a "false alarm", there was also the frustration of not being able to locate these troublesome VHF low-power (100 milliwatt) transmitters. Sometimes these little transmitters would continue until their batteries ran down. Many disappeared before anyone could track them down. When I saw the statistics from Scott Air Force Base for the first year's average time to find (42.5 hours each), I was astounded! I could not imagine, as a radio amateur who had participated in hamfest "T" hunts, how it could possibly take anyone 42 hours to find such a low-power transmitter. I wrote an article once where I stated that I thought most any amateur could "walk" and find the transmitter in less time than that (assuming he was placed at a point where he could hear it). How far can a less than 100 milliwatt transmitter be heard on the ground?? Those using a full 1-watt hand-held 2-meter transmitter know the limitations of attempting to carry on a simplex conversation with another 1-watt hand-held. They may work repeaters in great fashion, but more power is usually desirable for reliable simplex operation. Even in an airplane, 42 hours was a ridiculous length of time.

A quick explanation for the non-flyer. According to a computer, the free space attenuation of a 100 milliwatt transmitter — into a 10 microvolt receiver (average for aircraft receivers of the time), with antennas theoretically connected directly to the transmitter and receiver, (no coax losses calculated) — was slightly over 350 miles (theoretically). Naturally, this figure was affected by anything that might interfere with the path. Thus, a clear shot to an airline plane could be that distance. If we take into consideration that the speed of a jet nears 600 miles per hour, we find it would be unusual to hear the signal for longer than 30 to 45 minutes. In planes we normal people can fly, we do not normally fly at those high altitudes necessary to receive a clear shot VHF signal at maximum distances. So, we have found that seldom can a normal single-engine search plane hear an ELT for over 30 to 45 minutes. HOW COME THE 42.5 HOURS??

This type of logical comment of scepticism of the long "find times" brought me numerous complaints from some quarters of SAR. The answer was, of course, to become involved and help solve the problem. (Am presently a captain in the Civil Air Patrol, a search pilot for the San Mateo County Sheriff's Air Squadron, a member of the National Association for Search and Rescue, and Electronic Search Coordinator for the Western States Association of Sheriffs Air Squadrons.) As far as we know, no one we have trained has ever taken longer than an hour to locate the source of an ELT after hearing it. Regular **Worldradio** readers will remember the life-saving flight of non-amateur Grady from San Diego who located the downed aircraft from 12,000 feet, above a completely fogged-in hilly terrain. I understand the helicopter pilot I trained (along with the hundreds of New Zealand amateurs) when I visited ZL land as their convention speaker, is now able to fly directly to ELTs and can even "hover" over the falses on airports — for rapid location.

I will not go into detail on other areas that might be wise to improve in future ELT design requirements, but changing the down-swept tone alarm for a constant frequency tone is one thing worth considering. The first obvious assist it would provide is that of tone alert capabilities. This would allow for special alarm receivers that could not be turned off at sites. Secondly, since the ELT operates AM, a constant tone will produce a more constant RF signal for DFing. I have modified the one used by the sheriffs in the California area to produce the constant tone and found it much easier on wing fade DF techniques.

Implementation of ELT monitoring

As we provide you with the following information, it should be remembered that many ways are possible. A number of methods are already in use, installed by concerned amateurs who never heard of HAPPY FLYERS. Whatever method you use, it will be greatly appreciated by the person whose life may be saved as a result! Any variation of our suggestions that works for you, would be greatly appreciated as information by all of us. Please drop us a line, or send your own article to **Worldradio.** This can be the bulletin for ELT monitors. In establishing your own monitoring system, we would like to bring some thoughts to your attention.

1. Coordination with the proper SAR agency for your area is imperative for you to become a truly valuable part of locating ELT transmitters. Since most of SAR is done by volunteers, the response you receive may vary considerably in many areas. Most will be very happy to have you aboard. If you find the rare case where you are met with discouraging words and/or attitudes, please drop a line to our Vice Commander Paul Hower so that we can attempt to be of assistance. In order for your ELT monitor and alert system to do a really valuable job, it must be worked into the existing system in your area. If none exists in your area, the local FAA flight service station will no doubt be happy for your report and will be able to place it into the established SAR reporting system with Scott Air Force Base.

2. Carefully choose a monitoring method that will fit with the type of membership of the repeater organization. If a repeater is comprised of users that are mostly pilots and flyers, there will be a different level of interest than on a repeater that has not a single pilot or light plane passenger. Rick Goodman's (W5ALR) group in Albuquerque, New Mexico found that re-broadcasting the ELT on the repeater brought complaints from repeater users not interested in flying. In view of the fact that the law allows for ELT transmitter testing the first five minutes of every hour, one can easily see that any system which does not allow for that could hear a number of ELT signals daily.

3. Install some type of delay system into your plans so that normal voice transmissions, and short ELT tests, will be ignored.

The simplest method is to find a point in the receiver where a voltage goes either up or down, whenever a signal is received (effectively a COR pick-off point). You can then connect that voltage change to a simple timing circuit, such as a 555 timer. We used a circuit that turned on the timer whenever this voltage change occurred. We had it set to operate in the astable mode with about 10 minutes in one condition and about 10 seconds in the other condition. In this manner, when either a voice transmission or an ELT signal appeared, the timing would start. No one talks continuously on the International Distress frequency for 10 minutes, so when the person drops carrier to hear an answer, the timer also drops and resets. If an ELT comes on and remains for longer than the 10 minute lock-out time, it will enable whatever functions you have connected to your repeater system. Even a stuck microphone will activate your system and allow trained DFers to help the FAA locate and silence that problem.

4. Choose some reasonable alarm methods for your particular situation. We originally recommended transmitting a 2,000 cycle tone down the repeater at a reduced deviation level during the 10-second portion of the astable timer circuit. (We suggested 200 cycles for those who did not wish to bother others on the repeater when an ELT was heard.) We picked the 20,000 cycle tone because it was a non-standard frequency, and therefore could be used nationwide without interference to other signalling tones already in use. At this point, we are more concerned with getting systems installed, than worrying about the exact frequency. That could easily be changed and standardized in the future. We choose 200 cycles for the sub-audible range because it was one-tenth of the other and easy to remember. Whatever frequency you choose should be a continuous tone, rather than a downswept tone such as the ELT transmits. This will provide absolutely false-free alarm systems for any interested parties.

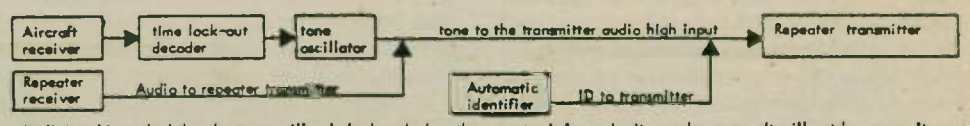
Next month, I will provide the schematic for what we call a "Silent Monitor" that was designed years ago by myself, Jim Williams, K6HIO, and Bob Broadway, WA6CZJ. It, too, has a built-in delay circuit so that it will not false on voices, or even on the correct tone, unless it exceeds the minimum duration for activation.

5. Consider adding the "command capability" to actually listen to the 121.5 receiver at the site, either on the repeater itself, or on the down link control system. In this manner you may offer information to the local search group as to the signal strength at your site as compared to the signal strength at another repeater monitor site also hearing the ELT. This will provide a quasi-type of DF for highly trained SAR personnel to eliminate the airport "false" possibilities in the shortest period of time. As an added assist, you might like to enlist the aid of repeater members who live within listening distance of a specific airport (or a non-amateur friend living nearby), who would volunteer to buy or use a donated cheap $20 hand-held portable aircraft band to see if the repeater-heard ELT is at their nearby airport. With a pre-arranged system, every airport could be checked out within 15 minutes. If the ELT is not heard at any airport known to be heard by the repeater, action by appropriate SAR agencies is in order. SAR vounteers are more prone to respond when told that all airports have been checked and are silent.

6. Plan to have a pilot help you by going to each airport you suspect is in your repeater listening range, and run a test to the repeater receiver.

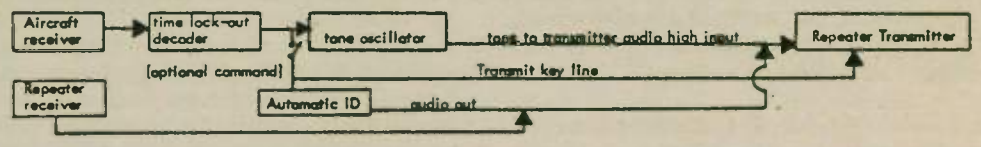
I can see that I am now beginning to run out of space for this month's column. I have much more that I want to share with each of you. I will continue next month with more details. I have included with this month's column, block diagrams for two methods of setting up your system. Two methods became necessary because we receive letters and phone calls stating concern for the legalities involved with rebroadcasting ELT signals. We never suggested using rebroadcast signals for the alert portion of an ELT monitor program (for reasons already stated). The question raised was that of having an Amateur Radio transmitter at a repeater site activated by a transmitter from another service outside the amateur band. Frankly, international law provides for and allows great latitude for handling emergency transmissions. An ELT is very definitely an emergency transmission, and therefore will effectively supersede restric-

BLOCK DIAGRAM OF TONE ALERT ONLY DURING NORMAL REPEATER UP TIME.



Utilizing this method the alert tone will only be heard when the repeater is in use by its regular users. It will not key up on its own.

BLOCK DIAGRAM OF AUTOMATIC KEY AND ALERT.



These two block diagrams are the first in a series of block diagrams and schematics to be published in the HAPPY FLYERS column, to aid those interested in ELT monitor and alert installations for their local repeaters. See this month's column for explanations.

tions when necessary; even a false alarm is an emergency since it cannot be determined if it is, in fact, a false until located. For those purists who are concerned with receiving a complaint for their public service work from their local FCC district office, it is easy to install a system that does not "key-up" your repeater. However, in this day and age of flagrant jammer "key-ups", I doubt seriously if any FCC office would cite you for attempting to save lives.

Honoring CAP Net Control Stations

Pictured with this column, is Lt. Col. Helen May of the California Wing, Civil Air Patrol. This dedicated lady provides communications for one of the largest Wings in the United States. She is a volunteer, as are all CAP members. She has bought all her own equipment at considerable expense. (I have found most CAP communicators pay far too much for their equipment in areas where they do not have a ham/also member to help them find good deals on used equipment.) She also buys her own uniforms, and pays for many trips to Group Headquarters and Wing Headquarters, as well as the trips to search bases and conventions required of someone in her position. Her station contains HF equipment for low frequency band long-distance communications, VHF FM simplex and repeater use, a special 26 meg CB type frequency, teletype receive and transmit, special tone-paging capabilities to call out special types of personnel, special repeater access tones, etc.

Her dedication to duty (and that of her other staff of volunteers) is almost unbelievable. From dawn to the wee hours of the night, you can place a call to White Bear 116, and you soon receive an answer. She is efficient beyond description. When she accepts traffic from someone, you can depend on having it handled so that you never have to worry about it. In all my years of listening to the CAP frequencies, I have never heard her respond in an unfriendly manner — even to new operators who obviously interrupted important things she was doing, just to provide an unnecessary signal report on their new rig.

The flying community is much safer due to the work of hundreds of CAP communicators, who donate their time and money in an attempt to provide whatever assistance they can to aid in Search and Rescue. The HAPPY FLYERS wishes to honor Colonel May and all the others like her for their dedicated and unselfish work for humanity. Any OM, XYL or YL who would like to help in their local area will be greatly appreciated. □

Lt. Colonel Helen May of the California Wing CAP, is the Net Control Station for the state. She donates hundreds of hours per month in the humanitarian and life-saving efforts of Search and Rescue. She is honored in this month's HAPPY FLYERS column. She operates HF, VHF, FM, teletype, etc. as Air Force tactical call sign White Bear 116.

McCoy

(*continued from page 7*)

zoology. Being an extrovert, he went into the entertainment buisness as a professional magician. As an Amateur Radio operator (then as a hobby) he was net control for the Missouri emergency net and was SCM (Section Communications Manager) for the state of Missouri.

In the late 1940's, the ARRL decided they were too CW-oriented, and looked around for a young amateur to become Assistant Communications Manager for Phone. Lew got the job, and when he reported for work in 1948, found out about that CW orientation! His first assignment was to take charge of code practice on W1AW!

Lew speaks highly of the three men who were the technical leaders of the League then — George Grammer, Byron Goodman, and Don Mix. "I was tutored by those three men, and in my opinion, they were the greatest brains in Amateur Radio to work for one organization. They pioneered 'single signal' reception, later known as SSB. All of the major improvements in Amateur Radio (of that day) came from those three men."

Lew was going to quit his job as Phone Manager when a technical job opened up at the League. He convinced George Grammer that his entertainment background and ability as a public speaker could be of help on the technical side of the house. He got the job and went to all the (then 48) states to lecture on TVI. Soon afterward, the Novice Class license came into being and Lew was made Novice Editor of QST. On this job, he quickly discovered that amateurs didn't know how to make antennas work. That's when he became an authority on antennas. "I've lost track of all the articles I've written on antennas," he adds.

Lew retired two years ago, after 30 years with ARRL. He says that as of the middle of 1981, he will be completely clear of the ARRL, and will be living on his pension.

He plans to resume writing, and we're sure the Amateur Radio fraternity is looking forward to his works! □

Maier's law — If the facts do not conform to the theory, they must be disposed of.

Patty Winter, N6BIS — a San Francisco reporter — is shown helping out during the JPL Commemorative.

Voyager I Saturn Fly-by Commemorative QSO Summary

NAME & CALL	80 CW	75 PH	40 CW	40 PH	20 CW	20 PH	15 CW	15 PH	10 CW	10 PH	2 SSB&FM	1¼ FM	TOTAL QSOs
Apel, Warren K6GPK				4		106				6	3	25	144
Bastow, Jay K6CV			6		2		4	140	2	26			180
Brokl, Stan N6YQ	14		96	1	57	222	129	262	85	129	1		996
Chalfin, Norm K6PGX											58	6	64
Diem, Walt WA6PEA						18					31		49
Goodwin, Paul KO6D											8	1	9
Hansen, George KD6FL			2										2
Hartley, Booth N6BH		5				47							52
Holladay, Jay W6EJJ								6					6
Johansen, Carl WB6DLK				5		52				48			105
Johnson, Sid WB6VWH											204		204
Johnstone, Randy WB6QWR								41					41
Kovatch, Jason N6BCI			1						1		23		25
Longthorne, Jim WA6KPW											5	18	23
Lumsden, Jim WA6MYJ		2				122		29	2	168	42	1	366
MacMedan, Merv N6NO		12	35		142		81		8	3		1	282
Mason, Pete N6BBP								15					15
McKinney, Eileen KA6DGV											6	54	60
McKinney, John N6AVW											37	4	41
McKinney, Rick KA6DAN											93	57	150
Morris, George W6ABW		5		6		820		90	1	924	37	3	1886
Patzold, Jack WB6TXG									1				1
Piety, Dick K6SVP						334		238		227		5	804
Repar, John WA6LWD											12	1	13
Sander, Stan N6MP							20	23					43
Schaefer, Mark WB6CIA			32	2		209	9	110			6	1	369
Simmons, Clint WB6DPE											23		23
Stapleton, Mimi WA6CWR						25					57		82
Stapleton, Brian W6LZP		3		226		192	1	189				40	651
Wallin, Betty KD6CY						115		100		2	118	1	336
Walsh, John D. KI6C				10		116	6	282		114			528
Walsh, John V. N6UK						22	1	287		80		2	392
West, Ralph N6YM						11		32	9	171	4	1	228
Winter, Patty N6BIS											1		1
Zenone, Ron W6TUZ								12	2				14
Zygielbaum, Art WA6SAL		7		85		257		60		34		2	445
TOTALS:	14	34	172	339	201	2668	251	1916	111	1932	769	223	8630

Voyager Flyby kept amateurs busy

Norm Chalfin, K6PGX

Thirty-six of the members of the JPL Amateur Radio Club were kept quite busy, as attested by the chart accompanying this article when operating the JPL Club Station W6VIO during the Voyager I Saturn Flyby Commemorative. 8,630 contacts were logged during the operation. Most of these were made on 20-meter phone; a great many of the phone contacts were SSTV transmissions in which pictures of Saturn were sent out and acknowledged from around the world.

A crew of at least a dozen more were involved in the refurbishing of existing antenna structures on the club's antenna farm and the installation of additional antennas to increase the range of the stations in the W6VIO shack and the bands on which the stations could operate. Jim Lumsden, WA6MYJ, organized the antenna party.

George Morris, W6ABW, who was 1980 JPL ARC president made the largest number of contacts, individually, totaling 1,886. Stan Brokl, N2YQ, who is the Section Communications Manager for the Los Angeles District, Southwest Division of ARRL, was second with 996 contacts. Dick Piety, K6SVP, who was coordinator for the commemorative operation, was third with a total of 804 contacts — most of which were the SSTV contacts.

Merv MacMedan, N6NO, attributed the success of the operator organization to a "training session" he conducted prior to the commemorative activity, so that all the participants would have first-hand operating experience with the equipment in the shack.

One of the more interesting facets of the operation was the participation of the wives of the club members, including Eileen McKinney, KA6DGV; Mimi Stapleton, WA6CWR; Betty Wallin, KD6CY (Mrs. John Walsh); Patty Winter, N6BIS — a reporter who was covering the Flyby for a San Francisco-based publication — added her effort to the activity. □

Space shuttle launch day activity

Carl Zelich, AA4MI

The Space Center Amateur Radio Society station, WB4ICJ, will issue a special certificate to commemorate the launch of America's first space shuttle "Columbia" from the Kennedy Space Center in Florida.

The present launch date is 17 March 1981.

WB4ICJ will operate from lift-off for the remainder of launch day. In the event of a catastrophe, no certificates will be issued.

Operating frequencies will be: 7.280, 14.285, 21.380 MHz. To obtain a certificate send a business-size SASE to: WB4ICJ, c/o AA4MI, P.O. Box 21073, Kennedy Space Center, FL 32815.

Warning!

Hand-helds using rechargeable nicad batteries can explode if a conductive object shorts the charging contacts on the case. This can occur when hand-helds are carried in pockets. Here pens, coins, or even pencil lead can short the charging contacts.

Hand-helds which have exposed charging contacts are more likely to be shorted than units which have the contacts inside the case or a plug-in accommodation.

When using a hand-held with a rechargeable pack, exercise care to insure that loose metallic objects are kept clear of the charging contacts. A piece of vinyl tape over exposed contacts will reduce the possibility of shorting the battery. This especially goes for extra packs you may carry during public service events.

A shorted 12V nicad pack can generate a tremendous amount of heat in a very short period of time. Give this some thought and don't risk equipment or personal safety through carelessness.

— Sonoma County RA, Santa Rosa, CA □

AMSAT — OSCAR 7 Orbital Data

Because the calendar is generally printed in the last weeks of each quarter, there will always be a difficulty in lack of adequate lead time with the first month's data for publication in **Worldradio.**

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...pacesetter in amateur radio

Top-Notch.

VBT, notch, IF shift, wide dynamic range

TS-830S

Now most Amateurs can afford a high-performance SSB/CW transceiver with every conceivable operating feature built in for 160 through 10 meters (including the three new bands). The TS-830S combines a high dynamic range with variable bandwidth tuning (VBT), IF shift, and an IF notch filter, as well as very sharp filters in the 455-kHz second IF. Its optional VFO-230 remote digital VFO provides five memories.

TS-830S FEATURES:

- **160-10 meters, including three new bands**
  Covers all Amateur bands from 1.8 to 29.7 MHz (LSB, USB, and CW), including the new 10, 18, and 24-MHz bands. Receives WWV on 10 MHz.
- **Wide receiver dynamic range**
  Junction FETs (with optimum IMD characteristics and low noise figure) in the balanced mixer, a MOSFET RF amplifier operating at low level for improved dynamic range (high amplification level not needed because of low noise in mixer), dual resonator for each band, and advanced overall receiver design result in excellent dynamic range.
- **Variable bandwidth tuning (VBT)**
  Continuously varies the IF filter passband width to reduce interference. VBT and IF shift can be controlled independently for optimum interference rejection in any condition.
- **IF notch filter**
  Tunable high-Q active circuit in 455-kHz second IF, for sharp, deep notch characteristics.
- **IF shift**
  Shifts IF passband toward higher or lower frequencies (away from interfering signals) while tuned receiver frequency remains unchanged.
- **Various IF filter options**
  Either a 500-Hz (YK-88C) or 270-Hz (YK-88CN) CW filter may be installed in the 8.83-MHz first IF, and a very sharp 500-Hz (YG-455C) or 250-Hz (YG-455CN) CW filter is available for the 455-kHz second IF.
- **Built-in digital display**
  Seven-digit large fluorescent tube display, backed up by an analog dial. Reads actual receive and transmit frequency on all modes and all bands. Display Hold (DH) switch.
- **Adjustable noise-blanker level**
  Built-in noise blanker eliminates pulse-type (such as ignition) noise. Front-panel threshold level control.
- **6146B final with RF NFB**
  Two 6146B's in the final amplifier provide 220 W PEP (SSB)/180 W DC (CW) input on all bands. RF negative feedback provides optimum IMD characteristics for high-quality transmission.
- **More flexibility with optional digital VFO**
  VFO-230 operates in 20-Hz steps and includes five memories. Also allows split-frequency operation. Built-in digital display. Covers about 100 kHz above and below each 500-kHz band.
- **Built-in RF speech processor**
  For added audio punch and increased talk power in DX pileups.
- **RIT/XIT**
  Receiver incremental tuning (RIT) shifts only the receiver frequency, to tune in stations slightly off frequency. Transmitter incremental tuning (XIT) shifts only the transmitter frequency.
- **SSB monitor circuit**
  Monitors IF stage while transmitting, to determine audio quality and effect of speech processor.

Ask your Authorized Kenwood Dealer about the many operating features offered by the TS-830S... at a very reasonable price!

NOTE: *Price, specifications subject to change without notice and obligation.*

MATCHING ACCESSORIES FOR FIXED-STATION OPERATION:

- SP-230 external speaker with selectable audio filters
- VFO-230 external digital VFO with 20-Hz steps, five memories, digital display
- AT-230 antenna tuner/SWR and power meter
- MC-50 desk microphone
- YG-455C (500-Hz) and YG-455CN (250-Hz) CW filters for 455-kHz IF
- YK-88C (500-Hz) and YK-88CN (270-Hz) CW filters for 8.83-MHz IF
- HC-10 digital world clock
- HS-5 and HS-4 headphones
- MC-30S and MC-35S noise-cancelling hand microphones

Other accessories not shown:

- TL-922A linear amplifier
- SM-220 Station Monitor
- PC-1 phone patch

TRIO-KENWOOD COMMUNICATIONS INC.
1111 WEST WALNUT / COMPTON, CA 90220

Easy selection.

15 memories/offset recall, scan, priority, DTMF Touch-Tone®

TR-7800

Kenwood's remarkable TR-7800 2-meter FM mobile transceiver provides all the features you could desire for maximum operating enjoyment. Frequency selection is easier than ever, and the rig incorporates new memory developments for repeater shift, priority, and scan, and includes a built-in autopatch DTMF encoder.

