The Worldradio News

Vol. IV, No. 8 February 1975 50¢

WCARS-FDAA-Red Cross sign disaster communications memorandum

Standing: Bernard Miller, Sylvan Meyer, W6KOX; Charlie Weber, WB6RPK; seated: Tom Lew, Les Lester, W6LHQ.

Standing: Vern Hansen, WB6VUQ; Charlie Weber, WB6RPK; Sylvan Meyer, W6KOX; seated: Bryce Torrence, Les Lester, W6LHQ; William Budd.

"We recognize the resources of non-commercial, volunteer communications organizations are vital assets in any type of major disaster. WCARS is to be commended for volunteering its service to the government."

Those were the words of Dr. Charles Getz, regional commissioner, Automated Data and Telecommunications Service, General Services Administration.

The occasion was the signing on 15 January of an accord between the West Coast Amateur Radio Service (WCARS) and the Federal Disaster Assistance Administration.

According to Les Lester, W6LHQ, president of WCARS, this agreement furnishes an instant communications response in the event of a disaster. When normal curcuits fail, WCARS will serve as a "switchboard," coordinating long-haul message handling. WCARS becomes the "prime contractor."

Lester said, "We've been working very hard at this for quite some time. This gives WCARS a sense of direction and purpose. We hope the other instant public service organizations such as WPSS, MWARS and ECARS will get similarly involved."

Sylvan Meyer, W6KOX, a WCARS director and vice-chairman of the SCARS Disaster Services Committee said, "this culminates ten years of work. Primarily due to Charlie's efforts we have put together a workable program and coordination between amateur radio groups."

Charlie Weber, WB6RPK, section emergency coordinator, East Bay Section, ARRL, remarked, "Today is the beginning, this is progress. This could be the pilot project for the entire United States. Without Les this would have never happened."

The WCARS officers also mentioned Ralph Lechner, W6QYE, who was chairman of the Disaster Services Committee for one-and-a-half years. "He provided the coordination, paperwork, and 'grunt' work. He was recently transferred to the Bell Labs in New Jersey."

Meyer said the California Relay Council has been invited to form a committee to work with WCARS and other groups in emergency communication.

Signing the accord on behalf of the U.S. government was Thomas "Tom" Lew. Lew, a retired U.S. Army Signal Corps Lt. Col., has been communications coordinator for GSA/FDAA Region 9. (CA, AZ, NV, HI) for the past five years. Prior to that he was the director of Army MARS in the 6th Army District. During his 26 years in the army he served in Europe, Burma, Okinawa, Taiwan, Japan and Vietnam. When he retired he was Deputy Signal Officer for the 6th Army.

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Jim Maxwell, K6AQ
P.O.Box 473
Redwood Estates, 95044
CA

220 MHz

Office of Telecommunications Policy
Executive Office of the President
Washington, D.C. 20504
December 27, 1974

Honorable Richard E. Wiley
Chairman
Federal Communications
Commission
Washington, D.C. 20554

Dear Dick:

As you know, the proposed reallocation of the band 223-225 MHz for the new Class E Citizens Radio Service has been under reconsideration within the Executive Branch primarily in view of potential interference to established Government radio services in the same and adjacent portions of the radio spectrum.

Based on a recent engineering analysis and a spectrum planning review, we believe that the potential interference problem is manageable and not therefore an obstacle to establishment of the proposed service. We have concluded however that certain conditions should be applied to ensure compatibility between the Citizens Radio Service and Federal Government operations in the vicinity of 225 MHz (See enclosure 1).

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(*continued from page 1*)

Also present at the signing was Bernard Miller, also a retired U.S Signal Corps officer. Miller is now the director of Region Nine for the Telecommunications Division of the General Services Administration Automated Data and Telecommunications Service. This organization furnishes communication for the federal government. Miller called the accord, "Very necessary, this is a step in the right direction."

After the signing at the GSA offices at 525 Market St. in San Francisco, Lester, Meyer, Weber and **Worldradio** editor Armond Noble, WB6AUH, went to Western Area headquarters for the American Red Cross at 1550 Sutter St.

There they were joined by Vern Hanson, WB6UWQ/ADM6UWQ, Area MARS director, and Senior Chief Radioman William Daniels, WA6DLT, NØWED, Director, 12th NAVMARCORMARS District.

The group then met with Bryce Torrence, director, Disaster Services, Western Area, and William Budd, assistant director, Disaster Services. Western Area, of the American National Red Cross.

Signing the Memorandum of Understanding on the behalf of the Red Cross was Bryce Torrence.

William Budd, who has been with the Red Cross for over 30 years, has a good knowledge of what Amateur Radio has to offer. He was on the first commercial flight into Alaska after the earthquake struck. And he had been pulled off disaster duty at

the Cincinnati, OH, flood to be sent to Alaska.

Speaking of the accord with WCARS, Budd said, "Something like this has concerned me for 32 years. We've always known it was available, we just didn't know how."

Budd said he would like to see periodic, unscheduled tests of the system and Lester acknowledged he was fully in favor.

Followed then was a discussion between Budd and Lester that the first priority would be to provide services to the affected area. This would be mass care and individual assistance. There would be a 72-hour moratorium on "Health and Welfare" traffic from outside the area. The exception would be separated families in a disaster area, such as in San Francisco and it suburbs, separated by bridges. As a morale factor, it would be allowed but only for the immediate family.

It was brought out that there are six million individuals in the nine Bay Area counties and the inquiries would be staggering. The first priority for messages must be those related to sustaining the life of those affected.

Budd told how, during the Alaska earthquake, every village and community was receiving H&W inquiries, many from people who hadn't communicated with the person they were inquiring about for 20 years.

The MARS directors entered in as to how they would be participating, and all discussions were held on the basis of all telephone service being non-existant. Even if the telephone service is operative, during an emergency the overload renders it useless.

Another subject was working on some form of identification for radio

amateurs so they could cross police or National Guard lines to get to where they were needed. Budd said it would be a big help if amateurs joined their local Red Cross Chapter and get a Red Cross identification card. (Editor's Note: Red Cross officials in Sacramento have said an amateur, if he is a Red Cross volunteer, and before going into an emergency area, signs in with the Red Cross, will be covered by Workmen's Compensation in case of injury.)

Lester said it may become WCARS standard operating procedure that in case of a disaster, members would be instructed to go to their local Red Cross Chapter.

Budd said the Red Cross maintains a 24-hour Disaster Service duty officer. In the case of a disaster he will contact the WCARS alert list.