TR-7800 FEATURES:

- **15 multifunction memory channels, easily selectable with a rotary control**

  M1-M13...memorize frequency and offset (±600 kHz or simplex).
  M14...memorize transmit and receive frequencies independently for nonstandard offset.
  M0...priority channel, with simplex, ±600 kHz, or nonstandard offset operation.

- **Internal battery backup for all memories**

  All memory channels (including transmit offset) are retained when four AA NiCd batteries (not Kenwood-supplied) are installed in battery holder inside TR-7800. Batteries are automatically charged while transceiver is connected to 12-VDC source.

- **Priority alert**

  M0 memory is priority channel. "Beep" alerts operator when signal appears on priority channel. Operation can be switched immediately to priority channel with the push of a switch.

- **Extended frequency coverage**

  143.900-148.995 MHz, in switchable 5-kHz or 10-kHz steps.

- **Built-in autopatch DTMF (Touch-Tone®) encoder**

- **Front-panel keyboard**

  For frequency selection, transmit offset selection, memory programming, scan control, and selection of autopatch encoder tones.

- **Autoscan**

  Entire band (5-kHz or 10-kHz steps) and memories. Automatically locks on busy channel; scan resumes automatically after several seconds, unless CLEAR or mic PTT button is pressed to cancel scan

- **Up/down manual scan**

  Entire band (5-kHz or 10-kHz steps) and memories, with UP/DOWN microphone (standard)

- **Repeater reverse switch**

  Handy for checking signals on the input of a repeater or for determining if a repeater is "upside down"

- **Separate digital readouts**

  To display frequency (both receive and transmit) and memory channel.

- **Selectable power output**

  25 watts (HI)/5 watts (LOW).

- **LED bar meter**

  For monitoring received signal level and RF output.

- **LED indicators**

  To show: +600 kHz, simplex, or -600 kHz transmitter offset; BUSY channel; ON AIR.

- **TONE switch**

  To actuate subaudible tone module (not Kenwood-supplied).

- **Compact size**

  Depth is reduced substantially.

- **Mobile mounting bracket**

  With quick-release levers.

See your Authorized Kenwood Dealer now for details on the TR-7800...the remarkable 2-meter FM mobile transceiver!

NOTE: *Price, specifications subject to change without notice and obligation.*

MATCHING ACCESSORY:

- KPS-7 fixed-station power supply

DX WORLD

John F. W. Minke III, N6JM
6210 Rio Bonito Drive Carmichael, CA 95608

Activities calendar

07-08 March	ARRL International DX Contest (Phone).
21-22 March	Bermuda Contest
28-29 March	**CQ Magazine** Worldwide WPX Contest (SSB)
28-29 March	YL ISSB QSO Party (CW)
04-05 April	Polsk (SP) DX Contest (CW)
04-05 April	Hong Kong Activity Days
18-19 April	Polsk (SP) DX Contest (Phone)
25-26 April	Helvetia 26 Contest

Details for the above events can be found in **QST** or **CQ**.

W-100-N

There were nine applicants for **Worldradio's** Worked 100 Nations during the month of January. The following amateurs have joined the ranks of those who have completed the W-100-N requirements:

94. VK2FD Bruce W. Thomas
95. WD0BNH Joan Ash
96. KB0OE Ray McCarty
97. K3VY E. Vernon Young, Jr.
98. W1JR Joe Reisert
99. K6FO Norman Brooks
100. N6JM John F.W. Minke, III
101. N9AIB Wanda Hotz
102. W9CA Robert E. Hotz

N9AIB and W9CA were another husband-and-wife team to have completed the requirements for this award. W1JR completed his requirements by working them all 2-way CW, a feat in itself as much of the DX activity today is only on SSB. He is not the first applicant to have done this.

Not to slight the SSB mode, VK3FD, WD6BNH, and KB0OE selected to go for all 2-way SSB.

After issuing all these certificates, the DX Editor collected enough QSL cards to qualify for W-100-N. And to be fair, I had an amateur who already has the award check my cards at the January DX club meeting. It seemed rather funny for me to sign my own certificate, but that was not the first time I had done that. Back several years ago when I was SCM, (Section Communications Manager), I issued a "BPL" to myself for originating over 100 messages and sending them over the National Traffic System. Oh, yes — when I handled the California QSO Party, I had also issued myself certificates for winning in Sierra County.

Nepal

Father Moran, 9N1MM, is usually the one to hold down the fort for little Nepal. He has been fairly active recently and has been reported on 10 meters at 1200 UTC on 28.750 MHz. You 20-meter fans can try looking around 14.208, 14.212 or 14.226 MHz during the 0200-0300 UTC time-slot.

If you can't find Father Moran, perhaps you may find Cirda, a new station on from Nepal, signing 9N1AB. He has been found daily on 14.225 MHz from 0600 to 0700 UTC.

It has also been reported that 9N1BMK was to have been activated during the early part of February by Kazunori Abe, JA8MWU, but nothing has been heard as of this writing.

That antique QSL from Nepal shown elsewhere in this column is purely coincidental to this report on Nepal activity. I usually prepare the Antique QSL Department far in advance of the rest of this column.

Taiwan

Tim Chen, BV2A, has been showing on the CW portions of the bands lately. Unfortunately, some of this activity appears to be the work of Slim. A report in *The DX Bulletin* indicates such where BV2A was claiming Charles Moraller, Jr., K2CM, as his QSL manager. K2CM knows nothing about being a QSL manager for BV2A. A clue to this was that BV2A was giving his name as Alan, which obviously is not the operator's name at BV2A. I also heard BV2A give K2CM as his manager.

For what it is worth, the following are frequencies and times BV2A has been found: 14.025 MHz at 1300 UTC, 28.735 MHz at 2300 UTC, 14.216 MHz at 0100 UTC, 14.020 MHz at 0400 UTC and 28.574 MHz at 0100 UTC. He has also been found on 10-meter CW. Tim also signs with the call BV2B.

Japan

The first call area is now into another prefix, since the 'JN' allotment is being used. JN1DVW and JN1FSD are two of those calls that have been on recently. That call district which includes Tokyo now has JA-JH-JR-JE-JF-JG-JI-JJ-JK-JL-JM-JN in that order. That includes three-letter suffixes with the calls too. One can see why Japan has more amateurs than any other country. Don't check the Callbook to see if this is so, as the Callbook is incomplete as far as Japan goes.

Pitcairn Island

If you need this one, look for Tom Christian, VR6TC. He has been maintaining a 10-meter schedule with Frank Lohrmann, DL8FL, on Tuesdays at 1700 UTC on 28.950 MHz.

With some encouragement from Ralph Cabanillas, W6IL, Tom has put up some dipoles for 40 and 80-meter activity. Check 3504 and 7060 kHz starting around 0600 UTC.

Some time ago a YL with the call VR6KY had come on, but we haven't heard much of her recently.

Egypt

There have been a few stations active from the land of the mummies. Bassiouni Ahmed Bassiouni, SU1BA, will take on callers after completion of his Sunday schedules on 21.310 MHz with Larry Moreno, K2IJL, at 1600 UTC. This station has also been found on 10 meters around 28.750 MHz during the 1300-1400 UTC slot.

Another active station from Egypt is Karl Mayberry, W5JMM/SU, who can be found on 28.675 MHz from 1400 UTC. He has also been reported to have been on CW at 7010 kHz at 2200 UTC.

A third station included Ezzat Sayad Ramadan, SU1ER, on 14.228 MHz at 0800 UTC. There is no guarantee that these stations will be on the frequencies and time given. The information here is from stations who have worked or heard these stations at the times and frequencies listed.

Svalbard

JW5IJ is active in the Africana Net on 21.355 MHz at 1800 UTC. He has also been found on 14.205 MHz at 0200 UTC, and 28.750 MHz at 1200 UTC. This station uses Mathias Bjerrang, LA5NM, for QSL chores.

JW9QH is a 10-meter fan and can be found daily between 28.500 and 28.700 from 1800 UTC. QSL this one to his home call of Sigurd Brensholm, LA9QH.

Other stations reported as worked include JW5RJ on 28.750 MHz at 1400 UTC, and Sigurd Solheim, JW2CF, who visits the CW frequencies on 7001 kHz at 1300 UTC and around 14.013 MHz after 0001 UTC.

Kuwait

W.E. Bortree, 9K2EW, has been maintaining a schedule for a few hours each Monday on 28.673 MHz from 1400 UTC. He has also been found within the 15 and 20-meter phone bands.

Adnan Alkazemi, 9K2KA, who was reported to have been on from 21 January, was operated by John Burns, Jr., K1FMP/6.

Easter Island

There is to be much activity from this one, and most likely a good portion of it will be history by the time you read this. Even so, there is to be more activity from 25 February which is to continue through 17 March. This will include Marion Wise, W4PRO, and Terry Appleton, W4GSM, who will be using two ICOM transceivers and an Alpha 76 amplifier.

Father Dave Reddy, CE0AE, has the site selected for the team and is expected to join in with the fun. Look for W4PRO/CE0A or W4GSM/CE0A, and QSL both calls to the former.

Tristan da Cunha

The early opening date in March for the DXpedition to Tristan da Cunha was cancelled, due to being unable to board the boat that was to take them there. ZD7HH and ZD7GW were to be the team, operating SSB and CW, respectively. They will now be looking for an early winter attempt, probably in June. Cushcraft has supplied a tri-band beam for 10, 15 and 20 meters. Funding of the DXpedition is still a problem and donations may be sent via John Parrott, Jr., W4FRU, who will be taking care of the QSL cards for the DXpedition.

Kingman Reef

A DXpedition to Kingman Reef and Palmyra Island in April is in the planning stage by the team of D. H. Mead, VK2BJL, and Jack Binder, VS5JB. Transportation is to be via the yacht "Banyandah". They are looking for some experienced DX'ers; if you are interested and feel you can qualify, you may contact Karl Kensen, KB7KQ, at P.O. Box 275, Redwood, WA 98052.

Carl Retz

Carl Retz, K4YT, is on an African tour that is to continue through April. He will be operating in several countries, and by mid-April, he is expected to be signing from Benin with a TY call. Look around 28.510 MHz from 1600 UTC and 21.295 MHz from 1800 UTC. Bob Retz, W2TK — Carl's brother — is also operating over there and expects to be home in April. The QSL chores for both operations will be handled by Bob Retz.

Cocos Keeling

A new Novice has shown from Cocos Keeling with the call of VK9NYG. He has been found on 28.510 MHz at 1300 UTC fairly regularly. Pileups are not his bag and he will usually flee at the first sign of one. This is usually typical for a brand new operator, so have faith.

Presently he is using an FT101E and dipole, and expects to have a beam soon. Most likely, at this time he will also have a key and will give out CW contacts to the deserving.

Cocos Island

If you don't need Cocos Keeling, maybe you need Cocos Island. Fernando Alfaro Gonzalez, TI9FAG, has been reported on 7073 kHz at 0730 UTC, working Europeans. also, Victor Vargas Ramirez, TI9VVR, has been checking into the 14.175 Net at 2000

UTC. Unfortunately, those frequencies do not favor stateside DX'ers.

Juan Fernandez

There is talk of a CEØZ DXpedition to Juan Fernandez scheduled for 13 through 19 April. The group is to consist of three Chilean operators from the Radio Club de Chile, which all depends if they can raise the $1,000 needed for transportation. All donations can be sent to FRAC, P.O. Box 3016 Valparaiso, Chile.

Comoros

D68AM has been keeping a regular schedule on 21.285 MHz at 1800 UTC on Tuesdays. He prefers the list-type operation and this particular one is run by Robert Thomson, KØVVV. You anti-list types will have to find him elsewhere.

Velau

This is another newly-formed country out in the Pacific Ocean that declared independence from the Western Caroline Islands the first of the year. Hiroyuki Ogawa, JA8DNZ, and Kazuo Kumanaka, JA8JL, were there operating Kodep Iyong, KC6KR, and giving out contacts on both CW and SSB.

As for DXCC status, it is unknown at this time. For W-100-N credit, probably so.

DXCC

Several of the recent DX operations are still not being accepted for DXCC credit as of this writing. This includes 9U5DS, 6OØDX, VK4NIC/3X, G3JKI/5A, WB4ZNH/5X and WN4FVU/5X. The main reason is lack of supporting papers for authorization operations.

One may wonder why all this red tape and paper work is necessary as proof to the DXCC desk in Newington. There is a reason. About 15 years ago, there was an individual who was running around the world firing up new ones for the deserving. Everything was going peachy until the fellow refused to QSL amateurs who had not contributed to his cause. Then the unthinkable happened! It was reported that this individual never operated from some of the locations where he claimed to have been. This threatened the integrity of the entire DXCC program and as a result, that is why the proper authorization is now a definite requirement. If it will make you feel any better, this fellow is reported to be in jail serving out a sentence for the attempted murder of his wife.

Prefix

Those '4N7' prefixes that you have been hearing on the bands are special calls in Yugoslavia to celebrate the World Table-Tennis Games. QSL routes for 4N7ST and 4N7TT can be found at the end of this column.

Iraq

Recent mail to YI1BGD at P.O. Box 5864, Baghdad has been returned by the Iraqi Post Office. With the border war going on there, perhaps it would be wise to wait until the smoke clears.

Fresno DX Convention

The annual Spring Fresno DX Convention, (or the 1981 International DX Convention) will be held the first three days in May at the Airport Holiday Inn at Visalia, California. For years, the convention — a joint venture between the Northern and Southern California DX Clubs — had been held at the Fresno Hilton. It got to a point where things didn't work out there anymore. Last year it was held at the Holiday Inn at the Fresno Airport, but the facilities were too small. As it has been held once before at Visalia, it was decided to go that route; it is several miles south of Fresno. The midpoint between the two clubs is somewhere between Fresno and Visalia.

To get on the mailing list, contact the Northern California DX Club at P.O. Box 608, Menlo Park, CA 94025. More information on this one as time progresses.

200 by 200

Here is an item that deserves recognition. Steve Behman, KR6O — a brand new member to the Northern California DX Club — made the fantastic accomplishment of working and **confirming** 200 countries in 200 days! Steve, who resides in Saratoga, received card number 200 from D68GA on 31 January.

I have heard of amateurs working 100 countries in a weekend during a DX contest, but to work 200 countries in 200 days is something else — and have the confirmations to boot!

I assume there must be at least 100 nations in that bundle, so perhaps a W-100-N application from KR6O will be coming?

CQ awards

Effective 1 March, all **CQ Magazine** awards will be subjected to a dual application fee. The cost per award prior to this data has been $5 for all applicants. From now on, all awards will be increased to $10 per award. That is, if you are a non-subscriber.

A check of applicants had been made and it was found that the vast majority were not subscribers to **CQ**. For the most part, the expense for the awards was paid by the applicants, with the remainder subsidized by **CQ**.

But, if you are a subscriber to **CQ**, the fee for you will now be $4 per award. All you will need to provide you are a subscriber is include your mailing label with your application.

Seems fair to me. Shouldn't subscribers benefit from the awards program over that of non-subscribers? To apply for DXCC, the ARRL now requires proof of membership for all applicants in Canada and the United States and possessions. The cost of **Worldradio's** Worked 100 Nations Award is $7.50, which isn't far out of line with the **CQ** pricing. Maybe our publisher should require all applicants for W-100-N to be **Worldradio** subscribers also. It costs more than $7.50 to completely process each award, including all costs.

DX advisory committee

The membership of the DXAC for 1981 is as follows:

Anthony C. Berg, W1OT, 7 Conant Drive, Stow, MA 01775. **David Beckwith, W2QM,** 151 Whitney Avenue, Pompton Lakes, NJ 07442. **Edward J. Kuebert, K3KA,** 3369 Tanterra Circle, Brookeville, MD 20729. **Robert W. Hudson, K7LAY,** 29826 24th Place South, Federal Way, WA 98003. **Sanford E. Hutson, K5YY** (Chairman), P.O. Box 5299, Little Rock, AR 72215. **David Novoa, KP4AM,** P.O. Box 50073, Levittown, PR 00950. **Daryl H. Kiebler, WB8EUN,** 517 Farmstead Lane, Lansing, MI 48917. **Norman E. Meyers, N9MM,** RR 1, Box 490, Rossville, IN 46065. **John C. Kanode, N4MM** (Board Liaison), RFD 1, Box 73-A, Boyce, VA 22620. **Harold E. Parsons, VE3QA,** RR3, Metcalfe, ON KØA 2PØ. **James T. Rafferty, N6RJ,** 178 Paseo Robles, Anaheim, CA 92807. **James L. Spencer, WØSR,** 3712 Tanager Drive, NE, Cedar Rapids, IA 52402. **Don Search, W3AZD** (HQ Liaison), American Radio Relay League, 225 Main Street, Newington, CT 06111.

These gentlemen will appreciate your input and comments. You may correspond with your call area representative at the above addresses.

How's DX

It has been rumored that Ellen White, W1YL, will be the new DX Editor for the DX column in **QST**. Those of you who knew the Whites personally will realize the asset Ellen will be. Ellen was the Communications Manager for the ARRL when she was a

headquarters staff member, where Bob White, W1CW, was "Mr. DXCC".

Taroh J2GX/JH1WIX

Nao Akiyama, JH1VRQ, also submitted some information on our two Yagi's. Nao writes:

"Dr. Hidetsuga Yagi, who invented the Yagi-Uda antenna in partnership with Dr. Uda, and served as president of JARL in 1946, never had an amateur call sign. He passed away several years ago.

"Mr. Taroh Yagi is a different person. He was one of the 37 founding members of JARL in 1926. He signed 1ZB at that time. In 1929, he was officially licensed as J1DO, and then his call was changed to J2GX in 1934.

"When JARL was re-established in 1946, (after the war), Mr. Taroh Yagi, was Executive Director, (under President Hidetsugu Yagi). Taroh is still active, especially on 20 to 10 meters CW, signing JH1WIX now."

The photo is that of the antenna system at JH1WIX. Taroh uses a CL-33 up 90 feet. The photo was submitted by Dave Rankin, WA6QCO, who says Dr. Yagi had died in 1976 at the age of 90.

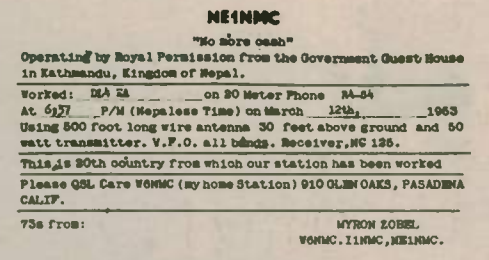
Antique QSL Department

Most amateurs associate Nepal with Father Moran, 9N1MM. Back in 1953, Myron Zobel, W6NMC, (No More Cash), was taking a tour around the world. One of his stops was in Nepal where he operated as NE1NMC. A copy of his QSL card is shown here courtesy of Ray, W6SYM, who was DL4EA in Western Germany at the time.

Perhaps some of you remember Myron, who also signed I1NMC, with his TV programs. Personally, I don't remember; probably as I am from the East Coast, and wasn't in California until 1959. Ray reports he had a daily schedule with Myron from his journey through the Suez Canal until he arrived in New York. Myron is now a Silent Key.

Ray also submitted the QSL for Andorra for a contact he made with PX1AA on 17 November 1951, while operating as DL4EA. Operator at PX1AA was John Ackley, who also signed 3A2AP and DL4IA. Those DL4 prefixes were assigned to the American Occupational Forces in Western Germany after the war.

PASUPATI NATH TEMPLE
KATHMANDU. KINGDOM OF NEPAL.



NE1NMC

"No more cash"

Operating by Royal Permission from the Government Guest House in Kathmandu, Kingdom of Nepal.

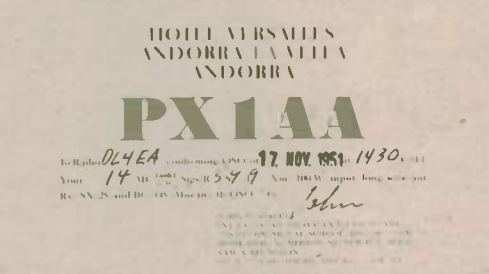
Worked: DL4 EA on 20 Meter Phone RA-84
At 6:37 P/M (Nepalese Time) on March 12th 1963
Using 500 foot long wire antenna 30 feet above ground and 50 watt transmitter. V.F.O. all bands. Receiver, NC 125.

This is 20th country from which our station has been worked

Please QSL Care W6NMC (my home Station) 910 GLEN OAKS, PASADENA CALIF.

73s from: MYRON ZOBEL
W6NMC. I1NMC, NE1NMC.

This Card and Envelope
Printed on hand made Nepalese paper
in Kathmandu.

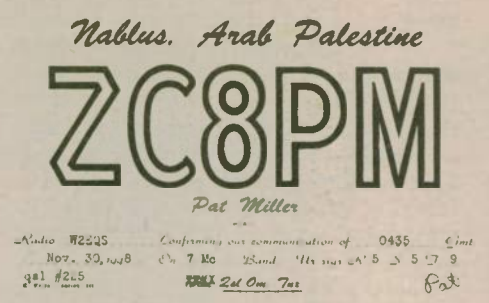


HOTEL VERSALLES
ANDORRA LA VELLA
ANDORRA

PX1AA

To Radio DL4EA confirming QSO on 17 NOV. 1951 at 1430 GMT
Your 14 Mc Sigs R 5 7 9 Your RST input long wire out
Rec SX 28 and RC 40 Marconi II QSO

The ZC8PM QSL was submitted by Charlie O'Brien, W2EQS. The date was 30 November 1948 for a contact made with Arab Palestine on 40 meters. The operator was Pat Miller, whose home call was W2AIS.



Nablus, Arab Palestine

ZC8PM

Pat Miller

Radio W2EQS Confirming our communication of 0435 GMT
Nov. 30, 1948 On 7 Mc Band Its our QSL 5 5 7 9
QSL #245 2nd Op. Tax Pat

Help!!

Gary Mitchell, NP2AF, is wondering if anyone has heard from C31PA or Pierre Doche, F8JL after 17 April 1980. It seems that F8JL has disappeared from his French address. You may contact Gary at P.O. Box 1003, Fairfield, CT 06430.

Slim

Sooner or later, I knew someone would ask who this guy is. Slim is the term DX'ers give to an operator who pirates a call other than his own. He is an illegal operator or bootlegger. True, he may be licensed — but not to the call he is using.

I don't know for sure who coined the handle, but I suspect it was Hugh Cassidy, WA6AUD, editor of the now defunct *West Coast DX Bulletin*. You can now read the very informative writings of Cass in the DX column in **CQ Magazine.**

Ben Colin, KA6EVN, wonders why he isn't called Slime instead. Can't argue with that; I have other names for him that are unprintable in **Worldradio.**

QSL routes

A22ZN	—KA2GNJ	CT2CE	—AG1K
A35PF	—K9KB	CT2CJ	—AG1K
AH2E	—N9AVY	CT2CM	—AG1K
C5AZ	—KB7HN	CT2YB	—AG1K
CR9C	—KB9N	D68AM	—WB2OHD

A lot has been said about Taroh Yagi recently. Here is a photo of OM JH1WIX in the flesh. Notice the certificates for WAZ, DXCC and WAS on the wall. To the right of the window is his USA-CA certificate. Obviously, Taroh is an avid county hunter. Thanks to Fred Van Aalst, WD4RAF, who submitted this photo.

Antenna system of Taroh Yagi, JH1WIX — a CL-33 up 90 feet.

DL2VK/ST3	—DF9FM	VP2MS	—N7RO
EA6GK	—AF2C	VP2MZ	—WD4NBX
FG0FOL/FS	—Yasme	VP2SS	—K1CC
FG0GCT	—F6ARL	VP2VI	—AB1U
FM0AA	—WB4IWW	VP5PZ	—N6TR
FM0AB	—WB4AXN	VP8QG	—WA4JQS
FO0ALN	—K4II	VQ9JC	—WB7DOZ
G8WMO/5N	—G4GIR	W4GSM/CE0A	—W4PRO
HH2BX	—N5JC	W4PRO/CE0A	—W4PRO
HH2FH	—N5AJW	W5JMM/SU	—KA5AZT
HH2JR	—KA5V	W0RIF/CE0A	—W0RIF
HK0EHM	—WD9DZV	WA2LUC/OX	—KA2AEC
JD1YBA	—JI1KMY	WB4ZNH/A2	—K4PHE
JW5LJ	—LA5NM	WB4ZNH/3D6	—K4PHE
JW9QH	—LA9QH	WN4FVU/A2	—N4NX
JY9RC	—W1CKA	WN4FVU/3D6	—N4NX
K4ESQ/CE0A	—K4ESQ	XL3LON	—VE3IAE
K0DHI/CE0A	—K0DHI	XT2BG	—F6DTB
KA3BLP/VP2A	—N2ATX	YZ7OCZ	—YU7BPO
KC6KR	—JA8JL (CW)	YZ9CRM	—YU2HDE
KC6KR	—JA8DNZ (SSB)	ZD8RH	—G4DBW
KH6GB/KH9	—KH6GB	ZF2DX	—K0GVB
LU1AF/Z	—LU1DZ	ZF2DZ	—WB3GPR
LU1DZ/Z	—LU1DZ		*(See Note 2)*
LU7XP/Z	—LU1DZ	ZF2EA	—WB3GPR
N2KC/KH4	—N2KC		*(See Note 2)*
N4HX/T9	—ON5NT	ZK1XG	—DL2RM
N0NO/CE0A	—N0NO	ZL3AFH/A	—ZL2HE
OX3NB	—W7EDA	4D1SEA	—VE7CBK
PA0LVB/3A	—PA0LVB	4K1A	—UB5LHO
PA0VDV/3A	—PA0VDV	4K1C	—UW9WR
PA0WRS/3A	—PA0WRS	4N7ST	—YU7AJU
PJ8UG	—W3HNK	4N7TT	—YU7AJH
PY0CW	—PY7CW	4S7BB	—JA5BJC
PY0ZZ	—PY7ZZ	4X6NBO	—AF2C
SU1BA	—K2IJL	5N3PJR	—G4GIR
TA8BE/TA1	—TA1NAG	5N6ATT	—K4FVZ
TG9RB	—W1WLN	5T5DX	—W2TK
TI2JIC	—AG1K	5T5RH	—KB7HN
TI5EWL	—AG1K	5X5FS	—EI9G
TJ1BB	—AF4B	5Z4EM	—K1MEM
TL8CN	—F3EA	5Z4MM	—K1MM
TU2JI	—KN0KCW	600DX	—I2YAE
TU20HH	—WA4VDE		*(See Note 3)*
VE7AAZ/4U	—VE1BWV	8P6EZ	—W1RED
VK9NYG	—VK6NE	8P6J	—N6TR
VP2E	—K8ND	8P6KQ	—N7RO
	(See Note 1)	8P6MI	—VE3JTQ
VP2ED	—AD8J	9G1RT	—KB7HN
VP2EEV	—K8ND	9K2FF	—K1LOM
VP2ESE	—WB4QBB	9K2KA	—I8YCP
VP2EV	—K8ND	9M8PW	—G4DXC
VP2EX	—WB8VPA	9N1BMK	—JA8MWU
VP2EZ	—AA4GA	9Q5AH	—DL5EW
VP2KAC	—K4RJ	9U5FR	—WB4MXD
VP2KAO	—K2AOQ	9U5JM	—F3LQ
VP2KAP	—WB2JVM	9X5DR	—ON8TU
VP2KJ	—WB2TSL		
A9XDB	—P.O. Box 26180, Bahrain		
FH8CM	—P.O. Box 37, Mayotte, 97610 France		
FR0FLO	—P.O. Box 41, St. Pierre, Reunion Island		
FY7BO	—P.O. Box 854, Cayenna, French Giuana		
JT0LAJ	—P.O. Box 180, Ulan Bator, Mongolia		
NP2AF	—P.O. Box F3486, Freeport, Bahamas		
TU4AX	—01-BP 1358, 01 Abidjan, Ivory Coast		
VP2EEW	—Jeff Clarke, WD8ALG, 7081 Hollywood Drive, Westchester, OH 45069		
VP2SAV	—P.O. Box 103, Kingstown, St. Vincent, West Indies		
VP2VGF	—P.O. Box F3486, Freeport, Bahamas		
VP5GCM	—P.O. Box F3486, Freeport, Bahamas		
VP5SDA/HK1	—P.O. Box AA 950, Cartagena, Colombia		
WD9GDR/TF	—Roy Carter, P.O. Box 16, FPO New York, NY 09571		
WP2ABZ	—P.O. Box F3486, Freeport, Bahamas		
3B8AE/3B9	—Moussa Atchia, 7 Naprier Broom Street, Beau Bassin, Mauritius		
9N1AB	—P.O. Box 133, Katmandu, Nepal		

Notes:

1. K8ND will handle cards for VP2E for contacts made 1980 and 1981. Contacts made in 1978 go to R.J. Bishop, WA4MAV, and contacts prior to 1978 go to Ken Palmer, K2FJ.
2. Address for WB3GPR: Alan Lefcourt, 10 Jackson Drive, Danbury, CT 06810.
3. Do not send 600DX QSL cards to Giorgio Broggini, I2YAE, via the Italian QSL bureau as he is not a member. Send your cards direct to his CB address.

Myron Zobel, W6NMC (No More Cash) with his XYL. Myron, now a Silent Key, operated in many countries during his Around the World Ham Safari in 1953. Also signing I1NMC, Myron operated as his 20th country from Nepal as NE1NMC. *(Photo courtesy of W6SYM.)*

The contributors for this month's column include AF2C, W2EQS, W4KA, WD4RAF, K5BLV, KA6EVN, W6GO, W6IL, WA6QCO, W6SYM, N6TR, KB7HB, K8ND, JH1VRQ, NP2AF, the DX Advisory Committee, *The DX Bulletin, DX News-Sheet,* and *The Long Island DX Bulletin.*

With the changing seasons the activity should be on the increase during the next couple of months. There are several DX contests during this period, which can give you a chance to work some new ones.

Here in the Sacramento area there is an annual football game between the Sacramento Sheriff's Department and the Sacramento City Police Department. The event — from which all receipts go to charity — is called the "Pig Bowl". It had a sell-out crowd of close to 29,000 with additional TV and radio coverage. I understand that the TV coverage was extended to 13 states. If any of you happened to watch the event, it was my 10-year-old daughter who sang the "Star Spangled Banner", which she did a capella. Good DX'ing es 73, de John, N6JM. □

Propagation will return

The monthly propagation report, which used to be printed on the same page as DX World, has not been discontinued. We just haven't received the 1981 reports yet. (The last one was printed in our December 1980 issue, page 35.) □

DX station QSL's

Gary Mitchell of Freeport, Bahamas, is looking for someone who could donate a batch of printed QSL's. His address is: Gary Mitchell, P.O. Box f3486, Freeport, Bahamas. □

AMSAT OSCAR K6PGX

Dr. Norman L. Chalfin

AMSAT/OSCAR-8

As this is being prepared, we are advised that AMSAT/OSCAR-8 temperature has risen to 40°. The desirable temperature is 20°. Attempts are being made to lower the temperature and a change in the previously announced schedule is contemplated. Therefore, if you are planning to access the O-8 spacecraft, check both modes A and J, since they may differ from what you expect.

If you copy any of OSCAR-8's telemetry, AMSAT and ARRL will appreciate your reporting the same to Bernie Glassmeyer, W9KDR, at ARRL Headquarters, 225 Main St., Newington, CT 06111.

AMSAT/OSCAR-7

AMSAT/OSCAR-7 is operating in its usual good form, probably directly from the solar panels. As a result, it may spontaneously switch modes, so it would be wise to check both A and B channels when attempting to access or receive the spacecraft.

UOSAT

Jan King, W3GEY, John Fail, KL7GRF, and Ian Fernbee (who is not an amateur but is one of the UOSAT technicians) were up at Vandenberg Air Force Base for a briefing on the forthcoming solar mesosphere launch with which the UOSAT is going along as a secondary payload. The launch date is officially 4 September, but it may be earlier.

We have obtained a block diagram of the UOSAT, which is printed with this column.

The spacecraft systems may be considered as including three forms: service modules, experiment modules and the mechanical structure.

Service modules comprise the systems which are fundamental to the basic operation of the spacecraft, such as the power sources, power conditioners, telemetry system, telecommand system, the general data beacon and the engineering data beacon.

Power is derived from four solar arrays, each of which provides 17 watts DC when fully illuminated. The arrays form the four outer walls of the rectangular structure. The average power from the panels is 25 watts.

The battery charge regulator regulates the array power to 14 volts at 6AH for the nicad battery pack with about 90% efficiency. The power-conditioning module delivers regulated +10 volts – 10 volts and +5 volts for the electronic systems of the spacecraft. Electronic systems have 8 watts DC available per orbit.

The general data beacon operates at 145.85 MHz, delivering 450mW. The simplest ground station should be able to pick it up. NBFM is the modulation and data is transmitted in AFSK. A small fixed crossed dipole antenna should suffice to receive the data beacon. An audio data demodulator is needed to interface with a printer/display. The beacon may also be modulated with the synthesized speech telemetry experiment or with the data from the earth-pointing (SSTV).

The engineering data beacon operating on 435.025 MHz at 450mW will be modulated with high-speed experimental data and engineering data. Modulation will be bi-phase PSK.

Command control can be either by direct ground station, or from on-board stored programs executed by the on-board microcomputer.

Telemetry provides data from sensors mounted to monitor spacecraft parameters such as temperature, voltage and current, which are encoded with other processed data to the downlink transmitter.

The telemetry frame comprises 60 uniquely addressed analogue channels with 40 status flags and an identifier. The analogue channels have a range from 000 to 999, giving a maximum data resolution of 0,1%. At the highest data rate (1200 baud), each telemetry frame takes some 8 seconds to be transmitted, which is somewhat less frequent than the experimental instrument sample rate; thus, instrument data is time-averaged and presented within the telemetry frame. (High time-resolution experimental data is available via the spacecraft computer for more detailed analysis.)

The telemetry frame format will be as follows:

AMSAT00000	00000	00000	00000	00000	00000	00000	00000	00000	00000
AMSAT00000	00000	00000	00000	00000	00000	00000	00000	00000	00000
00000	01000	02000	03000	04000	05000	06000	07000	08000	09000
10000	11000	12000	13000	14000	15000	16000	17000	18000	19000
20000	21000	22000	23000	24000	25000	26000	27000	28000	29000
30000	31000	32000	33000	34000	35000	36000	37000	38000	39000
40000	41000	42000	43000	44000	45000	46000	47000	48000	49000
50000	51000	52000	53000	54000	55000	56000	57000	58000	59000

In line with the mission objectives UOSAT will have the following experiment complement:

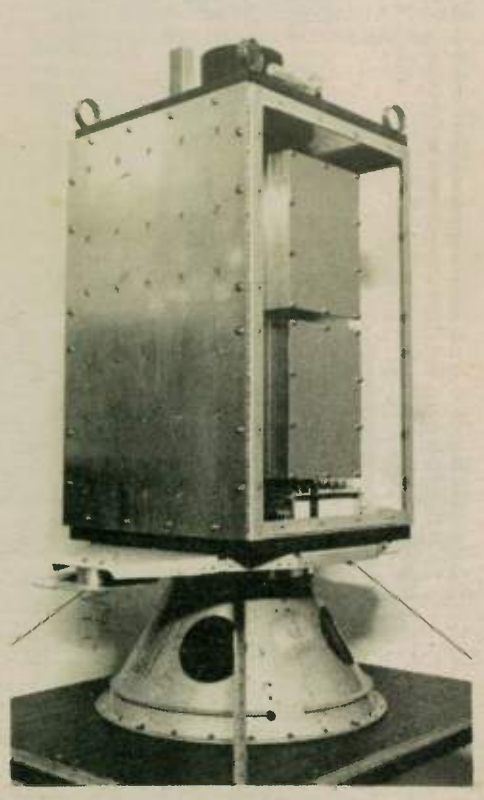
Propagation studies experiments

— Phase referenced HF beacons on 7.001 MHz, 14.002 MHz, 21.003 MHz and 28.004 MHz, enabling simple AOS observation to indicate ionospheric paths or more complex calculations yielding ionospheric electron densities.

— A three-axis, wide-range, flux-gate magnetometer for the examination of the fine structure of the earth's magnetic field and any disturbances to it and their relationship to radio wave propagation. This data will be available on the General Data Beacon (145.9 MHz) and with higher resolution on the Engineering Data Beacon (435 MHz).

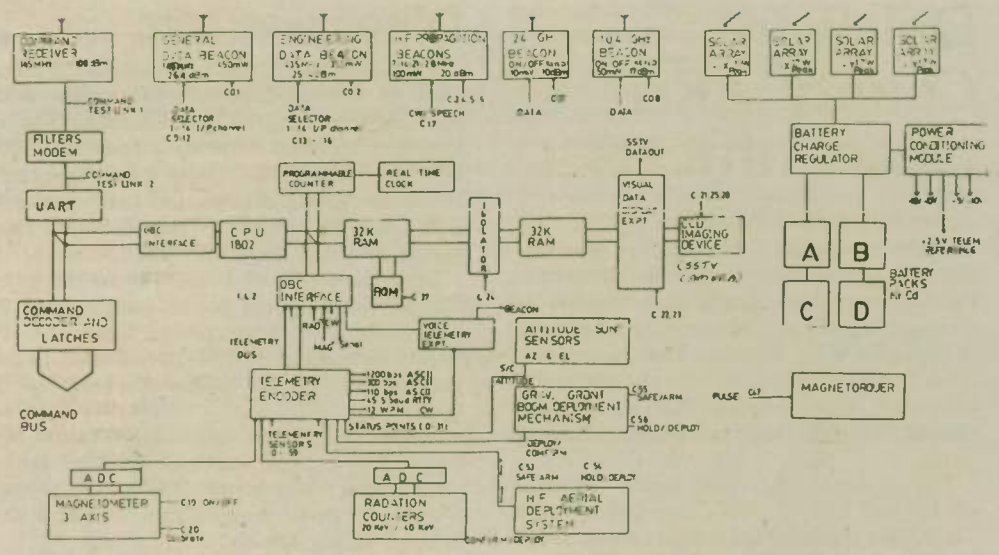
— Two particle radiation detectors and counters (detecting particles with energies 20 keV and 60 keV), providing real-time information on the General Data Beacon (145.9 MHz) and with higher resolution on the Engineering Data Beacon (435 MHz).

— Two microwave beacons on 2.4 GHz and 10.47 GHz to study S.H.F. propagation and the problems associated with inexpensive microwave satellite ground equipment.



The UOSAT under construction shows some of the 12 modules, the 2-meter antennas, UHF, HF antennas and microwave antennas. The flat plate will be covered with solar panels, as will the remaining three surfaces. The magnetometer boom is extended from the top center. The rings at the top corners are for handling the spacecraft during integration and mating with the rocket. The cone-shaped stand is replaced with the rocket-mounted fitting, from which the spacecraft is ejected in flight. *(Photo by University of Surrey)*

Worldradio needs your help to reflect the invaluable service of Amateur Radio.



UOSAT block diagram

Education experiments

An earth-pointing, solid-state, charge-coupled-device (ccd) camera will provide land and sea image data for transmission to simple and inexpensive groundstations via the General Data Beacon (146 MHz), using FM synchronous AFSK at 1200 b.p.s.-line synchronous. The image format will be presented as a 256 × 256 pixcel digital array with each pixcel having 16 possible digital grey levels. The entire image will be transmitted to the ground in around 3½ minutes, stored in a solid-state memory and displayed on a domestic television. The ground image area will be approximately 500 km × 500 km, providing a resolution of some 2 km on the earth's surface. The cost of the data demodulator, image memory and display electronics is around $285; it is anticipated that modules and kits will be made commercially available.

Format:

It may be possible to use this visual display experiment to present processed telemetry and experimental data in a graphical format. Telemetered data from the spacecraft and its experiments will be available at a variety of speeds and formats to cater to a wide range of groundstation complexity.

A limited repertoire of telemetry will also be available in synthesized speech for transmission on the General Data Beacon (145 MHz FM) intended for direct reception by the simplest standard N.B.F.M. equipment employing no more than a crossed dipole aerial.

Future systems experiments

A combination of active and passive attitude control mechanisms based on gravity gradient stabilization and 3-axis electro-magnetic (magnetorquer) attitude adjustment will be evaluated. The spacecraft is designed to 'fly' with the -z facet (bottom) always pointing towards the geocentre. This facet will support the camera and the VHF, UHF and microwave aerials.

The 2.4 GHz and 10.47 GHz beacons will be used to evaluate the usefulness of these frequencies for future amateur spacecraft in conjunction with relatively simple and inexpensive groundstations.

A powerful on-board c-mos microcomputer will have access to the s/c experiments, telemetry and command systems enabling: telemetry surveillance; command and status management; experiment data store and process (e.g., image processing, data reduction); orbit data, operational schedules and general news dissemination; and attitude control.

The spacecraft computer is based around the RCA c-mos CDP 1802 microprocessor and has direct data links with the magnetometer and radiation detectors experiments. This enables fast sampling of experimental data yielding fine time-resolution structure of these fields. The s/c computer also interfaces directly with the speech synthesizer experiment which can be fed with processed telemetry, experiment data or plain text. Analysis of navigation information from the magnetometer (using it as a coarse sensor and correlating with an existing model of the Earth's magnetic field), will allow closed-loop attitude control employing the 3-axis magnetorquers.

The spacecraft computer will have access to the telecommand decoder input in parallel with, but on a secondary basis to, the direct ground command receiver. Control data emanating from ground command stations will have priority over locally generated control data at all times, and the s/c computer will have positive shut-down upon ground command in the event of computer malfunction.

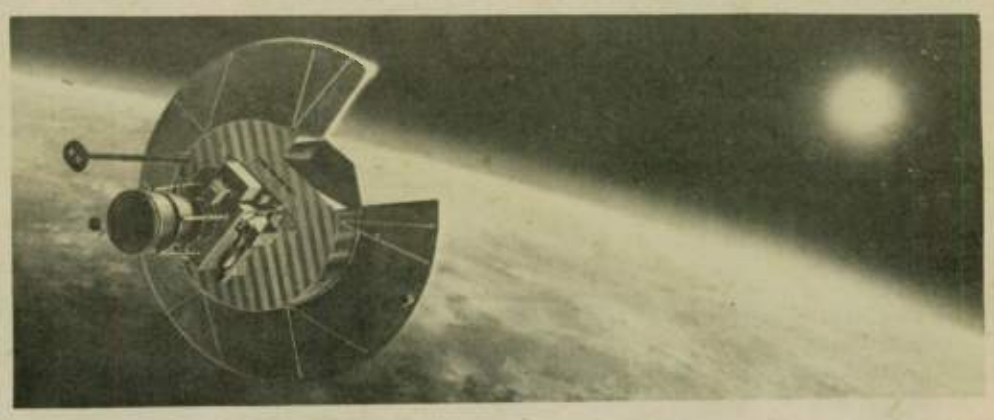
The s/c computer will be capable of generating the appropriate command repertoire locally as directed by software resident in its memory. This software is loaded from the ground by command stations using the telecommand uplink channel. The entire software library resident in the spacecraft computer can be modified or replaced during flight by ground telecommand stations, in order to accommodate changes in the mission profile and to allow for the rectification of possible software or hardware failures.

Orbit

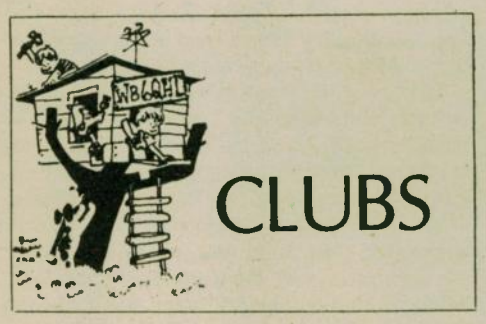
UOSAT is currently scheduled for launch by NASA into a sun-synchronous, polar, Earth orbit in September 1981 as a secondary payload upon a DELTA 2310 launch vehicle accompanying the Solar Mesophere Explorer (SME) spacecraft. (See photo.) The programmed orbital elements are as follows:

Altitude: 530 km; period: 95 minutes; inclination: 97.5 degrees, sun-synchronous, 3 p.m. descending mode.

The expected orbital life-time of the spacecraft at this altitude is around 4½ years before re-entry.



Artist's concept of the Solar Mesosphere Explorer.



CLUBS

"Operation North Pole"

Paula P. Hodell, KA8HQJ

Christmas has come and gone, but many Amateur Radio operators in the Dayton, Ohio area will carry the Christmas spirit for many months to come.

Several members of the Miami Valley FM Association (based in the Dayton area), assisted by members of the Upper Valley Amateur Radio Club (based in the northeast Dayton-Springfield area), brightened over 30 young children's faces with a visit from Santa Claus via Amateur Radio.

An annual activity that has been in existence for over 20 years, "Operation North Pole" gives the hospitalized children in the area a chance to talk to St. Nick and tell him exactly what they want for Christmas.

Santa — Keith Farley, WA8ZWJ — and myself as Santa's elf operated from the home base of K8EH (Kelo 8 Elf House) on Sunday, 21 December 1980. With two or more of Santa's helpers (operators) dispatched to the hospitals, Santa was supplied with pertinent information called into the base by telephone. After the information was received by Santa's elf, the operators contacted Santa over the club's repeater 04.64. As each operator told Santa which room and bed he was located at, Santa would identify the child and talk to him or her on a very personal basis. This talk sometimes even included Santa stressing to a reluctant child that they should cooperate with the nurses and doctors and take their medicine. During these communications, Rudolph the Red-Nosed Reindeer nosed his way in over the microphone with his jingle bells being heard over the airwaves.

The entire activity started at 12:30 p.m. and was completed by 3:00 p.m. Although the visual part of the operation took only 2½ hours, there were many weeks of planning and preparation that went into the event.

As this year's chairperson for the activity, I began working on the project immediately after volunteering. My volunteering was an interesting experience. I am still a Novice and was sitting in the back of the room during a Miami Valley FM meeting studying for my Tech exam, which I was scheduled to take the next day in Cincinnati. Suddenly I was kicked in the back of the chair by Al Torres, KP4AQI, and told to raise my hand. I promptly did, which the club president immediately acknowledged. I then asked what I had volunteered for and he told me "Operation North Pole". Al said he would help me with the preparations.