Much of the discussion centered on the response to one specific type of disaster. It was earthquake in the San Francisco Bay Area, which scientists say is inevitable.

memorandum of understanding

Item I. Purpose

The purpose of this Memorandum of Understanding is to provide amateur radio capability to the Region 9 GSA/FDAA Emergency Communications Coordinator so that he may achieve communications coordination interface with American Radio Relay League (ARRL) Section Emergency Coordinators (SEC) in times of major disasters when commercial means are disrupted.

Item II. Points of Contact—Federal to Amateur Radio

A capability for achieving a point of contact between the GSA/FDAA Communications Coordinator and ARRL, SEC will be provided by the WCARS organization in the following manner: Each Friday morning, WCARS will provide the telephone numbers and locations of one primary and two alternate net activation stations to the GSA/FDAA

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Forum

By Norm Brooks, K6FO

Remember two things: (1) Keep Amateur Radio bright and shiny, and (2) when you comment on Docket 20282, don't think of the impact on you alone, think about Amateur Radio in general. This was the closing summary of Harry Dannals, W2TUK, president of ARRL, who was the featured speaker at the ARRL forum at SAROC, 5 January, 1975.

World Conference

Dannals said he believed more and more amateurs are becoming aware of the upcoming World Administrative Radio Conference and its important to Amateur Radio. Not only are we amateurs becoming aware of the Conference, we are becoming knowledgeable of the fact that the United States of America has but one vote in this international organization of some 140 nations. We are also finding out there is a "third world bloc" of nations who couldn't care less about the survival of Amateur Radio.

Dannals said there are those who suggest we get out of the International Telecommunications Union (ITU), and let the third world go its own way. However, radio waves don't stop at international borders, and that's an impossible position for us to take. "We at the ARRL have been concerned about this for some time. Amateur Radio is here to stay, and we want to be certain Amateur Radio will be here tomorrow." We are concerned that many countries that have no Amateur Radio at all would not be concerned with keeping the 500 kHz slice of the spectrum at 3.5 MHz for Amateur Radio.

The U.S. proposals

He told the "standing room only" crowd about the amateur service study group established by the federal Interdepartment Radio Advisory Committee. This group has completed an amateur radio position paper, and its recommendations were reported in the editorial on page 9 of the December 1974 issue of QST. Its recommendations include return of 160 meter band to amateurs, eliminate sharing the 80 meter band, eliminate sharing the 40 meter band with broadcasters, expand the 40 meter band, expand 20 meters and eliminate sharing, expand 15 meters, and establish new ham bands at 10.1, 18.1 and 24 MHz.

Lining up support

There are some 84 countries represented in the International Amateur Radio Union (IARU), and our delegates to the ITU are working through those Amateur Radio organizations. However, there are over 140 nations in the ITU. This means there are a lot of "bloc" countries we will not be able to reach. The headquarters of IARU has already started on a program of selling the above proposals among Amateur Radio societies in the countries represented in the IARU. They are urging the member societies to deal with their officials and their agencies, seeking support for the U.S. proposals.

Why all this protocol? Dannals pointed out the difference between the way we do things in the U.S. and how it is done elsewhere. Harry, as president of ARRL, can go directly to the chairman of the F.C.C. and talk to him informally. They would call each other "Dick" and "Harry." Even though the talks would be informal, there is a strong feeling of mutual respect between the two men. This informal approach would be unheard of in most foreign countries. There are precise, formal ways to approach the departmental heads in those countries, and only the members of the local radio societies would know how to do this.

What can I do?

Many amateurs wonder what they can do to help. There is one very important thing that every amateur can contribute — help keep the image of Amateur Radio spotless. Dannals reported there is absolutely too much loose talk, "cuss words" and the like on the Amateur Radio channels. All of us should use language that could be used in mixed company, with strangers and children present. When you go on the air keep in mind that many loud speakers are carrying your voice, even though only one station is responding to your words.

Dannals said the ashes are still smoldering in Washington, D.C. on the 220 MHz Class E Citizens Band proposal. He is shocked that many amateurs would trade the 220 MHz band to the CBers in return for 11 meters. There is no comparison in the value of the two bands, the 220 MHz band, of course, being the more valuable.

Docket 20282

After Dannals' prepared remarks, he threw the meeting open for questions and answers. The first had to do with 20282. Where did the A and B business come from? Doesn't it slice Amateur Radio right down the middle? Harry replied that when the ARRL met with FCC officials, the Commission planners showed many block diagrams of possible plans. They had done a good deal of soul searching. For example, they had considered a "Universal class." They looked at a single ladder with the "Communicator" at the bottom. They finally came up with the two ladders, A and B, proposed in 20282. This plan allows a person to hold both a Technician and a Novice license at the same time. This was one of the objectives. If the plan goes through as proposed, a Technician could have a Novice license without examination. Another member, speaking in favor of Docket 20282, reminded the group that wives and friends of hams, sort of a quasi-active group, could become Communicators.

Other countries

Is the 20282 proposal to be like the Amateur Radio structure in the USSR, Germany, etc.? Dannals replied that when the ARRL heard of such comparisons, they wrote to all the countries in the IARU who had a no-code license. They asked for a report on their structure. The JARL (Japan) sent a four page answer. Yes, other countries have used the no-code approach to develop Amateur Radio growth.

Licensing classes

The League has written to affiliated clubs, asking for information on licensing classes. Some of the replies were excellent, others apathetic. Members of some clubs have doubts as to their abilities as instructors. **You can do it.** You may have to read the book again, but you can. "Go back to your clubs, and get this thing going!"

Harry Dannals, W2TUK, president, ARRL

Individual versus group

A lively discussion took place when one member suggested that all individual amateurs should send comments to the FCC on Docket 20282. Another said get your comments in to your ARRL director. Another said to work through your club or clubs. Bill Eitel suggested we all should work through the League.