During the days that ensued, I contacted the area hospitals with letters informing them of the upcoming activity and followed up a few days later with a personal call. I also made up forms for the operators to use when obtaining information from the nurses and sent out letters to the members of the media, (radio-TV-newspaper) should they be interested. Next I contacted the public relations person with McDonald's Restaurants who supplied our operators with McDonald's coloring books, balsa planes and Ronald McDonald sponges.

While the activity was held, all these television stations had news crews on the scene. One radio station aired an interview with me on their newscast and many of the local daily and weekly newspapers wrote stories. Our club performs this service not for publicity but as a public service to brighten up the faces of the little ones unable to go home for Christmas. However, we Amateur Radio operators would like to get more people interested in our terrific hobby. One way we can convey this is through media coverage of the fun-fulfilling events we are involved in. □

Delaware County ARA elects officers

Jane Johnson, K3RIH

William Fields, WA3IMY, was reelected as president of the Delaware County Amateur Radio Association of Pennsylvania. Romona Dabagian, WB3KZF, was elected vice president. Ann White, WB3HVE, won the secretary post and Nick Leipold, K3NL, and Joe Blithe, W3GVD, were named members at large.

The repeater club W3UER/R operates on 147/ 96 147/ 36 MHz and 222/9 222/5 MHz. The repeater is located on top of the Mercy Catholic Medical Center, Fitzgerald Division in Darby, Pennsylvania.

Club information may be obtained by writing DCARC, P.O. Box 236, Springfield, PA 19064. □

Guests welcome to club meetings

The Southern California DX Club meets on the second Thursday of each month in the cafeteria of the Department of Water and Power, 111 Hope Street, Los Angeles. The meetings start at 7:30 p.m.

SCDXC Officers and Directors for 1981 are: President: Tom Hoyle, N6NI; Vice President: Steve Orland, AA6AA; Secretary: Perry Esten, W6PN; Treasurer: Irv Emig, W6GC; Bulletin Editor: Art Munzig, W6PYV; Membership Chairman: Neil Kaltman, K6SMF; Director: Col. John Browning, W6SP; Director: Jim Stevenson, KM6B; Director: Dr. Dave Gardner, K6LPL.

Correspondence may be directed to the secretary: Perry Esten, W6PN, 1141 Summit Road, Santa Barbara, CA 93108.

Guests are welcome at the regular club meetings. The SCDXC repeater frequencies — 145.48/144.88. □

Edison was here

The L'Anse Creuse Amateur Radio Club of Mount Clemens, Michigan, will operate from the Mount Clemens Train Depot from 1400 UTC on 2 May to 2000 UTC on 3 May. The Depot was a boyhood haunt of young Thomas Edison and he had his own telegraph line between the Depot and downtown Mount Clemens.

Operation will be 15 kHz from the bottom of the General phone bands and 40 kHz from the bottom of the General CW bands as well as 15 kHz from the top of the Novice bands using the call sign W8LC.

Special 8½ × 11 QSL certificates will be available to all stations worked. QSL with a size 10 or larger SASE to L'Anse Creuse Amateur Radio Club, W8LC, P.O. Box 72, Utica, MI 48087. □

Want photos in your newsletter?

Not every editor is fortunate enough to have a photo offset machine available for his newsletter, or a reducing Xerox machine. Some are mimeographed. But for those who can use photo offset and Xerox processes, photos are seldom used. The problem with photos is to get them "screened," broken down into black and white dots of various sizes for the printing process to work.

There is a place you can send your photos to get them screened. Send in the black-and-white photo and a screened "PMT" is made from it, then returned with the original photo, unharmed. Photos done in this way can easily be reproduced by photo offset and Xerox. If your club has such a need, you can write Tania Miller, WB9TKC, 11 N Richland, Freeburg, IL 62243 for more information.

It's one easy way to add the class of photos to your own newsletter. □

If a foreign amateur visits your area, do a picture story for Worldradio

This generator has come a long way

The saga of the PE-95 moved a pace in January of this year. The GI surplus 12KVA machine with a humanitarian heart headed northward on Volkswagen wheels in typical upper Michigan winter temperatures, in its career of supplying specialized energy.

"Bud" Froehardt, W9DY, senior electronic technician at the Illinois State Police radio station at Irving Park and Harlem in Chicago, had made a deal with northwoodsman and cabin-building carpenter Vern Hunt of Iron River, Michigan, who needed mobile electric power to run his saws and light up his home, 20 miles out in the woods at isolated Lake Winslow. Since the RAMS (Radio Amageur Megacycle Society) — who used the machine for emergency field day tests — needed a smaller plant this coming season, the transfer of ownership was ideal.

The amateur field day crew had used the plant for the past 14 years to supply power to their multi-operator team operating annual field day tests. Locations such as the Flick-Reedy factory grounds in Bensenville, the Elk Grove forest preserve, and even the adjoining salt pile at the highway department were the habitat in these simulated emergency communication tests. Often it rained at night. Sometimes mosquitoes were tough on the volunteer operators, but the operators stayed to score points. The cost of gas and the now popular compact cars which couldn't handle the machine in tow, lead to the end. The last local duty was to supply alternate power to the State Police radio tower while the underground cables were replaced. The era of real glory dates back to Peoria.

Charles C. Corne, Sr., WA9DCQ — a retired Sun Oil Company man in Peoria, Illinois — relates that the PE-95 power plant helped to keep his son "Butch" alive on several occasions when power failed at their home.

Charles "Butch" Corne, Jr. was stricken with polio at age 11 and spent 20 years in an iron lung. He learned the wireless code and became a licensed Amateur Radio operator, licensed as K9EAB. Because he was able to move only his right hand, he had a telegraph key rigged inside the lung. He became so proficient that he "worked" every county in the United States, to be proclaimed #1 among those who sought to talk to every county by Amateur Radio. Thanks to his father who became WA9DCQ later, he was able to catch sparsely populated counties. His father would drive to the needed county

(*please turn to page 39*)

Bud Froehardt (center), Illinois State Police radio technician, explains power generator features under radio tower to: (from left) Don Erickson, John Noyes and Vern Hunt of Iron River, Michigan, who towed the plant 350 miles north to timberland to do new duty. *(Photo by Ero Erickson, KA9DYS)*

VISIT YOUR LOCAL RADIO CLUB

For information on how to get your club listed in this column, plus receive many other benefits, write to Dave Tykol, WA6RVZ, Club Liaison, Worldradio, 2120-28th Street, Sacramento, CA 95818.

ARIZONA

Metropolitan Amateur Radio Club
J.C. Penny Restaurant, El Con
Tucson, AZ
Call in on 34/94 K7CC/R
Every Saturday morning - 8:00 a.m.

CALIFORNIA

Contra Costa Communications Club, Inc.
PO Box 661, San Pablo, CA 94806
Amateur VHF/UHF club and repeater
For info. call WA6KQB (415) 222-1523
Meets 2nd Sun. 9:00 a.m. Hickory Post

Fresno Amateur Radio Club, Inc.
P.O. Box 783, Fresno, CA 93712
Meets; 2nd Friday/monthly — 8:00 p.m.
Wawoha Middle School; 4524 N.
Thorne; Fresno. W6TO/R 146.34/94

Lake Elsinore Valley Radio Club
Wildomar Elem. Sch. (corner Palomar Rd. & Central)
Take Baxter Rd. turn off 71 Freeway
Monitor 146.55 simplex
3rd Thursday/monthly — 7:30 p.m.

Marin Amateur Radio Club (Founded 1933)
Coop Meeting Room
71 Tamal Vista Blvd.
Corte Madera, CA 94925
1st Friday/monthly — 8:00 p.m.

Mt. Diablo Amateur Radio Club, Inc.
PO Box 23222, Pleasant Hill, CA 94523
Meets: Grace Presb. Church, 2100 Tice Valley Blvd., Walnut Creek, CA 94595
3rd Friday/monthly — 8:00 p.m.

Nevada County Amateur Radio Club
Financial Savings & Loan Community Room
205 S Church Street — Grass Valley
2nd Monday/monthly — 7:30 p.m.
(916) 265-5958 for information

North Hills Radio Club, Inc.
St. Michael's Episcopal Church
2140 Mission Ave.
Carmichael, CA 95608
3rd Tuesday/monthly — 7:30 p.m.

San Gabriel Valley Radio Club, Inc.
Bowling Green Clubhouse
Arcadia County Park, Arcadia
1st Tuesday/monthly — 7:30 p.m.
(except June & December)

Satellite Amateur Radio Club, W6AB
PO Box 1615
Vandenberg AFB, CA 93437
1st Thursday/monthly — 8:00 p.m.
Building Z1160, Vandenberg AFB

Sonoma County Radio Amateurs, Inc.
3400 Chanate Road
Santa Rosa, CA 95406
Red Cross Building
1st Wednesday/monthly — 8:00 p.m.

Stockton Amateur Radio Club
University of the Pacific, Room 238
2nd Wednesday/monthly — 7:30 p.m.
Club repeater net roll call:
Wednesdays 8:00 p.m. — 147.165/765

CONNECTICUT

Tri-City ARC, Inc.
P.O. Box 686, Groton, CT 06340
Meets: Groten Public Library
Rt. 117, Groten, CT
2nd Tuesday/monthly — 7:30 p.m.

GEORGIA

Atlanta Radio Club
Box 77171 Atlanta, GA 30357
1st Thursday/monthly — 7:30 p.m.
Community Rm./Perimeter Mall Shopping Center
Call (404) 971-HAMS Net Sun. 9:00 p.m. 146.22/82

Columbus Amateur Radio Club (CARC)
David Nulty, N4ATI, Secretary (404) 687-3272
The Quonset Hut next to Food Stamp Center
Buena Vista Road at the "Spider Web"
2nd and 4th Thursday/monthly 7:30 p.m.

ILLINOIS

Illiana Repeater Systems, Inc. (IRS)
Palmer Amer. Nat. Bank Comm. Rm.
Danville, IL
3rd Monday/monthly — 7:00 p.m.
Call-in WB9YJF/R 146.22/82 "Super 82"

INDIANA

Allen Co. Amateur Radio Tech'l Society, Inc.
P.O. Box 10342, Ft. Wayne, IN 46851
3rd Tuesday/monthly — 7:30 p.m.
Red Cross Building
W9INX/R 146.28/.88 — WA9SNV/R 147.255/.855

Fort Wayne Radio Club
Ron Koczor, K9TUS
2512 Glenwood Ave., Fort Wayne, IN 46805
The Salem Church
3rd Friday/monthly — 7:30 p.m.

MICHIGAN

The Eastern Mich. ARC (EMARC)
St. Clair County Comm. College
Student Center Building (Cafeteria)
Port Huron, MI (313) 364-9640
1st Tuesday/monthly — 7:30 p.m.

SE Michigan Amateur Radio Assoc. (SEMARA)
PO Box 646
St. Clair Shores, MI 48083
South Lake High School
1st Friday/monthly (excet July and Aug.)

MISSOURI

Heart of America Radio Club
3521 Broadway
Kansas City, MO
3rd Tuesday/monthly

MONTANA

Great Falls Area ARC
Joe Heyde, WB7TNH
6000 2nd Ave. N.
Great Falls, MT 59405
1st Monday/monthly — 7:30 p.m.

NEW JERSEY

Delaware Valley Radio Association
Villa Victoria Academy
River Road (NJ 29) at I-95, Trenton
(609) 882-2240, call-in 07/67
2nd Wednesday/monthly — 8:00 p.m.

Glouster County ARC, W2MMD
PO Box 370, Pitman, NJ 08071
American Legion Post
Delsea Dr., Rt. 47, Clayton, NJ
1st Wednesday/monthly — 8:00 p.m.

Old Bridge Radio Assoc. (OBRA)
Cheesequake Firehouse — Route 34
Old Bridge Township, NJ
Daily 8 p.m. Net on 147.72/.12 MHz
3rd Thursday/alternate (odd) months 8 p.m.

NEW MEXICO

Eastern New Mexico ARC
First National Bank, Clovis
Box 206 • Clovis, NM 88101
(505) 763-6960/356-5993
2nd Tuesday/monthly — 7:30 p.m.

NEW YORK

Genesee Radio Amateurs, Inc. (GRAM)
PO Box 572, Batavia, NY 14020
State Civil Defense Center, Batavia
(behind NYS School for the Blind)
3rd Friday/monthly — 7:30 p.m.

Long Island Mobile ARC
H.B. Thompson Jr. High School, Syosset
Ken Denston, WB2RYC
(516) 379-6463/call-in 25/85
1st Tuesday/monthly — 8:00 p.m.

Staten Is. Amateur Radio Comm. (SIARC)
Northfield Savings Bank (side entrance)
Richmond and Castleman Avenues
Call KA2CUS (698-2006) or WA2KQN (981-0372)
3rd Thursday/monthly — 8:00 p.m.

OHIO

C.A.R.S. (The Clyde Amateur Radio Society)
Gary A. Kauffman, WB8MUG, Secretary
2nd Tuesday/monthly 7:30 p.m.
Community Rm., City Building, Clyde, OH
Repeater 147.075/.675 MHz

NOARS (Northern Ohio ARS, Inc.)
P.O. Box 354, Lorain, OH 44052
K8US (216) 988-2345/near OH T.P. Exit 8
3rd Monday/monthly — 7:30 p.m.
K8KRG/R 146.10/70 — 144.55/145.15 — 449.8/444.8

OREGON

ClatsKanie Amateur Radio Club
Route 2, Box 553
ClatsKanie, OR 97016
ClatsKanie Grade School Library
2nd Tuesday/monthly — 7:00 p.m.

PENNSYLVANIA

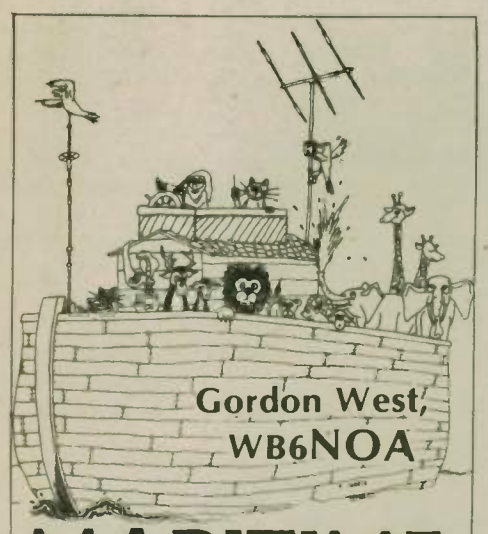
Radio Assoc. of Erie, Inc.
PO Box 844
Erie, PA 16512
John Lindvay, WB3IFD

TENNESSEE

Lakewood Amateur Radio Club
Harvey Cross, W4PKM, Activities Mgr.
Rt. 8 Box 460, Morristown, TN 37814
State Area Vocational School
Last Thursday/monthly — 7:30 p.m.

WASHINGTON

Seattle Wash. Area Mike and Key ARC
305 S 43rd St. (across from VG Hospital)
Renton, WA 98055
The Good Neighbor Center
3rd Saturday/monthly — 10:00 a.m.



Gordon West, WB6NOA

MARITIME MOBILE

Race communications, Part II

(Continued from last month)

Temporary antenna systems

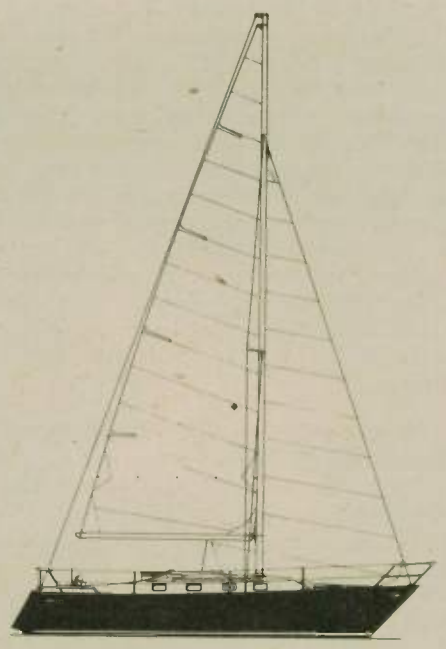
Your first consideration is to keep your HF antenna away from the ship's marine HF SSB antenna. This will prevent cross-modulation and splatter on your receiver when they are transmitting back to the participating vessels on maritime frequencies. Most temporary installations aboard work out well by utilizing mobile antennas located near a large source of ground. This means bring along a bumper ball mount, the long aluminum mast section, and a pair of resonators for each frequency you plan to operate. I say a *pair* in that sooner or later during the trip, one of your helpers is bound to lose one overboard!

Find a good location to mount your antenna system so that crew members may not inadvertently use it as a handhold when you're transmitting. Problems like this can decrease the "good will" image of you aboard when they come down with a burned hand! But also, consider you need a convenient location when you send someone up above to change resonators when the band falls out in the early evening. Feed the antenna with a suitable coax with RG-8/AU or RG-8X the ideal feed line. Once the antenna and ground system is in place, tune up and resonate each whip precisely on the predetermined frequency you plan to operate. Make sure your extra "back-up" whip is also tuned up for immediate replacement when the first one goes overboard.

Don't be concerned about water in heavy seas decreasing the efficiency when it coats the ball mount and the metal platform it may be mounted on. The RF voltage is at a minimum at the base section where it connects to the deck.

Finish line vessels permanently anchored in one position with a stern anchor out to prevent swinging on the hook may utilize beam antennas. Small efficient beams for portable operation are ideal, and if mounted on a rotor, you may always be assured of instant contact back to the yacht club or your escort vessels.

After you've checked out your antenna system and it resonates well, take some silicon marine seal to insure that corrosion doesn't eat away the copper braid as it is exposed to make the ground connection at the base of the antenna. Also, make sure that a wayward foot won't inadvertently separate the coax from the load. Remember, most mariners and race committee men are not anticipating new obstacles in their way aboard. *You're* the guest, even though you're probably one of the most important aspects of race committee work aboard, so keep your installations neat and out of the way.



Essential accessories

Here is a partial list of essential equipment to complement your portable maritime mobile Amateur Radio installation: tools, including a battery-operated soldering iron; flashlights; extra coax and grounding straps; a small back-up transceiver (Atlas 210 or 215 an ideal choice); head set; spare mike; fuses; SWR bridges; Volt/ohm meter; antenna tuner; extra log books; binoculars; and phone patch forms.

I also strongly recommend anti-seasick pills. I know, you never get seasick, but try operating down below decks for any length of time in heavy seas with five people with cigarettes blowing smoke in your face. If you didn't get seasick before, you will now! Just be prepared!

Frequencies and traffic

I generally tend to stay off the popular maritime mobile net frequencies, since this type of communications is not what they would want on their agreed upon frequencies. Predetermine what you feel will be a quiet segment in the 80, 40, 20, and 15-meter bands, and agree on times, bands, and alternate bands if the first band might be dead. Make sure you have several set frequencies and set times for each band of operation so that you're not chasing the other station through five different bands when you can't locate them on the first one agreed upon.

Watch your communications. Remember, many fellow Amateur Radio operators may consider your race results reporting a breach of Amateur Radio code of ethics. True, it almost borders on commercial-type communications, but it really isn't. Just make sure you remember that race results reporting might upset a nearby QSO if you happen to slop over on their frequency. Use diplomacy when going on the air for 30 minutes of numbers and vessel names and reporting times and positions.

Aboard, you will be besieged by crew members and committee men and yacht club commodores wanting to place phone traffic. Expect at least 10 phone patches a day, and make sure you have an agreement with a shore station ahead of time so they will be happy to pass the traffic. Most yacht clubs have an Amateur Radio member who likes to stay ashore and handle this type of traffic. No on-shore Amateur Radio operator enjoys getting hit with 10 successive phone patches. Don't even ask them — I'll save you the trouble of having to be turned down after the second call.

Be careful of who you allow to talk over the microphone. Exuberant committee men talking to their loved ones back home sometimes get carried away. Concerned businessmen many times will ask about office affairs. The yacht club commodore may want to check with his answering service to pick up any important business call traffic. Don't let them!

Try and set up some sort of way of managing the phone patch problem, and I guarantee it's going to be a problem when you're far out at sea and everybody wants to call home for free.

One remedy is to limit phone patches to *very important* matters. Have a sign-up sheet for messages only, and tell everyone aboard you're more than happy to pass their message, but will reserve direct phone patches only for the most important of messages that need to go ashore via Amateur Radio. This saves problems at both ends of the radio circuit.

Bon voyage and on the air

Once you are out there or on the finish line, you're going to find that although your ship may have medium frequency and high frequency single sideband marine channels, your Amateur Radio set-up will be the most important link back to the yacht club. If there is an emergency, first try maritime Coast Guard frequencies. If you can't get through, Amateur Radio is right there to help.

In 1969, on the Trans-Pacific Yacht Race, it was a very water-logged Swan transceiver that saved the life of a crew member smacked in the head with a spinnaker pole aboard the vessel Mahia. Our sideband gear on the maritime frequencies couldn't get the message across to the Coast Guard because of fading band conditions. We then switched to Amateur Radio, and through the expert operations of shore station Dave Atkins, W6VX, we were able to raise the Coast Goard and save the victim's life. It might be up to you on this next cruise to do the very same thing. Be prepared for that.

Like an airline pilot, make sure that at any time and at any hour you know what frequency and what band you can land a station on for immediate help ashore.

After the race is over and your committee boat ties up, you can relax and receive the congratulations for a lot of hard work that may not have seemed like a vacation at sea before. You'll find that your Amateur Radio operating has been known to every mariner who participated in the race, and they, too, will now have a high esteem for Amateur Radio operators.

The yacht club will probably invite you back again, and if the communications work out successfully, other yacht clubs may contact you to help man their communications on their upcoming race.

Every week, I receive at least one phone call from a Pacific Coast yacht club looking for an Amateur Radio operator who wants to set out on a three-week cruise to help out on communications. Are *you* interested? If so, check with local yacht clubs in your area and tell them you have equipment and will travel aboard!

73's and good sailing on the high seas.

The arm of Amateur Radio reaches around the world; **World-radio** is out to reach you.

Maritime mobile in a canoe

Wallace A. Johnson, W6OCR

There, there it was again! "W6CE Maritime Mobile Canoe calling CQ" on the 40-meter band from Lewiston Lake, California in Trinity County from a canoe!

I was on vacation with a mobile transmitter in my car heading for Lewiston Lake at the time, so I decided to check this one out. Maybe somebody was pulling my leg; wouldn't be the first time.

It turned out that Norm wasn't pulling my leg. When I got to the boat landing at Lewiston Lake, he was just about to pull in. I couldn't believe it! There he was sitting in his Sears fiberglass canoe, 14 feet long, slowly coming across the lake powered by two Japanese electric trolling motors mounted on the gunwales of the canoe. The antenna was a Hustler, sitting

Norman Weed, W6CE, shows off his mobile transmitter-equipped canoe.

in front of him on a mobile mount, and he was loading it with an antenna tuner. His transmitter was powered by three batteries in series, and for a ground, he was using the whole lake by attaching a plate to the keel of the canoe. He was getting out like mad!

It was a real pleasure meeting him because I realized that here was an innovator who really enjoyed his hobby, and in so doing, was bringing pleasure to others.

No doubt, our Indian forebears who used their canoes in this very lake many years ago must have been looking down from their Happy Hunting Grounds and commenting, "That white man, big chief! Has strong medicine." Indeed he does, but don't take my word for it. Look for him on 40 meters.

I could be wrong, but I believe that W6CE is the *only* maritime mobile canoe in the whole world. That's quite a distinction. □

Generator

(continued from page 37)

and talk to his son via his mobile radio rig in the car. He recalls driving to Montana to talk to his son from the roadside very late at night.

When "Butch" Corne died at 31, an Amateur Radio friend in Australia missed his calls. He called Peoria by long distance to learn that Corne's signal had become silent. The standby generator behind the home hadn't. Twenty years later, the aging and somewhat battered surplus power plant built to support wars still purrs away, back in the woods, providing muscle and energy for those in need. It will probably go on doing so for more generations to come if we don't completely run out of gas or if solar power doesn't replace it.

The RAMS club meets every third Friday of the month at the Irvingwood-Acacia church, 3900 North Plainfield Avenue at 8:00 p.m. and welcomes Novices and visitors.

—*RAMS-HAM, Chicago, IL* □

Chicago club

The Tri Town Radio Amateur Club, started over 50 years ago, is located in the south suburbs of Chicago. Meetings are held at 8:00 p.m. on the first and third Fridays above the police station in Hazel Crest, Illinois. Official club address is P.O. Box 302, Hazel Crest, IL 60429. □

Chicago FM club

The Chicago FM Club, in Chicago, Illinois, holds its meetings the third Wednesday of every month, along with a dinner. The club currently has about 400 members and runs four repeaters -- one on 2 meters, two on 220 meters, and one on 440 meters. Members of this club are very active in public service work, and run a swap net once a month. A weekly information net is operated every Tuesday, 8:00 p.m. on 146.16/76. □

People reaching people. Amateur Radio is what **Worldradio** is all about.

WITH THE HANDI-HAMS

Bruce L. Humphrys, KØHR

1981 — A Space Odyssey*

**Any similarity betwen this title and the famous film of a few years ago, "2001 — A Space Odyssey" is definitely intentional!*

I have just read with wonder a short synopsis of electronic milestones achieved in 1980 as reported in the January 1981, issue of **Spectrum**, the montly publication of the IEEE (Institute of Electrical and Electronic Engineers). Electronics has grown so much this past decade, you can barely find a reference to **transistors** — much less something known only to old-timers as "vacuum tubes" (what's them, Dad??). Let me extract a portion of the report which interested me most:

"The Voyager (spacecraft) is stabilized and oriented on three axes . . . by an on-board computer that receives signals from a sun sensor and a star tracker . . . When either the sun sensor or star tracker detects an error, the spacecraft's computer automatically commands the thrusters to correct the orientation."

Now, I find that absolutely fascinating — but there's more —

"NASA engineers learned in April that the star tracker's field of view had shrunk during the encounter with Jupiter. What happened, the engineers report, was that the radiation around the giant planet had probably damaged an epoxy/Teflon insulator used to protect a transistor lead for the tracker."

(Volume 18, NR1, p. 53)

IMAGINE THAT — A ton of electronics, millions of miles away, and they know which lead of which transistor is bad!

The report goes on to tell of the "fix" made. They reprogrammed the on-board computer using a "word" that was already in the computer's bank, but unused. They programmed this "word" to act as a command for the computer. The result was a complete fix — the Voyager whipped on by Saturn — and sent back breathtaking pictures and data: with that ton of electronics perfectly aligned.

Those of you who have seen "2001 — A Space Odyssey" will remember that, nearing the planet Jupiter, the spacecraft's on-board computer developed a "personality problem" (in fact, it killed some of the crew members — *quite* a personality problem!). The remaining crew member went through several choices of action — and decided to "deactivate" the on-board computer (HAL) and substitute the Earth-bound twin HAL.

When I first saw that film, I thought — "Boy, either somebody has incredible foresight, or incredible imagination". I opted for the imagination. Nothing could be that fantastic, I reasoned to myself.

Well, Buckeroo, the year 2001 is here already, 20 years too soon!

And what does this have to do with the price of a pile-up on 20? Just this: a logical spinoff from the technology which produces such prodigious feats as just related is increased communications capabilities for us amateurs, still down here on Earth. It wasn't too long ago that if you didn't know how to "peak and dip" you didn't get a transmitter on the air. Nowadays, you only turn on a knob — whiz bang, you're there! We recently reoutfitted our 20, 15, and 10-meter position at HANDI-HAM Headquarters with station equipment more easily suited to use by several handicapped operators. A Ten-Tec OMNI transceiver excites (boy, does it!) a Ten-Tec Hercules Linear Amplifier. The darn amplifier is completely controlled by the exciter! Bandswitch and all.

The Rehabilitation Engineering Department here at Courage Center (right next door to us) developed a sound switch for a patient. I have no doubt at all that this little thing could be hooked up to the OMNI to control a complete 1kW Amateur Radio station with a grunt!

All of this makes operating an Amateur Radio station by a handicapped amateur a lot easier. We hope, this year, to help this along by developing some "gadgets" to ease station control. Very high on our priority list is the development of a universal frequency voice readout device — something that can be used with *any* transmitter, receiver, or transceiver, and doesn't cost an arm and a leg to make. We also hope to do some looking into methods of making more modes of amateur operation available to the deaf.

Computer control (low cost) of a complete station could benefit severely handicapped operators.

The opportunities are limitless. Shucks, if Man can find a glitch in a ton of electronics several million miles away, and *fix* it — think of what he can do right here!

Share our fantasies with us. Pitch in with your ideas. Remember: The OSCAR satellites weren't build by professionals — they were built by *AMATEURS*. And they're darn good, too! □

Silent Keys

The Courage HANDI-HAM System mourns the passing of some very good friends:

Scott Suddendorf of Byron, Minnesota — one of the earliest members of the original Minnesota HANDI—HAM System; Thomas "Rodder" Purnell of Georgetown, Delaware; Harold Allen, engineer-in-charge of FCC Field Office, St. Paul, Minnesota — Harold was very interested in testing procedures for handicapped applicants and was an important voice for the handicapped at the Commission; Rich Hietala of Rochester, Minnesota; Tom Carr of St. Paul, Minnesota; Bob Taylor of Orlando, Florida; Lionel Hibma of Worthington, Illinois.

We will miss these valued members of the System.

— *HANDI-HAM World* □

Round-up

Since the very beginning of the Courage HANDI-HAM System, there has been a weekly event each Saturday afternoon, September through May. The event is called the HANDI-HAM Round-up.

The Round-up is a very informal network, with the purpose of developing fraternity within our system. We receive check-ins, get informal comments from each participating station, take a "half-time" break and try to keep you informed about what's happening in the system. It affords each member the opportunity to express his thoughts and needs.

The net control duties are shared by various HANDI—HAM members and have provided training experience for many who have aspirations to handle traffic and net control responsibilities.

HANDI-HAM Round-up, formerly held on 80 meters, has been expanded to another band to enable more people to participate. Currently, the Round-up is held on Saturdays, September through May from 1:30 to 3:00 p.m. on 7250 kHz.

— *HANDI-HAM World, de KBØAE* □

MARS

Vern Hansen, WB6UWQ/AAA9W

The 'good old days'?

Vic Gish, W7FIX/AAT9DH

Looking back over the years and recalling the changes that have come about makes one wonder just when radio gear will stop getting smaller and smaller. Tapped loose couplers and galena crystals for detectors (no amplifiers in those days) and spark transmitters with Leyden jars for condensers, and inductances of copper strip (about 1/16 x 3/4 inch), and spark gaps from open through rotary and finally the quenched type, graduating to tubes — these were all common many years ago.

Despite all the changes, one thing still remains on the old frequencies: the shipboard calling frequency of 500 kcs or 600 meters. The Navy shipboard calling frequency was on 952 meters (315 kc) and when direction-finding came in, they used 800 meters (375 kc). Naval shore stations had different frequencies; these ranged from around 1300 meters up to around 2700, while those that broadcasted to the fleet and who handled station-to-station traffic went up to 15,000 meters and more. Some of these are still in use today.

But World War I changed things. In what is now the broadcast band from 550 to 1600 kcs, we had our first transmitters using tubes (the old Western Electric VT1 and VT2) and we came into voice operation for the first time. Our closest approach to high frequencies came about with a British rig that operated on about 2700 kcs. At the start of that war, the old DeForest ultra-audion made its ap-

pearance in the fleet (that was the tube with a candelabra base and a red lead and a green lead sticking out the other end of the tube. This was widely used to copy broadcasts from arc transmitters; there were many receivers used that were made from Quaker Oats boxes (on which to wind many turns of wire), and with unshielded inductances you had to be sure not to get too close or you would lose your signals. Many a page of press news was copied on these old receivers, as were the propaganda broadcasts from Nauen, Germany.

When that war was over and amateurs started operating again, they had all the frequencies from 1500 kc (200 meters) on up. They kept going up and up until the rest of the communications outfits finally found you could do as much with a hundred watts on 40 meters as you could with hundreds of kW on the very low frequencies. In the early 1920's, and even up to the latter part of that decade, many a receiver or transmitter used in the service was taken from issues of **QST**. We did have some receivers with three tubes — a regenerative detector and two stages of audio which were shock-mounted to get away from the noisy tubes that picked up every shake or rattle which could jar it. We also had some in which the receiver was in one case and the audio in another, and believe it or not, the audio transformers were air-cored and wound with miles of number 40 wire. The screen-grid tube came out around 1927 or 1928, as did the super-het receiver. The first high-frequency tube transmitters were almost always locally built. I started out with 5 watters, went to 50 watters and then 250 watters using the Hartley self-rectifying circuit — two tubes and AC on tne plates — and we used 500 cycles on the plates which resulted in a nice tone at the receiving end. Our early day long-distance circuits operated around 8,000 kcs and quite a bit of trans-Pacific was handled on this frequency with these home-made rigs; and that was only 50 years ago.

However, no matter how far up we went in frequencies, it seemed the amateurs were always a little bit higher. Of course, with the coming of World War II, things began to spurt again in the communications business of the Armed Forces, and CW took a back seat with the advent of RTTY. Many a MARS member has one or more of the 30 tube receivers in his shack that was discarded by the various services and some, when converted to SSB, turn out to be very effective. Present-day amateur gear is a far cry from that which was used a half century ago, as is the gear and modes of communication used commercially.

So we have gone from no tubes in the shack, through a huge variety of tubes, to solid state — from receivers weighing 50 pounds or more to transceivers weighing less than 20 pounds for even a 250 watter. Where do we go from here? ESP? □

Send a greeting by radio

Tonya Bassett

One Amateur Radio operator in Northern California has made several residents in his area happy. The operator is John Green, KA6AHY/AAR9OX, of Paradise, California. His good deed? He's set up a free service through which people can send messages via MARS anywhere in the United States. Enlisted personnel and their families, however, can direct the messages anywhere in the world where U.S. armed forces are stationed.

"This is a great thing to offer to the ridge," noted Wayne Hall, Paradise Chamber of Commerce president. "There are a number of people living on fixed incomes who might not be able to afford to telegram or telephone their greetings. Anyone can come to the Chamber's office, fill out the form and send a message this way. The only things that can't be sent are business or financial transactions."

In addition to the ban on business or financial transaction messages, Green said the Amateur Radio operators will not transmit news of a death. "We send personal messages that are usually of the 'happy birthday' or 'congratulations' type. We don't like to be the bearers of bad news."

Green — a retired Air Force man — said being an amateur operator had been a dream of his for years, but didn't become a reality until recently.

"When I lived in the Canal Zone, I had a neighbor who was a ham operator and I used to love to sit in his ham shack and listen to everything going on," he remembers. "I knew then that I wanted to be an operator, but it wasn't until two years ago that I found I had the time for it."

In addition to transmitting messages

(*please turn to page 43*)

As Armond Brattland mentioned in his February column, he's decided to change the name of his column from "Novice" to "The Exchange", since much of the column is devoted to subject matter not restricted to Novices. Armond encourages feedback on material in his column, and feels the new column head (suggested by a reader) is appropriate.

Volunteers are needed

Whether the net is called National Novice Net, National Net and International Net, or whatever, "jobs are waiting." The suggested frequency: 21,150 kHz, BUT if you wish to change the frequency, more power to you. Just remember that on a traffic net, you should have plenty of space both above and below the net frequency, for stations to go off the net to operate. ALSO, remember that if such net is operating too close to band edges, some may "fall off!"

It has been suggested that the frequency be well advertised. If stations with written traffic make calls on 21,150 kHz indicating they have traffic and giving destination, gradually those with traffic will learn to seek out such publicized frequencies. ARTS, the Amateur Radio Telegraph Society, operates on such basis. At various times of the day, listen around 7060 kHz and sooner or later, you will find calls for ARTS. While in the Midwest, I heard stations getting together around that frequency — they just seemed to be drawn together. If there is other activity on 7060, you will find stations a little lower or higher in frequency, but they get together and handle their traffic. In such cases, the stations usually QSY off what they consider "the net frequency," thoughtfully leaving it open for others to make a call for ARTS. Several have asked, "Why are nets needed?"

In thumbing through back issues, I find that Bob McGarvey, WB2EVF, has mighty well answered the advantages to Amateur Radio in supporting nets. One article of his appears on page 49 of the October 1979 **Worldradio**, under the heading: "*In favor of nets.*" For the benefit of late subscribers, it is repeated as printed in **Home News**, New Brunswick, New Jersey.

"I wonder how many people have stopped to consider the amount of frequency space saved by many net operations.

"You'll hear grumbling about this net or that taking up a frequency for hours at a time, or even all day. But have the grumblers stopped to consider hundreds of calls made on that frequency would have been distributed all over the band if there were no net?

"Take 14.313 in the 20-meter General phone band as a sample frequency. There is a succession of nets utilizing the same frequency, all performing a service in communication. The Maritime Mobile Service Net, MARCO, the Seafarers Net—all these and more use the same spot on the dial at different hours. They conserve band space and contribute to the rest of the Amateur Radio world.

"On 40 meters, ECARS at 7.255 and MCARS at 7.258 make it possible to call someone, to keep a schedule and to get and give information without tying up half the band. Add WCARS, which also uses 7.255, and you have a national package of band space conservation.

"If you want to get an idea of how many nets exist, what they are trying to do and the people they serve, the ARRL has a free net directory available to members; you pay postage. The directory is not complete, as few rosters in radio can be updated often enough to keep pace with additions, deletions and time changes — but it will give you a perspective.

"The booklet lists all kinds of nets. Perhaps the largest in the service category is the YL Single Sideband Communication Service, for international emergency communication. Main operation is on 14.332, with other services on 10,15,40 and 75-meter phone and on CW. In between emergencies, the net keeps members from wandering all over the band and making random calls, and at the same time makes more frequencies available for use by others.

"Don't brush nets off as frequency hogs. They're doing you a favor, whether you know it or not."

Several readers question — "Why bother with frills; just send your message!"

All traffic handlers and all traffic nets have occasionally had the problem of explaining WHY it is necessary to have a number for each radiogram. We've gone into that, as has Chuck Clark, K4ZN, in the well-written Traffic column. If you have handled written traffic for any length of time, you are most likely well-acquainted with the operator who comes on, wishing, "no frills"; just, "Tell Joe I'll be on frequency a week from Wednesday." He desires "informal" handling as well, to the extent it just might not reach Joe at all. There is no reason not to add the items to insure delivery and in the event of non-delivery, a service message stating the reason — except for "laxy" habits. There may not be such a word, but it does differ from "lazy" and is closely related to **indifference.** In the event of an emergency wherein written traffic may be required, one should eliminate the habits which do not muster up to the demand. It is not easy to change habits, especially those that follow the lines of least resistance.

It may be that some amateurs feel that sending traffic in well-established form means extra effort need be expended — they may be within the lazy group. The fact that so many never even try to check into traffic nets, or handle any traffic at all, indicates that we amateurs — as a whole — are not as well-trained or qualified to properly service in an emergency as we claim to be.

Just about a year ago, in the April issue of **Worldradio,** Chuck K4ZN gave some startling figures about the few who handle traffic. Here again, for the benefit of those late subscribers who do not have access to the article, the portion headed: "An invitation" is being repeated, to wit:

"Everything seems to indicate less than one percent of the amateurs on the air have ever made use of the extensive system of traffic nets just waiting to be used. Adding up the listing for the Brass Pounders League in February QST, I found 41 stations claiming a total of 36,608 pieces of traffic for the month of November 1979. That translates to about one ham in 10,000 made BPL that month.

"I didn't add up the totals in the Station Activities section, but it usually comes to a little over a thousand stations passing maybe 150,000 messages. That means maybe one amateur in 300 reported handling formal traffic.

"When you note it's the same ones month after month who send in their reports, the conclusion is inescapable: the vast majority of amateurs has never been involved in formal message handling.

"That's their privilege. There is no law saying any amateur must handle traffic. Other aspects of Amateur Radio are no less important than traffic handling (quite an admission for a traffic handler to make) and should have our full support.

"But I sometimes wonder if there may be some who don't know of the existence of Amateur Radio's traffic system or of its capabilities, don't realize it's available for anyone to use, and often can be helpful to amateurs involved in other activities too.

"Some examples: Why not send a formal message to set up a schedule or to swap DX notes? Or maybe to ask a station in a state you need to contact you? Why not send a message to friends or relatives instead of writing a letter? It often has much more impact than a letter, and it's free.

"If you like an article in **QST**, send the author a message saying so. Or if you disagree, you can express your disagreement via radiogram too. Most authors appreciate feedback from readers, even negative feedback, because it assures them there actually are people who have read what they have written.

"Sending a message is as simple as writing a letter, and you don't even have to go out of the house to mail it. You can put it into a net yourself, or give it to a traffic handler to send for you. You don't have to worry about routing it or getting someone at the other end to handle it.

"Putting it into the system is just like dropping a letter into the mailbox. The regular traffic handlers will take care of it from that point and move it on to the destination given in the address.

"Perhaps you are afraid of that formal bit. Anything formal turns you off; you feel much more at home in blue jeans than in a tuxedo or an evening gown.

"That's no problem. You can give it informally to any traffic handler, who will be glad to take care of the formalities, or help you with them if you prefer. Don't be afraid to ask. Asking a traffic handler to handle traffic is like asking a DXer to work DX or a golfer to play golf; you're doing the favor.

"You don't know any regular traffic handler? If you work HF, you must have heard nets in operation. Just check into one.

"You don't know procedure? You can talk English, can't you? Most net controls can. Just tell the net control station you want to send a message and don't know how to go about it. Ask if maybe someone could take you off frequency and help you. I don't believe there's a net member on the air who wouldn't be delighted to help.

"If you're limited to VHF, try asking for someone to take formal traffic to wherever your message is going. Many traffic handlers operate VHF too, and the chances are pretty good you'll pick up one of them after a few tries.

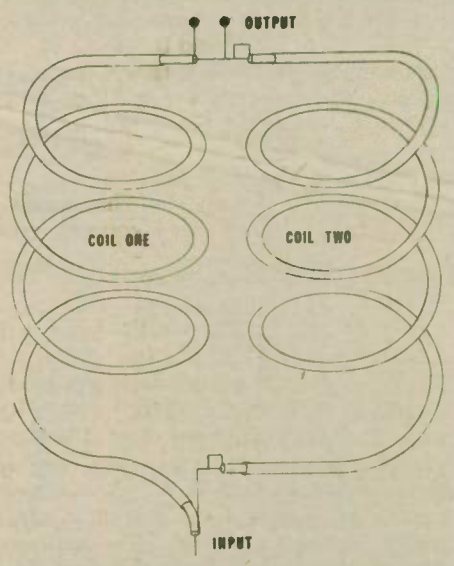
"If you have never made use of this service of Amateur Radio, you have a surprise in store. The fruit of close to 70 years experience, the message gets through, often when nobody else can."

About baluns

Space did not permit printing a sketch and further explanation material about the balun in the February issue. It has been written up many times, but seldom as clearly as by Hy-gain Electronics. The following was taken from their "Form #205 HG 104."

"The RF current which flows down the shield of coil #1 from the antenna ter-

minals sets up a magnetic field in the core of coil #1. The RF current which flows in coil #2 sets up a field in the opposite direction of that of coil #1. Coil #1 and coil #2 are tightly coupled to each other; hence, the two fields cancel and there is no radiation from the feedline.



"This transformer is not a tuned circuit or cut to a specific frequency and, therefore, is a very broad-banded or frequency independent device. Each of these baluns also has the advantage of being a 1:1 impedance transformer which feeds both sides of a dipole equally, with a negligible insertion loss, providing antenna and transmission line isolation. The result is virtual elimination of TVI caused by line radiation; elimination of stray RF from the feedline and supporting structure; true uni-directional beam pattern; improved front-to-back ratio; improved noise level and improved reception." □

New Novice net on 80 meters

Frank Britto, WA4CRI, of Ormond Beach, Florida, invites Novices and also higher class licensees to check into the Daytona Beach Training Net, (DBTN), on Sunday evenings at 7:30 p.m. Frequency is 3,740 kHz in the 80-meter Novice band. Basic net procedures are demonstrated and everyone is welcome. Net control is usually KB4T of Daytona Beach. Speeds are 5 to 8 wpm and NCS will slow down on request.

— *SIARA News* □

RBRA offers Novice course

Bob McGarvey, WB2EVF

The Raritan Bay Radio Amateurs are offering a Novice licensing course again this winter, so any aspiring radio buff who wants to work for a ticket can take advantage of the opportunity.

Classes will be held Thursday at 8:00 p.m. at the Civil Defense Building, 167 Main St., Sayreville. There is no charge for the course and it will be under the direction of George Miller, K2FD, who has conducted many similar programs.

If you have any questions, call 257-2500 on Wednesdays between 7:00 and 9:00 p.m.

If there is enough interest, a General Class theory course may be added to the program, for Novices and Technicians wishing to upgrade.

— *The Home News* □

THERE'S A WHOLE NEW WORLD OUT THERE WAITING FOR YOU – JOIN IN.

Send a greeting

(continued from page 41)

for ridge residents or working on the MARS system, KA6AHY enjoys ragchewing on the bands with other amateurs. He has contacted operators as far away as Brazil and islands in the South Pacific, but says his main satisfaction in being an amateur operator comes from his work with MARS and passing along messages.

"It's fun to telephone someone you don't know and relay a message you've received for him on the air," Green remarked. "The best part of this whole thing is providing a service to people."

— *Paradise Post* □

Hand-helds a no-no!