(*please turn to page 36*)

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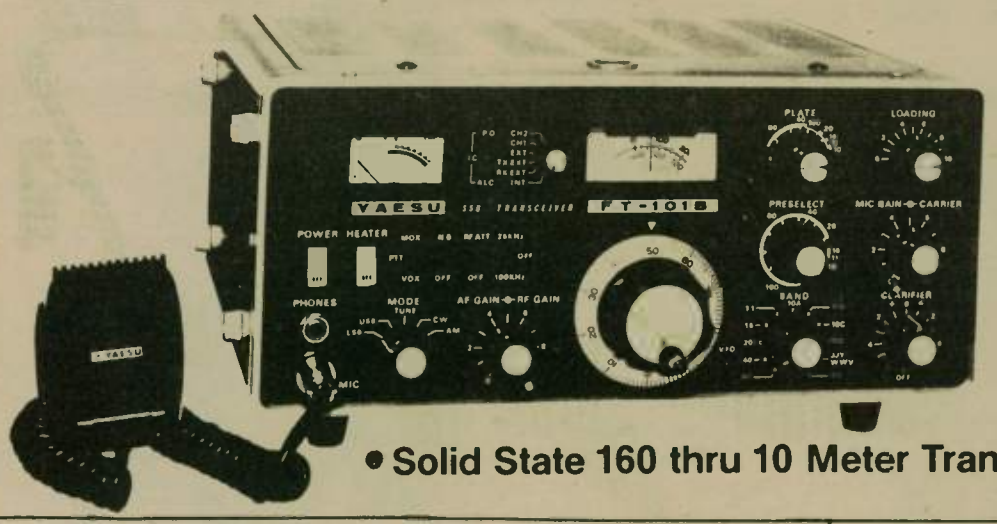

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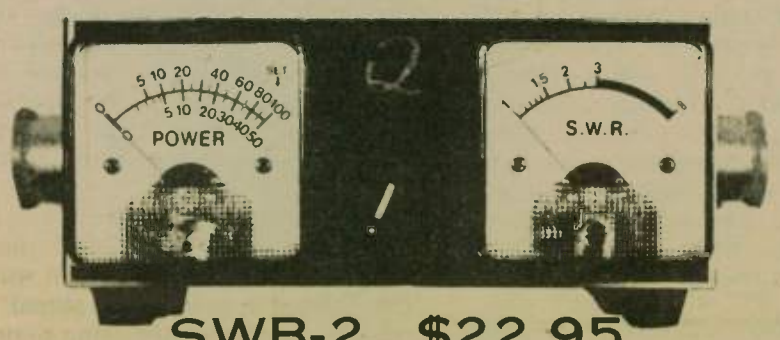

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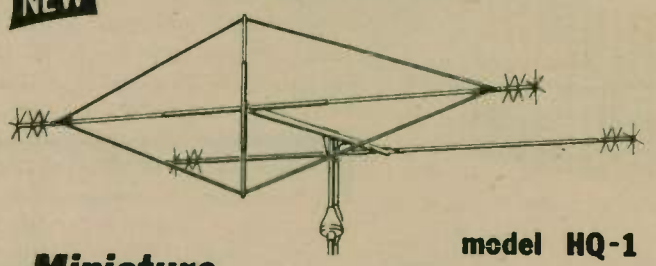

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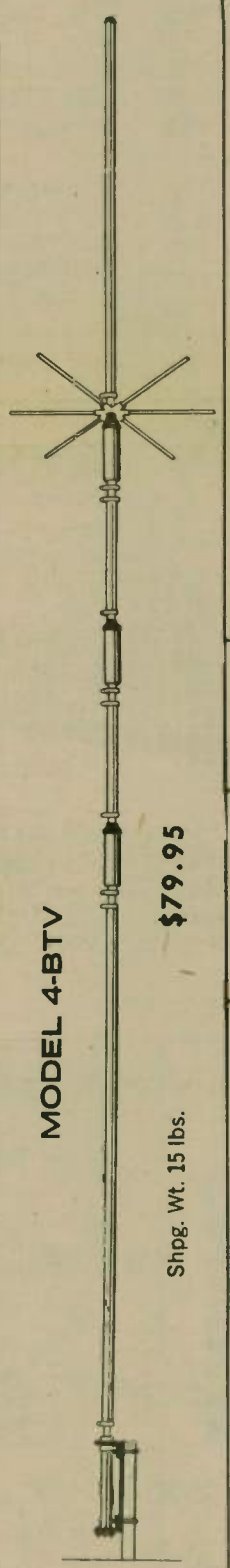

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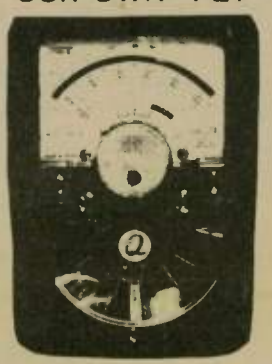

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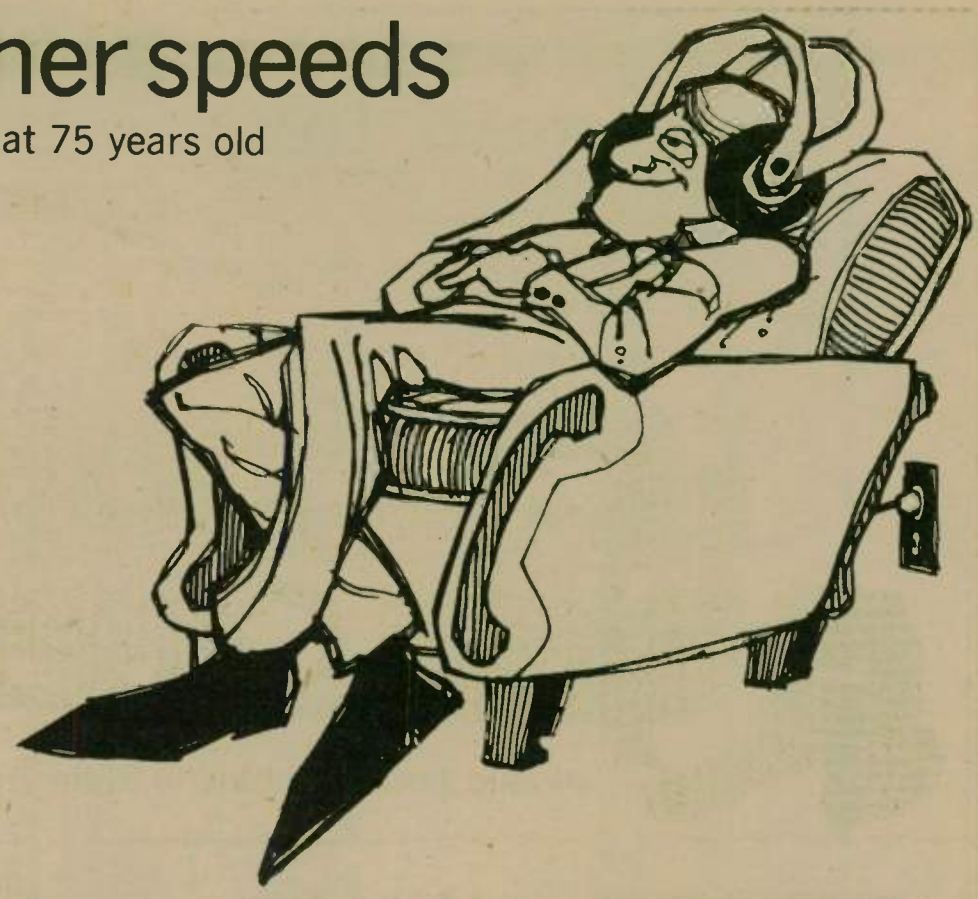

By Samuel A. Berg, WB2EWH

The 35 word per minute sticker for the code proficiency qualifying test was won by me when I was 75 years old.