Howard Bassham, K6RYA
Happy Flyers Commander
Squadron Six
Active Airline Captain

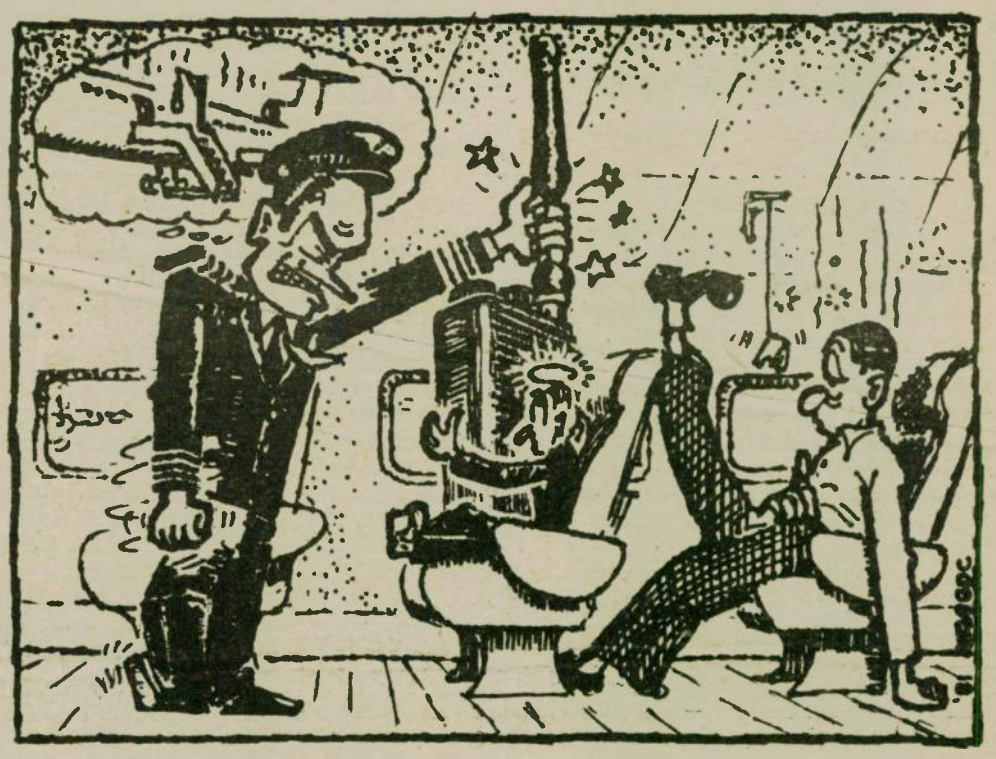
There is a Federal Air Regulation (Part 91.19) which prohibits airline passenger use of electronic devices with the exception of hearing aids, portable voice recorders, heart pacemakers and electric shavers. It makes provision for other exceptions at the discretion of and with the approval of the airline carrier. There is good reason for this prohibition, which should be considered by any amateur who wishes to use a VHF hand-held with a rubber duck at 30,000 feet.

The temptation to test your personal RF generator can be a great one — with some exciting results guaranteed to get you some immediate attention.

One of the nice things the airplane manufacturers build into these long aluminum tubes is a pressurization system which assures all aboard of a comfortable almost "sea-level" supply of oxygen and atmosphere. These systems aren't always shielded from spurious RF from inside the pressure container and such RF has been known to open electrónically-controlled outflow valves — a circumstance which can require the captain to make an emergency descent so as to save all passengers any headaches, bleeding ears and noses. Things are different above 30,000 feet. That is almost seven miles — straight up!

Such surprises would probably, at the very least, gain for the culpable amateur operator the aggravated attention of the captain, as well as all other passengers unaccustomed to descending 20,000 feet in a matter of seconds at 500 miles an hour. It might also gain for the licensee an alternative means of transportation to his destination, after the legal considerations were resolved. There would probably be a review of those license privileges, too.

A Federal Air Regulation is federal law. If you are tempted to use that 30,000-foot antenna, use it for receiving — not transmitting! □



Cartoon by Paul Hower, WA6GDC

SPREAD THE WORD ABOUT AMATEUR RADIO!!!

TRAFFIC

Chuck Clark, K4ZN
Assistant Director
Roanoke Division, ARRL

Letter from Sweden

A letter came recently from Kurt Franzen, SM5TK, Secretary of the SSK (Sandareamatorernas Sambandskar — Swedish equivalent of Amateur Radio Emergency Service), that should be of interest to traffic handlers on this side of the Atlantic. Here are some excerpts:

"It would be wonderful if we could open the North Atlantic path for traffic. We surely need support from the United States and I hope the new third-party traffic concept could be accepted by FCC as proposed.

"I guess that access to a quarter of a million amateur population could mean a meaningful rise in traffic volume (long distance) coupled together with more interest from the Europeans.

"Our AREC (SSK) in Sweden begins to stabilize, 10 groups from the northern to the southern part are established, and some of them have had emergency traffic exercises using FM and repeaters. Others are very often occupied in Public Service events on behalf of Amateur Radio. But we are still in a developing stage and seeking official support from the national organization SSA (I edit a column in the SSA paper QTC called 'Traffic.' SSK membership is around 200 and slowly increasing.

"The other day I received a radiogram from DL-land about health and welfare traffic for Italy. There has been third-party traffic on the HF bands in Europe concerning the earthquake disaster in Italy, more or less officially. But we are not ready yet in Sweden because our Telecommunication Administration is rewriting our regulations and we hope they will favor Amateur Radio Emergency Service. Requests have been sent in these matters from SSK and local ham clubs. We will know some time in the spring of 1981.

"SARNET (Swedish Amateur Radio Net) has four region nets (3RN-6RN) that meet twice a week. There is also an area net for inter-regional traffic, Scandinavian Area Net (SAN) a half hour later. About 25 sessions a month and 200 radiograms average handled. Perhaps 10-20 hams involved with slowly increasing number.

"Sven, SM0IX, will participate at Region 2 meeting in April 1981 at Brighton, England, as an observer, keeping an eye on a motion he has made on behalf of SSK via SSA: emergency traffic based on rules, etc., in ARRL Operating Manual. To have uniform traffic, worldwide radiogram form. I hope the motion will be approved and accepted.

"We are looking toward a promising future for Amateur Radio via our emergency service and preparedness."

Where do we fit in?

International law forbids amateurs to handle third-party traffic except where there are agreements between the countries concerned permitting such traffic. But international law does not define "third-party traffic." That definition comes from the FCC and is found in Section 97.3 (v) of the amateur regulations:

"**Third-party traffic.** Amateur Radio communication by or under the supervision of the control operator at an Amateur Radio station to another Amateur Radio station on behalf of anyone other than the control operater."

This definition effectively rules out amateur-to-amateur-to-amateur relays, and in this it is more restrictive than the rules in several European nations. If enough support can be gathered, we might be able to persuade the FCC to amend this definition, perhaps in the process of rewriting the regulations into plain English now in progress. All that would be needed would be to change the last phrase from "anyone other than the control operator" to "anyone other than a licensed radio amateur."

It's fine for the FCC to relax the rules to allow emergency traffic, but such traffic will not be as efficiently handled under present rules as it would be if there were an international traffic system already in place and prepared by regular daily operation, which can handle such emergency traffic without fuss or trouble.

ARRL's Washington representative has already made some inquiries at the FCC; but what is needed is action by the Board of Directors, formally requesting such a chance together with plenty of grass-roots support. Right now we need to tell our Directors that this is needed, that it will enhance our ability to render public service as well as enhancing Amateur Radio's contribution to international good will. So let your Director hear from you at once, in time for him to act at the Board meeting this month.

NR 16 R DL1FL 85 KIEL 1900 DEC 1
SM NET ES DL NET =
ON REQUEST OF DARC THE GERMAN TELECOMMUNICATION ADMINISTRATION HAS DECLARED ON NOV 26 THAT THERE ARE NO OBJECTIONS TO HEALTH AND WELFARE TRAFFIC IN CONNECTION WITH THE EARTHQUAKE DISASTER IN SOUTHERN ITALY X THIS IS OF GREAT IMPORTANCE SINCE MANY ITALIANS FROM THE STRICKEN AREA ARE WORKING IN GERMANY X DARC HQ STATION DFØAFZ WAS MANNED WITH AN ITALIAN RADIO AMATEUR WITH GERMAN CALL SIGN AND ALSO ESPECIALLY SOME OTHER ITALIAN DJØ OPERATORS FROM OTHER GERMAN TOWNS HANDLED SUCCESSFUL WELFARE TRAFFIC WITH ITALY X 73 =
ALFRED

Rec´d fm DKØTU 80-12-08 1945z

This is the radiogram received by Kurt Franzen, SM5TK — Secretary of SSK — from DL land.

Using CW

Probably more amateurs use voice than CW to pass traffic, but more traffic seems to be handled by CW than by voice. Most of the high-volume circuits use CW, as it's faster and more accurate and less plagued by interference. But too many of us are afraid of our lack of ability to handle CW, so we tend to stick to voice circuits. As a result, most traffic seems to end up on a voice circuit for final delivery, as the CW net seldom has anyone within calling distance of the destination. But the intermediate relays are more likely to be by CW. So most voice nets need operators who are able to use both modes effectively.

Actually, CW should not be such an obstacle. Anyone operating voice on HF has at one time been able to handle 13 wpm. And even Novices and Technicians at least know the code. Work on it a bit and you can get your speed up to where it's comfortable. Copying W1AW's practice transmissions and bulletins is the best way. And work on the faster transmissions too, 20 wpm or more. The only way to increase your speed is to try to copy something that's a bit too fast for you, to fill up wastebaskets with "chicken scratching."

A FEW TIPS: once you get to where you copy with few mistakes, wait and listen to the whole word before you write it down, then write it while you listen to the next word. This is "copying behind," and when you learn to do it, your speed and accuracy will take a big step forward. With the International Code we don't need to do it as much as with the American Morse Code, with its long and short dashes and spaced letters. American landline operators had to copy behind, since they often couldn't be sure what was being sent until they heard the whole word. For example, O in American Morse is dit space dit. The space in the middle of a letter is supposed to be less than the space between letters, but sometimes one couldn't be sure, as, for instance, if one copied SP dit space dit one wouldn't be sure if it was SPO or SPEE. If the last letter were T, then it was SPOT, if it were D, the word would be SPEED.

Copying behind came quite naturally to these old-timers, and as a result they became the best operators on radio cir-

cuits with the International Code. In fact, I've seen them copy mixed American and International Code and get it solid.

You'll also find this ability helpful when you start to work some of the old-time amateur traffic handlers. Some of us have developed incredibly sloppy fists over the years, and survive only because those we work have learned to read us. Of course we should do something about it, but a lot of us don't, and so the rest of us have to do the best we can. If one copies behind, one can often make sense out of what would otherwise be just garble.

But the fact that people can somehow copy what we send is no excuse for sloppy sending. Make a tape recording of your fist sometime, then try to copy it a few days later. If you have any difficulty, better get some practice, such as transmitting on a practice oscillator in step with W1AW.

But you don't have to wait until you are a CW hotshot to start using CW for handling traffic. Rather, handling traffic will cause your CW ability to improve rapidly, especially in the matter of accuracy. Nothing less than 100 percent is acceptable in traffic work. There are many nets that deliberately keep their speed down to about 12 words per minute, and will go slower if requested. Ask anyone who handles traffic regularly by CW, or your Section Traffic Manager, or Section Communications Manager. Any of them should be able to tell you. And there's the nationwide net on 21,150 kHz that's being sponsored by the Novice editor, Armond Brattland, K6EA. Remember, we all had to start, and most of us haven't forgotten the blunders we made; so we'll do our best to help you join us. There isn't a CW net in the country that can't use more help.

Coherent CW

Many of us—probably most of us who prefer CW—were disappointed, if not downright mad, when the ARRL Board asked the FCC to open more frequencies to SSB, especially on 40 meters. We used to have that band all for CW, and now it looks like they're fixing to take it all away from us.

I share that feeling, but I also wonder if we CW folks are making the fullest use of what we have. Many of us use SSB rigs which have CW added as an afterthought and are as broad as a barn door. As a result, stations a kiloHertz or two away make it hard or even impossible to copy the one we want to work. The first step is to get better selectivity, either by using a sharper filter in the IF or by adding an outboard audio filter. If we can cut the bandwidth down to 200 Hertz or so, the crowding won't bother us nearly as much.

But for the ultimate in CW, we could go to **coherent CW**. It's an idea that has been around for years, but until recently we didn't have equipment stable enough to put it to work. We do have it now, and it's within the range of prices that we can afford. As the 1981 ARRL Handbook says, it's an idea whose time has come.

Briefly, for coherent CW, transmitter and receiver have to be on the same frequency within one or two Hertz. The receiver is zero beat with the signal, so that the result is a DC output. Secondly, the dits and dahs are precisely timed so that the receiver has a gate that opens for the length of a dit, then measures the energy stored during that time. Anything other than a signal on the desired frequency will give an AC output, with the positive half-cycle cancelling the negative, and so the total will be near zero. A sample-and-hold circuit then stores the output level as totaled up at the end of the dit period, and holds it for the following dit period. An audio tone is modulated by the level in the sample-and-hold circuit at any instant, giving the signal as transmitted, but one dit behind.

I've added a bibliography at the end of this column for those who are interested in reading more. And I hope to say more about it in the future. With coherent CW (CCW), a station 10 Hertz away does not interfere with the one you're copying! Just think: we could pack **all** the CW stations operating on 40 meters within the bandwidth occupied by a single SSB station. It looks like it could have as much impact on radiotelegraphy as did the change from spark to CW 60 years ago.

At present, Ray Petit, W7GHM, of Petit Logic Systems, P.O. Box 51, Oak Harbor, WA 98277, phone (206) 675-1383, is the only supplier of CCW gear, and it's not expensive. He has a kit for a CCW filter: everything needed for using CCW methods to recover the signal from the audio output of the receiver except for a few resistors and capacitors and a switch or two, for $80, and also a precision frequency synthesizer that sells for $335 ready to run, $265 in kit form. One still has to be something of a technician to use CCW. It hasn't reached the state where you can buy a box to add to your factory-built rig and be using CCW in five minutes. But it's getting there.

Just think, send a pair of stations up 50 Hertz to pass traffic a tuner-upper 10 Hertz from the net frequency wouldn't even be heard. Finally, as a bonus, you get a 20-decibal gain in signal-to-noise ratio when you use CCW, so your 5-watt rig would get out like a half kilowatt.

Here are some articles to consult for more information on CCW:

—A. Parrish, "Detecting VHF signals too weak to be heard," **QST** January 1968, page 44.

—W. B. Adey, WB6DEX, and R. T. Kado, "Synchronous weak signal detection with real time averaging," **QST** December 1968, page 31.

—Raymond C. Petit W7GHM, "Coherent CW: Amateur Radio's New State-of-the-Art?" **QST** September 1975, page 26.

—Adrian Weiss, W8EEG, "Coherent CW," **CQ**, June 1977, page 24; July 1977, page 48; January 1978, page 44.

If you want to hear what CCW sounds like, most activity is on 14,049.000 kHz. Ray Petit, W7GHM, says other active amateurs are Charles Woodson, W6NEY; James Maynard, K7KK; Bert de Kat, VE3DPB; and Don Gross, W3QVC. Also, some experimenters on the 160-190 kHz band are trying to extend the range of their 1-watt rigs by using CCW.

Is this to be Amateur Radio's next contribution to progress in the art? □

Radio pioneer is now Silent Key

Victor C. Clark, W4KFC

On 16 January 1981, the Amateur Radio fraternity lost one of its pioneers with the passing of Leo C. Young, W3WV. His earliest ventures into the wireless art took place in 1905, when he was a boy of 14. He was one of the first employees of the Naval Research Laboratory in Washington, D. C., when it officially opened in 1923; he continued with the laboratory as a scientist until his retirement in 1967. In 1922, W3WV was credited with the development of radio equipment used in the detection of ships moving on the Potomac River, making the first use of what is now known as CW radar.

In 1930 he supervised research experiments that produced the first detection of aircraft by reflection of radio signals, and in 1934 was responsible for the research that led to the development of the first system utilizing radio pulses for range determination of stationary and moving objects, thus providing the groundwork for radar developments that profoundly affected the outcome of World War II.

W3WV, in his work at NRL, also made significant pioneering contributions in radio communications, electronic identification systems and radio control of missiles that influenced U.S. advancements in these fields. He received the Presidential Certificate of Merit from President Truman in 1946, the Stuart Ballantine Medal of the Franklin Institute in 1957, and the Distinguished Civilian Service Award (the Navy's highest civilian award) in 1958.

Leo participated in the exploration by radio amateurs of the high frequencies for worldwide communications in the early '20s, continuing as an active amateur untill declining health curtailed on-the-air operations during the past two years. He was a highly proficient CW operator and enjoyed contests. W3WV was a charter member of the Naval Research Laboratory Amateur Radio Club, and for many years was a member of the Potomac Valley Radio Club.

He is survived by his wife, Mabel, and two sons — Leo, Jr. K3MZY, and Richard, W3PZW. □

Will Oar

Lo, pity the poor dummy load; it does a perfect job of doing what it's supposed to do, and it is called a dummy. Shame! (The Army, at least, is kind enough to call them "phantom antennas.")

Such a device, by whatever name you wish to call it, is an excellent test instrument. Yes, a dummy load is an outstanding addition to the shack, far and above its obvious use of being able to tweak around without irritating other occupants of the band.

Are you having trouble with your rig or the antenna? The dummy load can tell you the answer. It is a substitute antenna; thus, you can isolate the trouble by the process of elimination. By substituting the perpetual 50-ohm characteristic of the resistors in a can, one can see if great changes in loading are necessary to go into the antenna. If such happens, it is obvious the antenna system is not 50 ohms and some steps have to be taken to get it back to its previous stage.

A dummy load can also be used for calibrating the noise bridge. In addition, some models have the potential for measuring the RF voltage present. With that information and the resistance of the load a constant, the exact power output of the transmitter can be measured.

A friend of yours offers to give you a batch of coax which he says was given to him by Uncle Mars. You are fearful that this batch was last used in Hawaii by the group that cracked the Purple Code prior to the Battle of Midway.

Here's how to check it out. Coming out of the transmitter is your wattmeter feeding the coax with the dummy load at the far end. Take the measurements. Then, put the wattmeter at the far end just before the dummy load. Read the power. The difference is what is being lost in the feedline. So there you have proof of the quality of the coax.

Back to the 50-ohm worship. If you are plagued by TVI and have used low-pass filters to help cure it, be aware of the fact that the effectiveness of the filter diminishes drastically as the load it sees moves away from 50 ohms; so it may be prudent to use a tuner after the filter. (You question using a tuner in a coax system? Don't laugh, this is straight scoop!) Yes, it is prudent because the tuner will give a good amount of harmonic suppression, and the filter always sees a 50-ohm load.

Such a combination may be a solution to a lot of problems. A trick done by some who are plagued by living near ancient TV sets is to put one filter between the exciter and the amplifier, as well as one at the output of the amplifier.

With dummy load and noise bridge, one can look forward and backward through an antenna tuner (or matchbox) and find where the real 50-ohm settings are.

An interesting experiment is to listen to an incoming signal using an antenna through a tuner, then detune the controls to where the incoming signal deteriorates; then transmit on that frequency observing the SWR. That way you have a graphic example of what SWR does, not only to transmitted signals, but also to the little weak things you are trying to hear.

You will find that signal-to-noise ratio and SWR are tied together. But, I digressed. The dummy load can also be used to calibrate your SWR bridge. If, on reverse, your meter should read more than 1 when going into the dummy load, you know something is really wrong somewhere!

For those who may have missed class the night this concept was explained, a little review may be in order. If you get a reading of 2 on reverse, that means the impedance being seen is either 100 ohms or 25 ohms. (A noise bridge would tell you which way.)

A reading of 1.5 means the load impedance is either 75 or 33 ohms. A reading of 3 would mean either 150 or 16 ohms.

At that point, your solid-state rig will have reduced its power considerably to protect itself or, if it is a tube rig, its keying will no longer sound crisp.

Speaking of missing a class, when I was going through U.S. Army radio school I was always afraid the days we were on KP something important would be taught that we'd need someday. Such fear was unnecessary because I discovered later the Signal Corps schools didn't teach much anyway.

This would be a good place to say thanks to the many who wrote in about this column. (Thanks, Mom!) Such is deeply appreciated and helps make up for the small remuneration received. Really now, what does one do with five extra copies of Worldradio? After I send one copy to my mother and another to my non-ham (yuk) brother in Boston, I still have three copies of this great newspaper left over. I figure any radio operator worth his salt already subscribes, so I shan't mail out the others. Maybe I'll buy one of those machines that rolls paper up and makes fireplace logs out of them.

But, as thanks to those who wrote in, here is something very interesting regarding the sloper. First, a slope resembles half an inverted V. But all half-wavelength is on one side. It is fed in the center with coax as in classic dipole manner. It has a low angle of radiation and is directive in the direction of the wire. Usually, diagrams show the feedline going to the center with no great detail shown. I did see one in which the center conductor went to the bottom half. Nay, I say, nay.

Make sure the center conductor goes to the TOP half, with shield to the bottom. Then experiment with this: make the bottom half of the wire five percent longer than the top half. Will it make a difference, and how much? That is for you to find out. Do you want everything on a silver platter with no work on your part? Of course not!

It is also important that you use *nylon* (or some non-conductor) to tie off the ends. Do NOT use wire.

I was talking with the alternate maven of this column (on the landline yet, his antenna is down) and he said that next month we will absolutely prove that (contrary to popular opinion) gain and directivity are NOT locked together. That statement should set some teeth a-gnashing, but remember, as we say in the antenna business, "The opera ain't over till the fat lady sings."

(Will Oar is obviously a pseudonym. This amateur said such was his condition for writing this column, as he didn't want all the amateurs he works to go by his desk and say, "You don't know anything about antennas." Such may be true, but we figure his guess is as good as yours.) □

Coaxial cable

We hope all members realize that RG58 type cables or even RG 8/U cables, to a lesser extent, are really not suitable for transmission lines between your rig and the antenna. It is now suggested that all use the RG-213U . . . no substitute. The following table shows typical attenuation levels of 100 feet lengths of new coaxial cable at frequencies from 1 to 100 MHz, inclusive. Just RG58/U and RG-213U are shown, but RG59/U and RG/8U attenuation figures are about the same as the ones shown, respectively.

Freq. MHz	RG-58 C/U losses (decibels)	RG-213/U loss DC
1	0.33	0.15
10	1.25	0.55
50	3.13	1.33
100	6.0	2.0
200	9.0	3.5

NOTE: A 3 decibel power loss is a reduction to half power.

Amateurs waste lots of money on poor performance coaxial cable. Usually we can stand relatively high transmission line losses of transmitter output, but when a very weak signal is fed from an antenna to the receiver through a lossy transmission lines, the unfortunate result is often not enough signal input to the receiver to produce a useful product.

Most amateurs connect a SWR meter to the rig. If a lossy transmission line is used, the SWR readings will read or appear much lower than they really are. This is because the forward voltage is being measured at the input to the transmission line and is high because it has not been attenuated by the lossy line.

However, the reflected voltage is not a true value since a voltage loss occurred as the signal travelled from the equipment to the antenna through the lossy line and another voltage loss occurred as the reflected signal travelled from the antenna back to the equipment through the same lossy line. Consequently, the forward voltage at the SWR meter is much higher than the reverse voltage actually present at the antenna terminals. If the transmission line is bad enough, the apparent (not real) SWR reading can approach one-to-one with either a short circuit or an open circuit (no antenna) at the antenna end of the transmission line.

Don't believe everything you see when the SWR is in the shack.

— Lockheed Employees RC, Burbank, CA □

CONSTRUCTION

Chuck Clark, K4ZN
Assistant Director, Roanoke Division, ARRL

Keyer topics

Apparently, keyers are about the most popular construction project among amateurs today. Maybe it's because only CW operators are interested in building them, and CW types are people who work with their hands. If I go by the amount of mail I receive, I'll have to say that keyers have been the most popular among the projects I've presented in these pages during the past three years, and authors who have published articles on them in other amateur magazines have had the same experience. Jim Garrett, WB4VFF, in particular, has sold many thousands of his circuit boards for the Accu-Keyer since he first described it in August 1973, QST.

This month I have a few general comments on keyers, and a bibliography of articles on keyers that have appeared in recent years. The bibliography is far from exhaustive, and does not even pretend to include the best articles, but I hope most readers will find among its 66 articles a few ideas, and maybe even the keyer design that fits their needs.

Additional comments on IC keyer

The IC keyer described in January 1981 Worldradio included no information on a paddle. Yet a commercially-made paddle would cost several times what one would spend for parts for the keyer. There are several designs for keyer paddles in the bibliography below (numbers 51-66). Or, if you change R-2 and R-3 from 22,000 ohms to 5 or 10 megohms, you can build a paddle with no moving parts. (See *Figure 1.*)

Fasten a piece of metal to the base of the keyer so that it extends forward six inches (15 cm) or so, so that you can rest your hand on it while using the keyer. This plate is connected to the negative side of the power supply. Then bring the dit and dah contact leads to two metal pieces on the front of the keyer case, where you can touch them with thumb and fingers when your hand is resting on the plate. For these pieces you could use a piece of two-sided circuit board or two pieces of one-sided board. Then you send by touching your fingers to these pieces with the same motion you would use if you had a conventional paddle. Your finger grounds the inputs to U-1, just as the contacts on a paddle would.

In cold, dry weather, you may have to moisten your fingers to get enough contact, but otherwise you should have no trouble. You are conducting only a microampere or less, so you won't feel a thing. Number 41 in the bibliography describes another keyer using this same type of contact, with an LM-339 quadruple voltage comparator as the main active element.

Debugging

Perhaps one reason keyers are such a popular item with home-brewers is that they are DC switching devices, and so usually have fewer bugs to eliminate after they are built. In fact, keyers are one of the rare electronic items that are likely to work correctly the first time you turn them on. And they are simple enough that chances for a wiring error are less. If you make no such errors, if the circuit is correct, if you have no bad parts, and if all your connections are good, the thing should work when you turn it on.

But don't be surprised if it works fine keying an audio oscillator, and becomes erratic when you use it on the air. When that happens, the problem is RF pickup — whether on the internal wiring, on the leads from the paddle to the keyer, from the keyer to the transmitter, or on the power-supply leads. Any transistor junction or any diode in the keyer can be rectifying the RF. Attention to shielding and bypassing will clear the problem; or in more stubborn cases, you may have to use a ferrite bead on some of the leads. The problem becomes especially acute where there are long leads carrying sharp switching pulses. It's usually safer to use circuits where switching is done by DC levels, where bypassing won't affect operation.

W. G. Schuchman, W7YS, writes about his experiences: "A very popular and versatile CW keyer designed by Chet Opal, K3CU, was described in February 1978 QST (number 17 in bibliography). I was delighted with my first major effort in using the new CMOS circuitry, and relegated my old Vibroplex to the back shelf. As my technique and code speed improved, I began to notice strange, almost imperceptible hesitations in keying, sometimes going from dash to dot, but mostly when going from dot to dash. I would practice half an hour with no problem whatsoever, and then when I went on the air the first character would contain the split-second delay between the time I felt the contact close and the time I would hear the dot or dash in the receiver monitor.

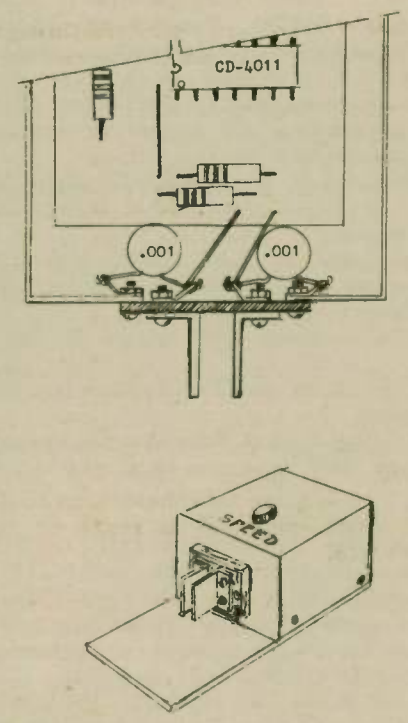


Figure 1

"I replaced just about all the CMOS devices, the timing capacitor, etc. To make a long story short, I finally decided the cause of the problem was RF getting into the circuit through the paddle leads, in spite of the built-in RF by-pass capacitors inside the cabinet. The solution to the problem was to place a ferrite bead on the dash lead and a ferrite bead on the dot lead inside the keyer cabinet. My keyer now behaves very nicely in spite of the high RF field from the nearby Fuchs antenna. Do not put a ferrite bead on the common lead from the keyer paddle as this wire is the ground wire, and placing a bead on it will raise it above ground for RF and the strange happenings will return."

Selecting a keyer design

Given all these articles, 66 of them, where does one begin? First, decide what you want. Then see what you have available, in funds, in parts, in time, in ability. Then put the two together and find something that matches.

Electronics for keyers runs from the simple to the complex. Some are so simple that it's hardly worth using a circuit board. At the other extreme, there are memory keyers, keyboard keyers; in fact, you can go right up into microcomputers — there's really no dividing line. You actually might be ahead to go to a microcomputer if you are going in that direction, as it can handle many other jobs in addition to transmitting CW.

If you're strapped for funds like me, however, you'll be looking for something simple. If you're going to use the keyer with a portable QRP rig, you will be interested in low battery drain. CMOS circuitry is best here. And many of the designs are compact enough to fit inside the cabinet of a QRP rig so you don't have another box to lug around.

If you're an old bug user, you may find a keyer a hard device to use, because the timing is different. In that case, look at the Dasher (number 39), an addition to a bug that makes dashes automatically.

The bibliography

As already mentioned, one of the most popular construction articles of all time has been Jim Garrett's AccuKeyer. Not only have many thousands of them been built, but the design has inspired many modifications and improvements, so that you can build a very simple, low-cost keyer, or a keyboard-and-memory unit,

using the same basic design.

Accu-Keyers

1. James M. Garrett, WB4VVF, Accu-Keyer (uses TTL logic), QST August 1973, page 19.

1a. Feedback, QST October 1973, page 36.

2. Hal Morris, W4VUD/3, Packaging the Accu-Keyer, QST October 1974, page 44.

3. James M. Garrett, WB4VVF, and D. Contini, W4YUU, Accu-Memory, QST August 1975, page 11.

4. Gene Hinkle, WA5KPG, Accu-Keyer for QRP Operation (uses CMOS logic), QST January 1976, page 24.

5. Ron Mays, WA3WAE, Accu-Keyer Sidetone, QST February 1976 page 44.

5a. Feedback, QST April 1976 page 57.

6. David L. Madison, K3ACN, PROM for Accu-Keyer, QST, May 1976, page 22.

7. James M. Garrett, WB4VVF, Enhance Performance of your Accu-Memory, QST July 1976, page 24.

8. Edward B. Kalin, WA1JZC, The WA1JZC Accu-Stop, QST July 1976, page 30.

9. William E. Smith III, WN9OVY, The Accu-Mill (Keyboard for Accu-Keyer), Ham Radio, September 1976 page 26.

10. Kenneth N. Boling, W1NG, the W1NG Accu-Repeat, QST September 1976 page 29.

11. Hal Kennedy, N4GG, Accu-Keyer Weight Control, QST February 1978, page 36.

11a. Feedback, QST March 1978 page 15.

12. Robert V. Cheek, W3VT, Deluxe Memory Keyer (Revision of Accu-Keyer), Ham Radio April 1979, page 32.

13. Harlan Bercovici, W0MYN, Accu-Hints, Hints and Kinks, QST January 1980 page 53.

14. Albert H. Jackson, VE3QQ, More Thoughts on the Accu-Keyer, QST September 1980, page 44.

15. Jake Gold, WB2AFS, Expanding the Accu-Memory, Hints and Kinks, vol. 10 (1978) page 92.

The TO keyer

Probably second in popularity after the Accu-Keyer and its spinoffs is the TO keyer. The original design was by James Ricks, W9TO, manufactured by Hallicrafters, and used vacuum tubes. It was not published in any amateur magazine as a construction project. Solid-state versions did appear in amateur literature, however.

16. Chet B. Opel, K3CUW, Micro TO MK II Keyer (uses CMOS logic), QST September 1975 page 28.

17. Chet B. Opel, K3CU, Micro TO Message Keyer (includes memory), QST February 1978 page 11.

17a. Feedback, QST August 1978 page 45.

17b. Hints and Kinks January 1980, page 56.

18. Chet B. Opel, Adaptamatic Message Keyer, QST November 1979, page 42.

Other simple keyers

19. Wes Hayward, W7ZOI, IC QRP Keyer, Hints and Kinks, vol. 9 (1975) page 95.

20. Howard Mark, WA2TNZ, Solid-state Keyer for Cathode-keyer Transmitters, QST October 1974, page 24.

21. James W. Pollock, WB2DPA, CMOS Keyer, Ham Radio June 1974 page 6.

21a. Short Circuit, Ham Radio December 1974 page 62.

22. James H. Fox, WA1BLK, Integrated Keyer and TR Switch (TTL logic), QST January 1975, page 15.

23. Hank Olson, W6GXN, 8043 Keyer (highly recommended if you expect to spend more than $25 on your keyer as everything is contained in the Curtis 8043 chip), Ham Radio April 1975 page 8.

24. Jim Pollock, WB2DFA, Morse Code Synthesizer, QST February 1976 page 44.

25. James E. Rohler, WB0LHE, and William J. Vancura, WB9OBB, Low-Cost Dot Memory Keyer (uses either TTL or CMOS logic), QST June 1978 page 22.

25a. Feedback, QST August 1978 page 45.

26. Paul Horvath, OK3IA, Advanced Electronic Keyer, Ham Radio April 1978 page 10.

27. Paul Horowitz, W1HFA, Versakeyer — Multimode Paddle Keyer, QST May 1979 page 11.

28. Richard W. Rose, W7GMC, Little Jimmy Keyer (TTL logic) QST September 1979 page 26.

29. Chuck Clark, K4ZN, Simple Keyer (transistors and relay), Worldradio December 1979 page 62.

30. Chuck Clark, K4ZN, Simple IC Keyer (CMOS logic), Worldradio, January 1981 page 51.

Keyers with memory

31. Thomas P. Riley, WA1BVM, IC Keyer with Memory, QST February 1973 page 26.

32. Harold F. Battie, W7BBX, Programmable Contest Keyer, Ham Radio April 1974 page 10.

33. Howard M. Berlin, K3NEZ, RAM Keyer Update, Ham Radio January 1976 page 60.

Additions and modifications for keyers

34. Andrew B. White, WA9LUD, Programmable Memory for Keyers, Ham Radio August 1975 page 24.

34a. John M. Korns, K9WGN/W0USL, Modification, Ham Radio, August 1978 page 81.

35. Jim Pollock, WB2DPA, Adapting CMOS keyers for positive and negative keying, Ham Radio, January 1975 page 57.

36. C. Edward Galbreath, W3OBO, Transistor Switching for Electronic Keyers (using opposite polarity from what keyer was originally designed to handle), Ham Radio June 1974 page 66.

37. John Bipes K0YQX, Keying Polarity Inverter, QST June 1980 page 44.

38. George Jones, W1PLJ, Calibrated Keyer Time Base, Ham Radio August 1975 page 39.

39. Joseph H. Fenn, KH6JF, The Dasher (add automatic dashes to mechanical bug), Ham Radio March 1979 page 68.

40. William B. Jones, W7KGZ, Digital Speed Readout, QST July 1978 page 11.

40a. Hints and Kinks, QST December 1978 page 40.

Combination keyer and paddle

41. Nelson Sollenberger, WA3PKU, Soft Touch Keyer (no moving parts), 73 January 1979 page 128.

42. Urs Hadorn, HB9ABO, Simple CMOS Keyer, Ham Radio January 1979 page 70.

Keyboard keyers

43. Paul Horowitz, W1HFA, Keyboard Compucoder (Morse and RTTY), QST June 1975 page 11.

44. H. R. Thomas, W6CAB, The Code Mill, Ham Radio November 1974 page 38.

45. Michael M. Dodd, WA4HQW, The Contester (keeps log and checks for dupes), QST February 1975 page 11.

46. Clarence Gonzalez W7CUU, Keyboard Morse Generator, Ham Radio April 1975 page 36.

47. Al Helfrick, K2BLA, Inexpensive Morse Keyboard, QST January 1978 page 24.

48. C. A. Eubanks, N3CA, Microprocessor based Morse Keyboard, QST October 1979 page 22.

49. C. T. Isley, W7KIM, Static Morse Keyboard, QST January 1980 page 44.

49a. Feedback, QST April 1980 page 41.

50. Brooks Carter, W4FQ, A CW ASCII Keyboard, QST October 1980 page 26.

Paddles

51. Kenneth R. Klopf, KL7EVD, Electronic Keyer Paddle (uses copper-clad circuit board and rubber bands), Ham Notebook vol. 2 page 49 (Ham Radio, Greenville, N.H.).

52. Richard Lamb, K0RJV, Formica Keyer Paddle, Hints and Kinds vol. 9 (1975) page 94.

53. Jim Baker, VE3CJB, The VE3CJB Keyer Paddle, Hints and Kinks vol. 10 (1978) page 92.

54. Robert M. Mason, W8NN, Paddle made from Surplus Straight Keys, QST February 1973 page 16.

55. F. E. Hinkle, WA5KPG, Siamese Keying Paddle, Ham Radio January 1975 page 45.

56. John S. Lewis, W5TS, The Code at Your Fingertips (two-fingered substitute for a paddle, up-and-down movement instead of side-to-side), QST November 1976 page 29.

57. Gene Hinkle, WA5KPG, Portable Keyer Paddle, Ham Radio February 1977 page 52.

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59. Daniel L. Nevels, WD5ETR, Daniel's Key (No moving parts, uses infra-red), QST December 1977 page 21.

60. Howard Goldstein, WB2IWX, A Poor Boy's Paddle (Two straight keys), QST December 1977 page 22.

61. Vidi la Grange, ZS6AL, Simple Paddle for Electronic Keyers (built into a three-wire phone plug, turn over for left handers), Ham Radio April 1978 page 28.

62. Richard Stiebel, W6APZ, Keyer Paddle (wooden dowels), 73 May 1978 page 24.

63. Leonard Hardland, W6IHA, Instant Paddle (Brazing rod and scrap plastic), 73 July 1978.

64. Karl T. Thurber, W8FX/4, Triple-Thrust Keyer (paddle, sideswiper, straight key, plus clipper-filter), 73 September 1978 page 144.

65. Erich A. Pfeiffer, WA6EGY, Mini-Mouse Key (copper-clad circuit board), 73 January 1979 page 120.

66. Antonio G. O. Gelineau, W1HHF, Zero-Cost Key (wood, old hacksaw blade), QST November 1980 page 32. □

To the optimist, all doors have handles and hinges; to the pessimist, all doors have locks and latches.

—William Arthur Ward

THE AMATEUR'S WORKBENCH

Joe Carr, K4IPV 5440 South 8th Road, Arlington, VA 22204

We didn't get to the digital topics mentioned in last month's column for the lack of space — and perhaps a columnist who tends to trash off at the mouth too much. This month we will get into the digital topics for the neophyte by introducing a **Chip-of-the-Month Club**. We will start with digital chips, and cover them from a basic theory point of view. Later on, we will begin to look at a variety of I.C. devices of interest to Amateur Radio operators and their friends. We won't however, turn this into a computer column unless a ground swell of support develops in that direction (five letters constitute a ground swell, where ten is a bloody tidal wave!).

Re: Alda 103 drift

An answer finally came in on the problem of the Alda 103 drift. Recall from the two previous months that I asked people to pass the information on to me so that I could 1) pass it to an amateur in Tegucigalpa (HR-land), and 2) publish it in these pages. I received a letter from an amateur who worked in a technical writing capacity for one of the better known communications firms (not amateur), and he tipped me off on who designed the rig. This rig, it seems, was designed for Alda on contract with another firm. Although Alda is now belly-up, the original designer is still in business. I won't tell you either of these guys' names for the sake of their privacy, but let me assure them, we are grateful!

The original design (and supposedly some of the early production units) were very stable, and only exhibited substantial drift (the usual 100 Hz spec) during warm-up. After that, it was rock solid. The designer told me he had installed the prototype rig in his car and used it as his personal mobile rig running around the southwest United States (7-land). No drift.

The problem came when Alda started to mess with the materials in the VFO. My confidant told me that the original design used Litz wire wound on fiberglass forms for the main VFO coil. Later versions used (without his permission) regular wire on ceramic or cardboard coil forms, and that caused the majority of the drift. Secondly, they changed the capacitors specified for the VFO to ordinary ceramic types, not even NPO. Neither tactic contributes to rock-solid operation.

There is little that my friend in Honduras can do because he is not too technically inclined. Others, however, might want to try to rebuild the VFO using proper components.

Another alternative is to use an external 5.0 to 5.5 MHz VFO from another rig. The VFO line is available on the function connector on the back panel of the Alda 103, so it is relatively easy to connect an outboard VFO. If you know of any commercially available outboard VFOs that operate in the correct frequency range, please let me know (K4IPV is good in any recent callbook, or see end of this article). Perhaps my friend in Teguci-wherever is not sunk yet. Of course, with his boss, anything is possible.

Grounds: revisited

In a past issue I talked about grounds, and how an amateur station should be grounded. In that article, I mentioned that the ground rod should be driven deep into the ground, and perhaps the earth treated to reduce the ground resistance. Now we have another method for reducing the resistance of the ground: use copper plumbing pipe!

The method is shown in *Figure 1*, and was contributed by a reader of this column. I have not tried it, but a friend of mine who saw the original of *Figure 1* tells me that it is an "old farm trick" for putting down chain-link fence posts when depth, not concrete, is used for support (!?!?).

Bevel the tip of the 1-inch copper pipe to make a "drill point." Jam the pipe into the ground a few inches, then push the nozzle of a garden hose into the other end. Keep the nozzle tight into the opening, and turn on the water pressure. The water will wash away the soil under the drill point, allowing the pipe to sink further. The excess soil will pass along the track made by the outside of the pipe, and wash over the surface of the ground (wear boots?).

It is necessary to keep a firm, but gentle, force downward on the pipe. The guy who wrote in and told me of this method said he keeps a pair of Vice-Grips attached to the pipe to work as handles, and these allow him to both apply the force, and to make things work a little better by swinging the pipe in a rotary back-and-forth motion.

It seems that some cases would go a lot easier if a spigot fitting were sweat-soldered to the hose end. This would allow us to attach the hose without the nozzle, thereby freeing the operator of having to hold the hose down onto the pipe while also applying a force to the pipe.

One report claimed this method will permit up to 12 feet of pipe to be installed, but this requires a lot of patience, and not a few 807s.

It also seems that the ground could be made even better if the finally installed pipe were filled with either rock-salt or copper sulphate. Any ideas out there on this? If so, I'd appreciate hearing from you. Please indicate whether or not I can use your name (or call sign) in the column. I won't if you don't — privacy is valuable to some people!

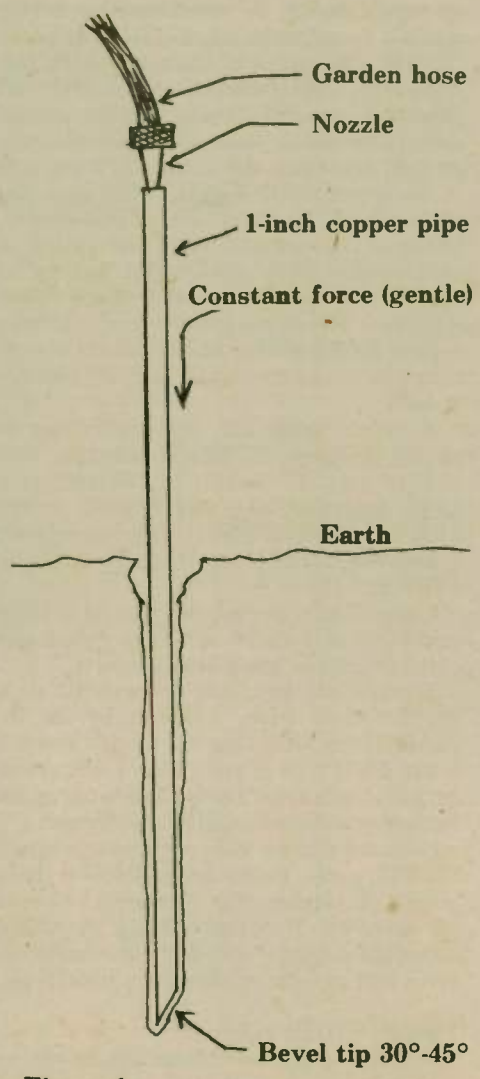


Figure 1

Chip-of-the-Month Club

This is the first installment of a series that I hope will run a good long time: Chip-of-the-Month Club. In this section of *Workbench*, we will examine one or more popular I.C. devices. In the first few installments, we will look at some of the more common, garden-variety of digital devices. I know this will be boring to some readers who have been through it all, but many readers have little or no background in this arena. In fact, there are still a lot of technicians who make their living in electronics and do not know much about "digital electronics." A friend of mine works for the Navy in one of the Air Rework Facilities, and he told me he had been in electronics maintenance without learning digital — but was now being forced to do so. Another friend, a man I once worked for, is in the TV repair business. He had never learned digital, but is now forced to by the digital tuning and the (digital) TV games he sells and services. A recent inquiry was received through my main publisher (TAB Books) from a TV trade organization. They wanted me to put on a four-hour lecture titled "Introduction to Digital Electronics." (Hey, you instructors out there — that type of thing is a chance to make a few extra bucks for buying 807s, etc! — write me with an SASE for details). With all of that interest in seeming elementary topics, I feel no guilt at all for starting with the most simple of all digital I.C. devices: the 7400 NAND gate.