This goes to substantiate what Vincent O'Keef, WA1FKF, said in his article, "Learning Morse," in the August 1972 issue of QST, "... rest assured the cards are not stacked against you concerning age ..." Here is how I did it, and you can also do it.

It was a cold, windy 12 January in 1972. At 9:30 p.m., local time, W1AW was transmitting on 80 meters, the preamble for the test. My two grandchildren were asleep, as was my son who had to get up at 5:30 a.m. to get ready for the bumper to bumper creep from Staten Island to his work in New Jersey.

My heart was beating rapidly and hoping that I would pass. My head said, "Lay off that stuff. You've been trying since January 1965 to pass it. You can't do it." My heart also said, "You tend to your business and I will tend to mine. I furnish the energy to the hands for writing and to the ears for hearing the sounds — you change the sounds to words and send the news to the hands so they can write it down."

As the preamble proceeded, I fitfully reviewed the path I had followed to this point, where I had the effrontery to even imagine I would some day copy at 35 wpm. The review passed through my mind, just as it said that a drowning man could see his life flash past in his head.

First, I had heard in the far and distant past of 1962, when I was tinkering with the repairing of a radio set, a code practice session being transmitted by W1AW. Something clicked in me. Here was a language that someone was listening to and was understanding it. I had studied Latin, German and Norwegian in school. I always liked languages. In fact, when I started school at five, I could speak only Norwegian. Here was a language floating over the air. In a flash I felt a deep resolve to learn it. I had had a similar experience when I was four years old to become an electrical engineer for an electric railway system.

Second, I bought a code teaching record in February 1962. Three months later I was copying solid 13 wpm from it. I then tried to pass the 15 wpm tests from the W1AW station. After three months, on August 22, 1962, I got my 15 wpm certificate which I framed and hung on the wall. I then felt that since I could pass the code test, I would study for a general license, which I won in November 1962.

Third, I now started the work in studying dits and dahs in earnest. At 20 wpm the speed at which the dits sailed through my ears left a blur. At 15 wmp I could actually count the dits in, say, the letter H. But at 20 and, of course, later at higher speeds, all I could register was a blur or buzz. I found I had to judge from the length of the buzz whether it was a number 5 or a letter H or an S. In other words, I was now being forced into recognizing a particular sound as a 5 or an H or an S. A sharpness had to be developed to learn to judge the delicate difference in the time between an H and an S. I must confess that even now after years of practice, I find an S on the copy instead of an H.

The dit problem became more of a problem when words with a string of dits hit my ear. For example, the word issue. It has ten dits, a dah, and a dit. Fine distinction between letters was needed. And as if that was not enough to get used to, along comes a word like, "base" ending in e, immediately followed by the word, "either", beginning in e. The e in "base" somehow gets mixed in with the e of "either" to the chagrin of the copier.

But finally, after many failures, I passed the 20 wpm test on January 16, 1963. I must confess that time and time again I would submit a copy with words I guessed at, with the hope that I might have hit it right. It must have been a pain in the neck for the copy checker to patiently write those rejection slips. My file was thick with these notices. I could repeat them from memory just from reading them so many times.

Now I started on 25 wpm. Here I was more than ever bothered by the dits rearing their nimble heads and roaring past my ear drums, kicking up their mocking heels as they disappeared into an unintelligible murmur. By sheer persistance and stubborn refusal to admit defeat, I kept practicing and after fourteen months, I passed the 25 wpm test on 17 March 1964.

I was not wallowing my way on the plateau of 30 wpm. I still didn't handle with facility the dits in words like "the ship missed the signal". I resorted to devices like using periods of hearing dahs to catch up on dits. For example, the word "issues" followed by the word "room".

While listening to "room" with its nice long dahs, I hurriedly scribbled down the dits of "issues".

But I was plagued by the difficulty of reading my chicken marks which I had scrawled on my paper. My daughter, who was often forced to listen to the Katzenjammer of code that filled the air of our house, said, "Why don't you learn to write — not make chicken marks." But troubles in trying to write clearly at this speed pestered me. I didn't have time at this fast clip, to make round o's, flat topped r's, dotted i's, and crossed t's.

In dispair I wrote to Ed Handy, W1BDI, at ARRL about this and he said tests had been made on persons who had learned to write fast and results showed legibility could be attained. He added, learning to lag behind the copy, gave a chance to grasp a whole word, which then could be smoothly written as a word and not as a string of dits and dahs.

I strove to follow all suggestions and by what seemed to be an accident of luck and a state of good physical condition, but actually must have been through dogged practice, it finally occurred and I passed the 30 wpm test on January 14, 1965.

I was now in the world of 35 wpm. If I was in dispair because of writing difficulty at 30 wpm, I was now

(*please turn to page 23*)

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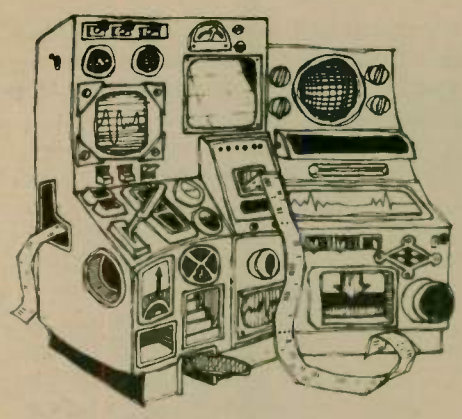


vhf — uhf microwave

Louis Anciaux, WB6NMT

Welcome to the world above DC (or HF). This new column will endeavor to bring the news of current happenings on VHF to the readers of **Worldradio**. We may regress at times to past history and will often try to indicate future possibilities. To meet this end, I will require considerable assistance from you, the reader, to keep me up-to-date on what you are doing.

I was quite elated and flattered when Armond (WB6AUH, editor, **Worldradio**) asked me to write a column for this paper. Being relatively new to column writing, I must ask for the readers' indulgence during my period of growing pangs.

Briefly, to acquaint those of you do don't know me, allow me to indulge in a bit of self-esteem and relate some of my background.