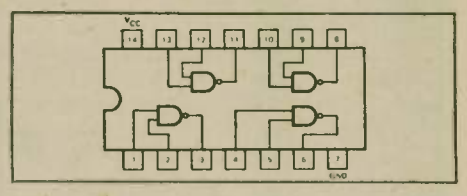
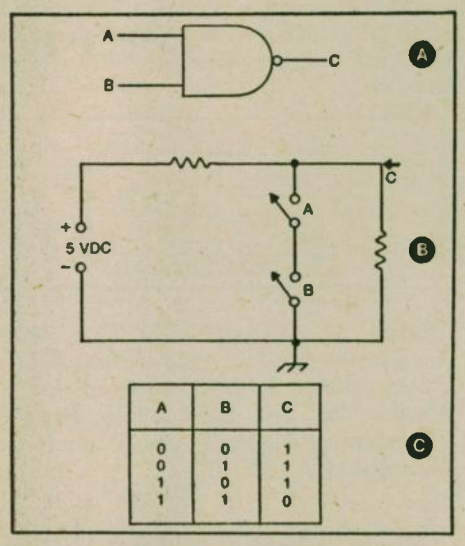


Figure 2 — Type 7400 TLL Quad Two-input NAND gate (*From: Digital Electronics Troubleshooting,* TAB Books Cat. No. 1250, $9.95. *Used by Permission.* TAB Books, Blue Ridge Summit, PA 17214).

Figure 2 shows the 7400 NAND gate digital I.C. This device contains four separate two-input NAND gates that are totally independent of each other, except for the power supply connection (pin No. 14), and the ground connection (pin No. 7). All other pins are to only one of the gate sections. For the sake of simplicity and sanity — not to mention valuable editorial space in **Worldradio** — we will consider the properties of just **one** section. You will have to figure out that the other sections work in an identical manner yourself.

The circuit symbol for a two-input NAND gate is shown in *Figure 3A*, while an equivalent circuit is shown in *Figure 3B*. The truth table for the NAND gate is shown in *Figure 3C*. But more of that in a moment.

We can see from *Figure 3B* that a digital logic device, such as the 7400, can often be represented as a simple switch circuit. In fact, all of the popular gates can be represented by such circuits — although a different one applies for each class of gate. Almost all digital electronics can be likened to switch or relay circuits, so once the newcomer gets over the fear that digital is somehow "different," all is smooth sailing. After all, almost everyone understands simple switch logic.



A	B	C
0	0	1
0	1	1
1	0	1
1	1	0

Figure 3 (A) Circuit symbol for two-input NAND gate, B) Equivalent circuit, C) truth table. From *Digital Electronics Troubleshooting.* Cat. No. 1250, $9.95, TAB Books, Blue Ridge Summit, PA 17214. *Used by Permission*).

The basic rules of the NAND gate are: 1) If any input is LOW, then the output is HIGH, and 2) it takes both inputs HIGH to make the output LOW. In *Figure 3B*, an open switch is considered a LOW, while a closed switch is a HIGH. If point "C" is the output, then consider the following: both switches open (LOW). In this case, the full 5 volts appears at the output terminal. Now, close (HIGH) one switch, and open the other (LOW). What is the output? Still +5VDC. Now close the open switch, and open the closed switch. What is the output? Since one switch is still open (LOW), the output has to be HIGH. It is. Now, let's close both switches. This is the same as making both inputs HIGH. What is the output condition now? It is grounded, and the voltage is zero.

A truth table for this operation is shown in *Figure 3C.* In this notation, "0" is LOW, and "1" is HIGH. Notice that a LOW (logical-0) on either A or B inputs makes the output HIGH. But, when both inputs are HIGH (1, 1), then the output is LOW (0).

I personally prefer the use of HIGH and LOW to 1 and 0 in simple digital circuits. It makes life a little easier.

The NAND gate can be modeled as a simple AND gate, followed by an inverter. Because of this, the circuit symbol is the AND gate symbol with a dot at the output. Such a dot always indicates an inverted condition in digital electronics.

Next month, we will consider another of the TTL gates. Please let me know if there is any particular chip you would like to see covered. If I don't know anything about the device, I will write the manufacturer and get the applications literature.

This is YOUR column

We try to answer reader questions in this column, and indeed, most of the writer's ideas come from readers who write in. If you have a comment, question or whatever, send it to: Joe Carr, K4IPV, 5440 South 8th Road, Arlington, VA 22204. 73.

DON'T FORGET . . .
Include first and last names with call signs.

PRODUCTS

Memory message keyer

This 4-channel keyer, manufactured by Globalman, is capable of being programmed for four independent 256 bits or one 1024 bit long message memories. Buttons on the front panel are pushed to select channels and to start or stop the keyer. Other features of the MK-1024 electronic keyer include a built-in paddle, squeeze or standard keying, self-completing dots and dashes, dot memory, built-in side tone with tone and volume control, speaker, headphone jack, and a switch for auto or semi-automatic keying.

It is capable of heavy-duty transistor output keying — 150 volts, 2 amps DC and high speed relay; and 700 volts, 500mA. The keyer operates on AC 100-120 volts/220-240 volts, 50-60 kHz, or external 9-14 volts DC.

Dimensions are 5-1/2" W x 3" H x 8"D. Weight is 5 lbs. Built with steel case.

Each memory channel is large enough for a CQ sequence with an operator's call letters, a CQ contest, or special messages. A long message may be put into the memory, using all channels in series. Messages can be put in at slow accurate speed; then, when sending, machine can be speeded up.

This product is guaranteed unconditionally as to materials and labor for one year from date of purchase, as long as not abused.

For more information, write to: Globalman, P.O. Box 246, El Toro, CA 92630. □

Hand keys

Globalman announces two new hand key models: Model No. 706 ($19.95) and Model No. 708 ($16.50). Both prices include shipping costs.

The hand keys are constructed with lifetime precision, and are rubber-mounted around the bottom edges to prevent slipping or tipping. Fully adjustable tension and spacing are included. Ideal for code practice use with a good code oscillator, or on-the-air use with a transmitter.

Model No. 706 is fully chromed with removable dust cover. Weight is 1-1/2 lbs.

An absolute money back guarantee is provided with both keys. If you are not satisfied in any way, return the product within 10 days after your receipt, in good condition.

For information or ordering, write to: Globalman, P.O. Box 246, El Toro, CA 92630. □

Police/Fire Explorer

The NEW MFJ Police/Fire Explorer, model MFJ-311, will convert any 2-meter synthesized or VFO rig to cover the VHF High Band police and fire frequencies. If your rig covers 144-148 MHz, just insert the MFJ-311 in line with the antenna, connect power, and turn on the converter; you are now ready to receive 154-158 MHz. If your rig covers a larger or smaller section of the band, then with the MFJ-311 you can receive a correspondingly larger or smaller section of the VHF police and fire band. The frequencies between 154 and 158 MHz contain nearly all FCC allocated VHF-high police and fire activity.

You have direct frequency readout from your rig. If your rig indicates you are receiving 145.55 MHz, just turn the converter on and you are receiving 155.55 MHz.

A push button switch turns the MFJ-311 on and off; in the off position, the converter is bypassed and you are ready to transmit (very low insertion SWR). If you forget and transmit with the converter on, it won't burn out (up to 25 watts).

Enjoy all the benefits of your rig, such as: squelch, excellent sensitivity, selectivity and stability. If your rig scans, you can scan the police

band. If your rig will search, this will enable you to find new and exciting frequencies in the police/fire band.

This new Police/Fire Explorer is small (only 3" × 4" × 1") and has a mobile mounting bracket for installation in your car. It is black and egg-shell white and operates on 9-18VDC.

If ordered from MFJ, there is a 30-day money back trial period. If you are not satisfied, you may return it within 30 days for a full refund (less shipping). MFJ also provides a one year unconditional warranty.

The MFJ Police/Fire Explorer is available from MFJ for $49.95 plus $4 shipping and handling.

To order, call toll free 800-647-1800 or mail order with a check or money order to MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762. □

Keyer adds speedmeter output

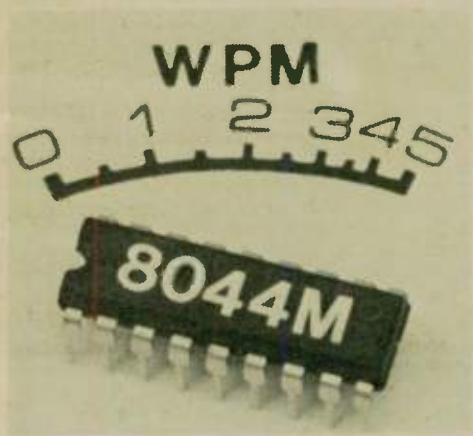
An interesting enhancement of the popular 8044 CMOS keyer has been introduced by Curtis Electro Devices.

Called the 8044M, this new integrated circuit adds an output designed to drive an analog meter for speed indication. Speed indication from 6 wpm to as high as 100 wpm can be accomplished by simply adding two capacitors — a resistor and a 100uA meter. The meter indication can be calibrated to be well within a 5% tolerance. The reading is stable, even at the lowest speeds.

The addition of two extra pins at the end of the package allows a pin-for-pin fit with the standard 8044. One of the pins is used for a timing capacitor and the other pin drives the meter directly. This allows retrofitting in many existing keyers with relative ease.

The keyer function of the 8044M remains the same as in the 8044 design providing dot and dash memories, iambic operation, key debouncing, weight control, monitor oscillator and extremely low-power dissipation.

Housed in an 18-pin plastic package, the 8044M is priced at $19.95 and is available from Curtis dealers or factory stock.



Two kits are available to help in construction of a quality keyer. The 8044M-3 offers the IC, a PCB, edge connector, socket and manual for $29.95. The 8044M-4 is more complete, offering all parts except chassis, knobs, jacks, switches, speaker, meter and power supply. It is priced at $59.95. Various suitable meters are also available and are priced at $7.95.

For further information, contact Curtis Electro Devices, Inc., Box 4090, Mountain View, CA 94040. Telephone (415) 494-7223. □

Universal antenna standoff

IIX Equipment introduces the first of its line of problem solvers for the amateur fraternity.

The SO-1 universal standoff bracket quickly and effectively solves the problem of where to put that 2-meter Ringo Ranger or other antenna on your tower. The bracket easily installs at any height on the tower with two stainless hose clamps. The bracket features all steel-welded construction and is finished in weatherproof galvanized paint. Hose clamps are included.

Total cost of the SO-1 is $24.50. This price includes shipping in the continental United States.

Remember, this bracket gets you on the air right now. Other IIX Equipment products which solve antenna and tower problems are available from: IIX Equipment, Ltd., P.O. Box 9, Oaklawn, IL 60453; (312) 424-7007. □

Electronic keyer

The EK-150 electronic keyer, manufactured by Globalman, is a completely self-contained keyer with variable speed, monitor volume control, automatic or semi-automatic switch and on/off switch on the front panel. The other controls, such as tone, output keying switch from transistor to relay, external speaker or earphones, battery option input jack, output terminals, fuse, and AC line cord are on back panel.

Other features of the product are: squeeze or standard keying, built-in paddle, self-completing dots and dashes, built-in side tone with tone and volume control, speaker, headphone jack and a switch for auto or semi-automatic keying.

The keyer is capable of heavy-duty transistor output keying — 150 volts, 2 amps DC and high speed relay; 700 volts, 500mA.

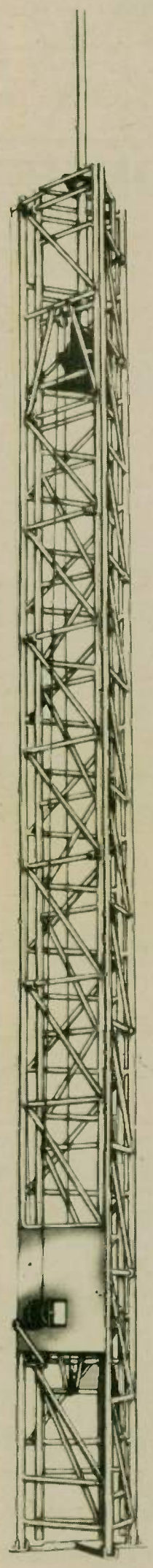
Size is 5"W x 3"H x 7"D. Weight is 4.4 lbs. Enclosed in a heavy cracklefinished steel cabinet.

Guaranteed unconditionally as to materials and labor for a period of one year from date of purchase, as long as not abused. Made of solid-state circuitry, it should last indefinitely when used properly.

For more information, write to: Globalman, P.O. Box 246, El Toro, CA 92630. □

Aluminum tower

Designed especially with the Amateur Radio operator in mind, Aluma Tower's new extra heavy-duty aluminum tower meets the special needs of that group. All uprights and cross braces are 1-inch seamless drawn aluminum tubing with stainless steel aircraft cable connecting the telescoping sections. The mast is 2-inch diameter x 8 feet long and supplied bolted in place.



Aluma Tower's telescoping construction and tilt-up style enables it to withstand any weather conditions.

Contact Aluma Tower Company, 1639 Old Dixie Highway, Vero Beach, Florida 32960. □

DX-YL to North American YL

The CW portion of this contest starts Wednesday, 8 April 1981 at 1800 UTC, and ends Thursday, 9 April 1981 at 1800 UTC. The Phone portion starts Wednesday, 15 April 1981 at 1800 UTC and ends Thursday, 16 April 1981 at 1800 UTC.

Eligibility: All licensed women operators throughout the world are invited to participate.

Procedure: DX YL call "CQ North American YL", N.A. YL call "CQ DX YL."

Operation: All bands may be used. No cross band operation. Net contacts, repeater contacts and contacts with OMs do not count. Stations may be worked and counted once on each band and mode.

Exchange: Station worked, QSO number, RS or RST, state or country. Entries in log must also show time, band, date and transmitter power.

Scoring: A. Phone and CW will be scored as separate contests. Submit separate logs for each contest.
B. DX-YLs, including Hawaii and Alaska, may contact all the North American continent, which includes the 48 contiguous states and Canadian provinces. C. Contestants on the North American continent (including the 48 contiguous states and Canadian provinces) may contact DX stations, to include Hawaii and Alaska. D. A station may be counted once on each band for credit and one point is earned for each station worked once on each band. E. Multiply the number of QSO's by the number of different states and provinces OR countries worked. A multiplier is counted only once in the contest. It is NOT counted on each band. F. Contestants running 150 watts or less on CW and 300 watts PEP or less on SSB, at all times, may multiply the results of (E) by 1.25 (low power multiplier).

Logs: All logs must show state or country to qualify for awards. Do not send carbon copies of logs. Please print or type. Logs must be signed by the operator and no logs will be returned. Remember to file separate logs for each contest. Logs must show claimed score and be postmarked by 30 April 1981 and received no later than 22 May 1981 or they will be disqualified. Please send logs to: YLRL Vice President, Kay Eyman WAØWOF, RR2, Garnett, Kansas 66032. Duplicates: For each duplicate contact that is removed from the log by the vice president, a penalty of three additional and equal contacts will be exacted.

Awards: Cup to 1st place DX Phone; Cup to 1st place N.A. Phone; Cup to 1st place DX CW; Cup to 1st place N.A. CW. Plaque to highest combined CW and Phone DX score; Plaque to highest combined CW and Phone N.A. score. 2nd and 3rd place DX and N.A. winners in each contest will receive certificates. □

QRP ARC International 1981 QSO Party

The QRP Amateur Radio Club International, Inc. will hold its 1981 Annual April QSO Party from 2000 UTC Saturday, 18 April through 0200 UTC Monday, 20 April. The contest is open to all amateurs.

Exchanges: *Members*—RST-RS, State-Province-Country, QRP #. *Non-members*—RST-RS, State-Province-Country, PWR INPUT.

Scoring: Stations can be worked once per band regardless of mode for QSO and multiplier credits. Each member's QSO counts 3 points. Non-member QSO's count 2 points. Stations other than W/VE count 4 points.

Bonus points: Stations are eligible for the following bonus points: +500 for solar or wind power (100% solar/wind source); +200 for 100% battery power, for duration of contest.

Multipliers:
100 or more watts DC INPUT PWR.....X1
30 to 100 watts INPUT PWR.....X1.5
10 to 30 watts INPUT PWR.....X2
3 to 10 watts INPUT PWR.....X4
1 to 3 watts INPUT PWR.....X6
Less than 1.0 watts INPUT PWR.....X10

Scoring: (QSO points X total number S-P-C X power multiplier) + bonus points if any = Claimed total points.

Frequencies: *CW:* 1810. 3560. 7040. 14060. 21060. 28060. 50360.
SSB: 1810. 3985. 7285. 14285. 21385. 28885. 50385.
NOTE: VHF/UHF contacts must be direct — no repeater QSO's. (Try SSB on even hours, 2000, 2200, etc. Don't forget the Novice frequencies.
Novice: 3710. 7110. 21110. 28110. All frequencies plus or minus 5 kHz to clear QRM.

Calling method: CQ CQ CQ QRP DE *call sign*

Awards: Certificates to highest scoring station in each state province-country with two or more entries. Other places will be given depending on activity. One certificate to highest scoring Novice/Tech overall. One certificate for the station showing three (3) "SKIP" contacts using lowest power.

Logs: Send full log data, including name, address, bands used, plus equipment, antennas, power used, and details on how bonus points were determined. Please indicate if you are a Novice/Tech station. Entrants desiring results sheet and scores, PLEASE enclose a large #10 envelope with sufficient postage. It is a condition of entry that the decision of the QRP ARCI Contest Chairman shall be absolute in case of dispute.

Logs must be received by 20 May 1981 to qualify. Logs received after deadline or missing information will be used as check logs. Thank you for your cooperation.

Send all logs and data to:
QRP ARCI Contest Chairman, William W. Dickerson, WA2JOC, 352 Crampton Drive, Monroe, MI 48161. □

Helvetia Contest

The annual Helvetia Contest — held each last full weekend of April — will begin this year on 25 April, 1500 UTC, and end 26 April, 1500 UTC.
Rules:

Use bands between 160 and 10 meters, mode CW and/or phone.

Send RS(T) plus a three-figure serial starting with 001. Swiss stations will send an additional two-letter designation of their canton. Example: 57(9) 001 BL. The abbreviations of the cantons are as follow:

ZH BE LU UR SZ OW NW GL ZG FR SO BS BL SH AR AI SG GR AG TG TI VD VS NE GE JU

Each contact with a HB-station counts 3 points. A station can be worked once per band (either CW or Phone). The multiplier is the sum of Swiss cantons per band (a possible multiplier of 26 per band).

Final score will be the sum of QSO points multiplied by the sum of cantons. Awards will be given to the highest entry from each country. USA and Canada call areas are considered as separate countries.

Logs postmarked not later than 30 days after contest should be sent to: TM USKA K. Bindschedler, HB9MX, Strahleggweg 28, 8400 Winterthur, Switzerland. □

Georgia

The Columbus Amateur Radio Club will hold their annual hamfest on 28 and 29 March 1981, at the Columbus Municipal Auditorium in Columbus, Georgia.

There will be a free outside flea market, ARES forum and ARRL Hamfest. Admission is free; ticket donation is $1. Inside swap tables are $5 per day. For table reservations, contact: Jeanne Hunting, K4RHU, 2701 Peabody Ave., Columbus, GA 31904 (404-322-7001). For more info or tickets, contact: David Nulty, N4ATI, 263 Logan Ave., Ft. Benning, GA 31905 (404-687-3272).

Talk-in on 28/88. □

Massachusetts

The Wellesley Amateur Radio Society is conducting its annual auction on Saturday, 18 April 1981, beginning at 11:00 a. m. at the Wellesley High School cafeteria on Rice Street, Wellesley, Massachusetts. Doors open at 10:00 a.m.

Talk-in on -60:03, -04:64, and 52. Contact: Kevin P. Kelly, WA1YHV, 7 Lawnwood Place, Charlestown, Massachusetts 02129. □

Michigan swapfest

The South Eastern Michigan Amateur Radio Association (SEMARA) announces its upcoming swap-and-shop. The event will be held 5 April 1981 at South Lake High in St. Clair Shores, Michigan.

Doors open at 7:00 a.m. for dealer set-up; 8:00 a.m. to 3:00 p.m. for the general public. Donation is $2 at the door. For table reservations and information, contact: Terry Brusoe, K8IB, 16011 Loreto, Roseville, MI 48066; phone 313-778-7511.

Talk-in on SEMARA Repeater 147.75/15 MHz. Simplex 146.52 MHz. □

Missouri

The 6th annual Columbia Hamfest, sponsored by the Central Missouri Radio Association, will be held Saturday, 4 April 1981, at the Ramada Inn in Columbia, Missouri.

Flea market and tailgater area for 300 cars, vans or pickups will be provided, as will general parking for 1,000 cars. Also, there will be 15,000 square feet of space, carpeted wall-to-wall, to be used for commercial exhibitors.

A banquet will be held on Friday evening, 3 April. James Dailey, Engineer in Charge, FCC Central Region, will be the banquet speaker.

For more information, write to Ben Smith, KØPCK, President; Central Missouri Radio Association; P.O. Box 283; Columbia, MO 65201. □

The PHD Amateur Radio Association, Inc., of Liberty, Missouri, will sponsor the 1981 Missouri State ARRL Convention/12th Annual Northwest Missouri Hamfest on Saturday and Sunday, 11-12 April 1981, in the trade mart building at the Downtown Kansas City Airport.

There will be a complete program of forums: ARRL, FCC, DX, Contest, Technical, SCM, XYL, commercial exhibits, and over 100 swap-tables—all inside the 50,000 square foot, one-level trade mart. Unlimited free parking adjoins the site. RV's welcome; no hookups. Doors open from 10:00 a.m.-5:30 p.m. both

days. Commercial exhibitors may set up from 8:00 to 10:00 p.m. Friday or 7:00 to 9:00 a.m. Saturday. Swappers set up at 9:00 a.m. Saturday.

There will be a banquet Saturday evening at the world-famous Gold Buffet. Guest speakers will include Harry Dannals, W2HD, President of ARRL; Laird Campbell, W1CUT, Managing Editor of QST; Paul Grauer, WØFIR, Midwest Director of ARRL.

Pre-registration is $2; admission at the door is $3. Banquet tickets are $9.50. Those desiring banquet tickets are urged to order with pre-registration. All pre-registrations will be held at the door. Swap tables are $7 for both days; includes registration.

Talk-in on 146/34-94 FM. For information and pre-registrations, write to PHD Amateur Radio Association, Inc., P.O. Box 11, Liberty, MO 64068, 816-781-7313. □

Ohio

The Miami Valley FM Assocation in Dayton, Ohio, will again be hosting their BASH on Friday, 24 April 1981 at the Dayton Convention Center. This will be the 12th year for the BASH, which is held during the largest hamvention in the world — the Dayton Hamvention.

Parking will be available in the adjacent city garage. Admission is free with sandwiches, snacks and a COD bar available.

For more information about the upcoming BASH contact the Miami Valley FM Association, P.O. Box 263, Dayton, Ohio 45401. □

Washington swapfest

The Inland Empire VHF Club announces its sponsorship of an Amateur Radio Swapfest on Saturday, 25 April 1981, to be held at the Spokane Interstate Fairgrounds. Admission is free.

The fest begins at 9:00 a.m. Commercial and non-commercial displays will be featured, as well as an auction, contests, rare exhibits, new and old gear, a flea market and raffles. A Dixieland band will perform, and, of course, a snack bar will be provided.

Table reservations for the flea market are $5 per full table. Reservations for tables, free exhibit space or a free RV site without electrical hookup should be sent to: Swap Fest, c/o Jan Thiemann, KA7DDU, 7803 East Mission, Spokane, WA 99206.

Talk-in on 146.34/94 or 146.52 simplex. □

Contact Worldradio for hamfest prizes.

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