I've been married to a most wonderful and certainly understanding woman for nearly 18 years. We have a daughter 16, and son, 13. Besides radio, we actively pursue photography, mountain climbing and scuba diving as interests. I'm presently employed at the Naval Electronics Lab in San Diego working in communications and celestial mechanics. Previously, I was in the Navy for some years, including a four year stint as Officer in Charge of the NPG Transmitter and Receiver sites.

My amateur radio officially began as WN8CMW and WA8CMW in 1963. In '64 I obtained the present call. It wasn't until '65 I got into VHF at all. Initially spent most all of my time on 50 MHz, including a four month period in summer '67 from KH6. In early '68 with 4 W on 144 and 8 els and a 450 mi DX QSO to Stockton, I began to go up in frequency.

A year in XV5 land slowed things, but by Aug. '69 was fast at work in Vallejo building a 220 MHz EME system. My first array was 16 ten-turn helical beams only pointed at highest moon declinations.

In March of '70 I was very fortunate to be on one end of the 1st 2-way QSO via 220 MHz EME with Les Whitaker, W7CNK, and the 2nd with Paul Snyder, Jr., K2CBA.

After moving to Dixon, I built an array of 16 six el Yagis (several times since they kept falling down) and an array of 16 ten el Yagis (also fell down) for 220, and a stacked pair of 15 waves/leg rhombics for 50 MHz. The QRM and QRN from all the NPG and VOA xmtrs was something else. We did manage in June '72 a partial QSO with Connie Marshall, K5WVX, in Okla. via 50 MHz EME. But, it wasn't until Sept. we managed a complete QSO via EME.

I next went to the NPG rcvr site near Sonoma, and built a 20 waves/leg stacked pair of rhombics for 50 MHz and re-built the 16 ten el Yagi array for 220 MHz EME. In July '73 I came back to San Diego again.

While in Northern California, I did several noteworthy items in Amateur Radio: besides the EME QSOs, compiled 10 states on 220, 44 on 50 MHz plus 6 countries; first 220 MHz QSOs between Calif. and Wash., Ore, S Dak, NY and Ill; wrote a series of 12 single page EME Notes which have appeared in most of the regional VHF newsletters; received the ARRL Technical Merit Award for 1970 along with W7CNK and K2CBA.

Since coming to San Diego again, I have acquired a 28' dish, which I hope to put into operation this year. My main amateur activity has been VHF QRP. Last summer running just 1½ W output, I worked 18 states plus VE3, VE6 and VE7. Using very low powers to LA area, have gone well over the 1000 mi/W limit on 50 to 2304 save 1296. On 50-220 bands have exceeded 1,000,000 mi/W and on 145 we often reach 1,000,000,000 mi/W. under correct conditions.

As mentioned in the opening statements, this column will endeavor to cover current activities in the realm of VHF and up. Along these lines, most of what is presented may appear slanted towards the US West Coast. This is due to my QTH and lack of info yet from the rest of the world.

To rectify this shortcoming, you the reader, must help me become acquainted with your activities. With **The Worldradio** fast production time we can cut down the long lead time for those items which are most time urgent. To this end, if your reports reach me by the 20th of each month, they will be included in the next month's issue. Bear in mind, the most desirable info is that which is of time urgence.

Presently I'm still trying to determine just what might be most interesting to you. One idea is to cover in each column some particular technical subject or equipment. Not a lengthy dissertation; but, a supplement which might be of some assistance to understanding the problem at hand, or the circuit being built. Suggestions, comments and material for inclusion are most welcomed and eagerly awaited.

Just past is the Jan. ARRL VHF SS contest. Carl Cook, WA6JUD/6, apparently broke a record score standing since 1958. Activity in SoCal was not expecially high. But, much improved tropo conditions this year did allow decent QRP operations. The amazing thing is to run across fellow amateurs, who insist they aren't in the contest and thus cannot do any point giving. Although one may not intend to submit a log; why must he also put away his good-will to a fellow amateur.

I understand many of the 2 mtr crowd get very hostile towards idea of anyone using their frequency for contesting. Pity we can't move them back to the stone age and free some of the congestion.

Viewing the contests from the standpoint of showing a level of activity on our bands which is used to establish our basis for asking the International Conferences on frequency allocations for our desired bands; should be reason enough to get one involved. If we don't use every available means to up our usage data; we very likely will loose some of our precious allocations.

Even the user of only the FM mode on repeaters will be affected. The cry of over-crowding on commercial frequencies is heard far and wide. Imagine the effect when in 1978 the present bands are reduced to half their present size. What then?

You, who are too self-centered to allow another amateur to operate on "your" frequency for a few minutes (because you don't believe in his thing) had better realize the loss of the top half of the band you are on is in part due to your own fault.

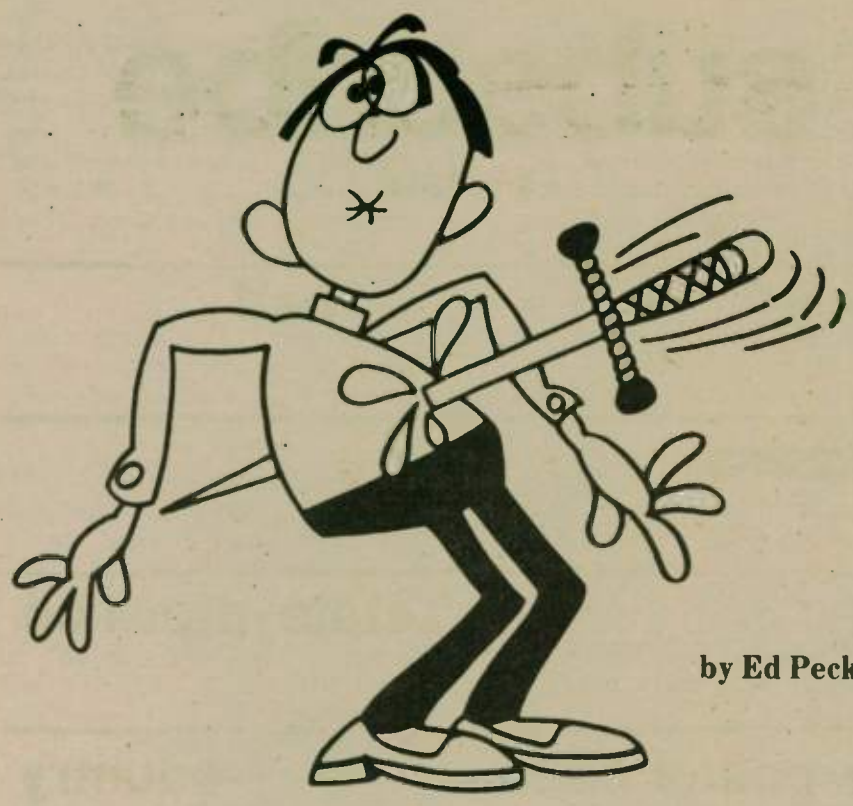
With the passing of the Quadrantids in January, we reach that period of the year most used for re-building and building for the coming year. Meteors are at the low for the year, tropo not prevalent and Es is very sparse on 50 MHz. Perhaps the most VHF activity presently going on centers on satellite work. Moonbounce is at a high and the OSCAR 7 is providing a new thrill for many just getting on 432.

In comparing 6 to 7, many are complaining of poor rcvr. sensitivity on 7's 2 to 10 (Mode A) translator. I've heard a few say they think it is as good or better. Not using that portion I'm not to say. Perhaps you users might drop me a line and we can publish a comparison survey. Without a doubt, the unanimous opinion is that the Mode B translator is vastly superior. The night time problem of high noise and the parasitic lock-up which is compounded by all the high power users does detract a bit from those passes. However, the day passes are unbelievable in strength. A 40 db over noise signal is fairly common.

Running 5 Watts out here and overall again of 10 db in the antenna, my sigs run up to 30 db very often. Even at 1 W out, 25 db sigs are available, and I've had several dozen QSOs at that power level.

That level of activity on Mode B doesn't leave one wanting for QRM. I've worked over 100 different stations and have heard at least two dozen more I haven't worked yet.

(*please turn to page 26*)



by Ed Peck, K6AN

Towers, zoning and the law

(Below are part of the remarks of Attorney Ed Peck as delivered at the Pacific Division Convention on 26 October 1974)

The next most offensive one you might find is the two-meter repeater restriction which is down here in San Jose. This one says under "improvements", "no buildings other than a single family dwelling shall be erected on any of the lots" and goes on to say "more particularly without the intent of limiting the foregoing restrictions, no stores, flats, double houses, radio towers, hotels, or apartments shall be built or placed upon this property."

Now that being pretty direct, it says no radio towers, and you've got a problem if yours is that. This is kind of the middle ground, one of the problems you're going to find. The first one is one of the easier ones, but when they get to the radio towers and they put in there "specifically" you have a problem.

And it goes on to say no structure shall be erected without having first approval of your architectural committee, which is mainly made up of people in the tract, usually a group of three or four or five. That brings up something that's sort of collateral interest. When I went to build my two towers of 60 feet out in Contra Costa county on top of a hill the provisions here said you should submit anything you wanted to the architectural control committee. They must, within thirty days, deny it in writing or it be deemed approved.

Well, I outsnookered them, or took advantage of their ignorance. I submitted the plans for the towers and I waited. After 30 days I hadn't received anything in writing, so I went ahead and bought the lot and was building a house, having the contractor put the tower bases in about half-way along I got a hot letter from an attorney representing the tract. He said they had seen these things going in and told me I can't do this. So I wrote them a letter and said if they took note of their own tract restrictions they failed to deny it within 30 days in writing and therefore it was deemed approved. I told them if they wanted to meet me in the court, we were ready to go. That was the last I heard of it.

You know, there's tricks to this too, you're probably more alert to this than they are, and if you bear these things in mind and you go and look at these things carefully, maybe you can outwit them a little bit sometime. But you've got to be careful.

Now let's take a real tough one, this one down in Morgan Hill. He has a real tough battle. It provides this way, Clause No. 14, Radio or Television Towers, "No exterior radio or television tower or radio or television antenna shall be used. No amateur radio tower or antenna shall be permitted. Boy, right in the eye.

Now we've seen the easy one, the middle ground, and this one punches you right in the nose, it says "No amateur radio tower or antenna". Wouldn't it be sad to be all committed to a contract to buy a 50 or 60 thousand dollar home and suddenly you come around and you find this out later? You find that it says no amateur radio tower or antenna. You have a real problem on your hands and you're in real great difficulty, believe me.

So these are the things to kind of watch for and that's why I say take your time and check on them if you're buying a new house and see just where you are.

Now let's talk briefly about nuisances which is the next thing. Sometimes we get a situation because of TVI, we're not talking of the tower case now, we're talking about the TVI problem, where the problem is you're causing TVI and either some municipal body or your neighbor sues and gets an injunction against you because you're a nuisance to the community.

I think these cases can be won and I think we'll win them. We've not really had one that went full bore. We had a couple of them and we won them one way or another but not one that has really gone to the bitter end.

What is a nuisance you might ask. There's two kinds of nuisances, one is a penal code violation, so I suppose actually that if you get a warrant for your arrest you're violating the penal code section. Penal Code 370 says anything that is injurious to health or indecent or offensive to the senses or obstruction to free use of property so as to interfere with the comfortable enjoyment of life or property is a nuisance.

So I suppose TVI is interfering with comfortable enjoyment of life. If it's a public nuisance then it must be something that's annoying a group of people in the community, it must be a community nuisance and is usually prosecuted through the District Attorney's office.

If you are a private nuisance, and this is where your neighbor sues to get you off the air because of TVI, it will come under Civil Code No. 3479 which has the same definition exactly but is limited to what we call a private nuisance.

Mostly these are brought on civil actions either by the city or by a private person, and usually you don't get into the criminal field. If the city or county serves you on a nuisance theory to get you off the air, they don't have to put up a bond, so you're not going to have that nice little tweak at the end if you win. If it's a private nuisance, so-called, then the guy's going to have to put up the bond, so maybe you're going to get some money out of his pocket for causing you all this trouble at the end of the line.

We had such a case one time where a neighbor went down and got a restraining order and put the amateur off the air, bang, just like that. The original order was just that he was off the air until they could have this preliminary hearing, which must always be within 10 days. We went down and briefed the law and moved to dismiss the case that it couldn't be a nuisance. The court ruled against us and imposed quiet hours on the amateur.

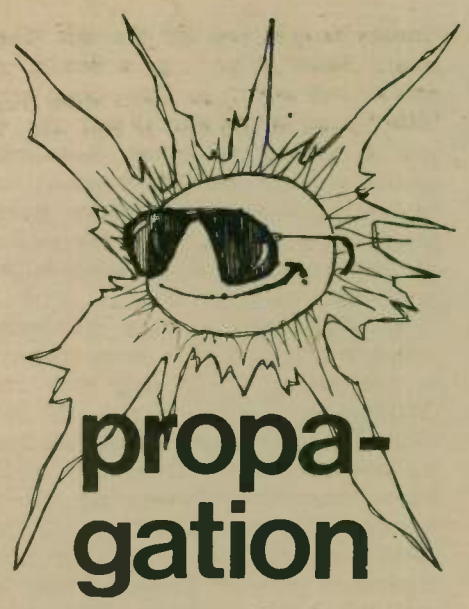
The first thing I did was to contact the FCC and talk to our good friend, Ney Landry, and ask if he could come down and make an inspection. He said he couldn't because he can't make an inspection on request of an amateur. The order must come from Washington. But, he suggested I send a copy of the decision to the FCC in Washington. I did and it resulted in an immediate phone call from Washington to Landrey.

The FCC didn't like it a bit that some local court was usurping their power and imposing a quiet hour. Landry called me and we arranged at time for him to come down and make an inspection on the property. I don't think the FCC usually provides you with a copy of their inspection report but in this case they did. We filed a copy of their inspection report with the court and asked the case be dismissed. Of course, the inspection report was a complete whitewash of the amateur. At that point the opposition caved in and the case was dismissed and we got out of it.

The reaction of the FCC was pretty violent when that hit Washington, it didn't take many hours before the wires were hot coming back. So we did get some real help on that one. The courts have held that someone who is licensed in the public interest, convenience and necessity cannot be a public nuisance. In other words if you're in the public interest to be there you can't conversely be a public nuisance.

This comes to an interesting point. Some several years ago an outfit down in the Los Angeles area commenced a lawsuit against American Airlines. Among several of the things

(continued in next month's issue)



propa-gation

March 1975
Maximum Usable Frequency from Burbank, CA

The numbers listed in each column are the Maximum Usable Frequencies (in Megahertz) for contacting five major areas of the world throughout each 24-hour period of each month.

Probability is estimated to be a minimum of 70 percent.

MARCH 1975

UT	AFRI	ASIA	EURO	SOAM	SPAC
01	15.2	23.1	8.8	20.9	26.4
02	10.8	21.2	8.5	17.1	26.7
03	8.0	17.7	7.8	14.0	23.1
04	9.8	16.0	7.2	12.6	19.6
05	9.1	14.4	7.5	12.6	16.6
06	8.5	13.0	8.9	13.3	14.6
07	8.7	12.8	10.7	13.8	13.9
08	8.3	12.2	10.7	11.1	13.9
09	7.9	12.1	10.1	11.2	13.9
10	7.6	12.2	9.8	13.9	14.1
11	7.7	12.3	9.6	12.2	14.2
12	8.6	11.7	9.9	11.5	13.3
13	10.2	10.9	11.2	13.6	11.7
14	12.3	11.3	13.4	17.4	11.6
15	14.3	13.6	16.1	20.7	14.8
16	14.3	14.3	17.7	22.4	15.0
17	15.0	13.7	16.8	23.6	13.3
18	15.3	13.1	15.8	25.1	12.2
19	15.9	13.3	14.3	26.7	13.8
20	16.5	15.2	12.5	28.0	17.6
21	16.8	18.5	11.7	28.5	21.3
22	16.9	21.9	10.5	28.3	23.1
23	17.1	23.4	9.2	27.0	24.0
24	16.8	23.7	9.0	24.5	25.1

●

220 MHz

(continued from page 1)

We also reviewed the rationale in support of this new proposed radio service, and have reaffirmed our earlier view that htere is a definite need for a disciplined radio service responsive to the needs and interests of the private citizen which establishment of the Class E service would satisfy. For example, using the two megahertz of spectrum offered, eighty FM radio channels could be made available to meet many of the currently unfilled communications needs of a nation on the move.

Estimates of the industrial activity contribution of such a service suggest a market size approaching half a billion dollars per year . . . an additional matter to be considered carefully in light of the current economic situation.

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We look forward to welcoming you to our growing community of distinguished readers.

It is our hope that you will join in with the spirit of friendship and good will that exists amongst our readers.

●

License fees go down

Effective 1 March 1975 a new revised FCC fee schedule goes into effect for the amateur service. The new fees are $4.00 for new licenses and renewals, $3.00 for modifications. FCC points out that remittances in excess of these fees received after March 1 cannot be refunded because of processing difficulties. Applications received before March 1 with insufficient money for fees in effect at that time will be returned.

●

As noted in our March 29, 1972 letter, this office continues to support the mission and objectives of the Amateur Radio Service and we have, therefore once again, carefully considered the Amateurs' objections to Class E. In this particular instance, however, we feel that a larger public need for radio justifies the foregoing reallocation. The fact remains that amateurs could continue to use the band involved, provided they complied with the rules applicable to the new radio service.

In view of the delay already inherent in this proceeding, it is urged that every consideration be given to expeditious action on this matter by the Commission.

Sincerely,
(s) John Eger
Acting Director

●

On 23 January 1975, The American Radio Relay League, through its General Counsel, Robert Booth, Jr. (W3PS), filed a petition against the above.

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Poor man's DX diary

By G.L. Baker, W5QPX

Monday, 26 Aug. 1974 ...

I departed Amarillo, TX via Continental to Houston and Pan Am to Guatemala City.

I was met at the airport by Ed Read, TG4SR, and his wife Ruth. Ed has been in Guatemala some 28 years in the mission field with CAM (Central American Missions — non-denomination). He's from New Jersey and Ruth is from Massachusetts. I toured CAM's radio station in town: TGN-TGNA AM-FM and met Wayne Berger, TG9WN, the station's technician. Most early stages of the transmitters were xmtrs homebrewed by Wayne. SWL reports are welcomed/honored here.

I was invited to their home in Chimaltenango, 49 kilometers NW of Ciudad. We went in Ed's Ford Bronco to the city in a high mountain valley. The rainy season wasn't quite over in the higher elevations and the weather was cool.

Tenango means "the place of" and in case of Chimaltenango — the place of the shields — as back when warriors used store weapons, etc. there. Nearby Quezaltenango means "the place of the Quetzals" — the national bird and also the name of Guatemalan national currency. One Quetzal equals $1 US. Petrol 70 cents-$1 per gallon depending on location.

I had a TG permit and did a bit of late p.m. CW as /TG4. Band condx poor.

Tuesday, 27 August

I had a short tour of the country WNW of Chimaltenango. Lake Atitlan was most impressive. There is fabulous scenery in the area. I thought my native West Virginia had some mean horseshoe curves ... Guatemala has them all beat!

Years ago Pan Am stocked Atitlan with fish as part of tour promotional. Looks mucho bueno to me.

Small type natives sell raspberries door to door for 10 cents a pint. Nancy bought some excellent native woven material in Patzun. The Cakchiquel Indians, who are very industrious folk, populate the area. Corn is the basic crop and some grow to 18 feet tall. Tag! Excellent cabbage, onions and potatoes in evidence. Radishes big as lemons! Cakchiquels farm every available spot — some plots on sheer mountain sides.

I stopped in Solola at CAM's R&R compound and ate picnic chow. Don Baker, TG5VW, and troops, there on R&R from Huehuetenango.

I was back in Chimaltenango (population about 10,000) by mid-afternoon and visited CAM's school. Ruth Read teaches some classes. We should hang our heads — tykes in first grade speak better English than we do Spanish.

A few late p.m. 20 meter CW QSO's but conditions still poor. The tropics are very hard on radio gear ... humidity rusts shafts, controls and a lot of dial slippage/jumping noted.

Ed Read speaks Cakchiquel bueno and makes cassette tapes in the language, sends battery recorders out to remote villages for use there, also tapes similar messages for local broadcast over TGN-TGNA. The subject matter includes sanitation, hygiene, etc.

Ed, TG4SR, is one of the most active CW ops in TG. His call is "pirated" often. He says if all the QSLs he gets were legal he would have DXCC twice over.

Wednesday, 28 August

Got in Ciudad early and stopped by for eyeball QSO's with Bill Boden, TG9WD, and his wife. Bill, a retired former W runs a stop-over way-point for CAM folks QSY'ing through the capitol. His QSL card is 11 by 9 inches!

Ed and Ruth saw us off in the late evening for El Salvador via Pan Am. We arrived in San Salvador a bit after 5 p.m. We checked in at YS1WPE's casa. OM Bill Peters is originally from Michigan and is a professor at a local college. He also teaches at American Escuela. His Quad has to be seen to be believed. My YS permit did not arrive before departing Amarillo so I was relegated as Segundo at YS1WPE. Previously airmailed 160 ' meter crystals and coax had not arrived! And the troops wonder why QSL's get lost in the mail. Fortunately, the rainy season was over in YS.

Thursday, 29 August

I fired up on 20 meter CW while the family went for a looksee. Very nice city park in downtown San Salvador. Exchange rate is 2.5 Colones to $1 US. Our experience indicates YS land is best bargains in hotels, restaurants, etc. in Central America.

Mid-day to mid p.m. 20 meters is quite good. I ran off some 200 odd CW QSO's. Lots of Europeans on the band if one could get through W's. YS is probably the rarest CW country in Central America. In the late afternoon Bill and I put up a quickie W8GDQ (Willard Waite) 160 meter radiator.

I didn't notice at the time but as I was soldering the ground to the antenna I got in a bunch of poquito ants. Twenty minutes later back in the shack they liked eat me up. Opened up 160 at 0300A. First QSO was with Stu Perry, W1BB/1. I only made 5 160 QSO's but I understand at that it was some sort of first in YS. Lot of local broadcast sub-harmonics on the band plus lots of other QRM, origin unknown. QRT'd band at 0512Z.

Friday, 30 August

Off again via Taca for Managua. I was met in Las Mercedes by my good amigo of some eight years — Capt. Jim Bacon, G.N., YN4JAB. Jim had a loan of a car so we toured the city. Managua is unrecognizable as we knew it some four years ago. The quake appears to have been of a lateral type — saw no indication of vertical action. The rebuilding of new Managua is on the outskirts of the old location in a wide circle so not to concentrate the populace, as before. Word seems to the old site is to be made into parks, athletic fields, playgrounds, etc.

Stayed at the Hotel Estrella. One must stay over in order continue provinces — air transportation is the only method. No hot showers, not even commercially!

Saturday, 31 August

On to Bluefields via Lanica. The old reliable C-46 is still used in intra-country service. Enormous freight is handled, with short runways, "46 only way to fly". Deplaning Bluefields — amongs other local onlookers, was the city mayor. Nice welcome from him and one of Zelaya's congressmen.

Turnouts for meeting Lanica akin to days of yore meeting stage-coaches, trains, etc. in states. Frequently meet old acquaintances, latest news, etc. Sort of "eye-ball" party line.

I was bunking at YN4JAB's casa. Jim's daughter, Yolanda, is a M.D., living at home while doing internship at a local hospital. Profession suffers there as here. The Bacon family is 80 per cent amateur — XYL Edith, YN4EB; Yolanda, YN4YB; daughter Maida are in college in Leon. She is in law and he is in EE.

With the national election tomorrow there is much color — parades, speeches, fireworks, free T-shirts, key chains, ladies scarves, etc. Rainy season is now quite over in Zelaya. The Bluefields population about 20,000. My permanent YN call — YN4IM.

Sunday, 1 September

Election day — more speeches, fireworks, et al. I helped YN4JAB install a business radio in a local merchants shop. Met Ernesto, YN4ZBJ, local government office department director and another provincial congressman. I revisited old amigos from years past and made new acquaintances. Checked in with Fr. David, YN4SP, director of San Cristobal College, got permission use school radio shack. We in biz "any time you please" the man says. Station QRO kaput. YN4JAB found a blown diode — Viola — A-OK again.

Monday, Tuesday, Wednesday, 2-3-4 September

My wife and Jody visited shops, churches and made new friends. A water taxi ride to El Bluff — port serving area some eight miles north of the city. Toured Booth Co. seafood packing plant. It's a marvelous operation, spotless. Scrumptious lobster and shrimp. Government process constructing 8,000 foot runway El Bluff — be third airport of entry in Nicaragua. Others are Managua and Puerto Cabezas.

I ran into Rev. Dreger, YN4WLD, in downtown Bluefields. Nancy and Jody taking to "siesta" like ducks to water.

The neighborhood dogs are so vocal some nights you can't hear the sidetone. Bananas are about 3 cents/pound and in season oranges are about 2 cents each. Latin countries use bananas for what we use Kaopectate for. Gasoline is 80 cents a gallon. TV reception is from Costa Rica.

Central America CW action is sadly lacking — aside from fm W, much demand for both DXCC/WPX. CW is not required in most baliwicks in this part of the world. I helped YN4JAB re-do all ground systems at his casa. Salt air and humidity are tough on metal in this climate. Only intermittent short duration showers.

Radio news broadcasts are 12:30-1 p.m. only. Hurricane Elaine went into Belize. No particulars regarding damage, exact entry points, etc. So, with information lacking on conditions and possible consequences undetermined, we decided to forego the VP1 stop. Perhaps another time.

Frequent late evening go 20-40 CW. Conditions fair.

A popular pastime of small boys in neighborhood "war" with hand carved tops. Quite proficient considering dirt road and luxuriant weeds growing high from rainy season. After school until dark battles. Everyone "paseo's" in the

(*please turn to page 15*)

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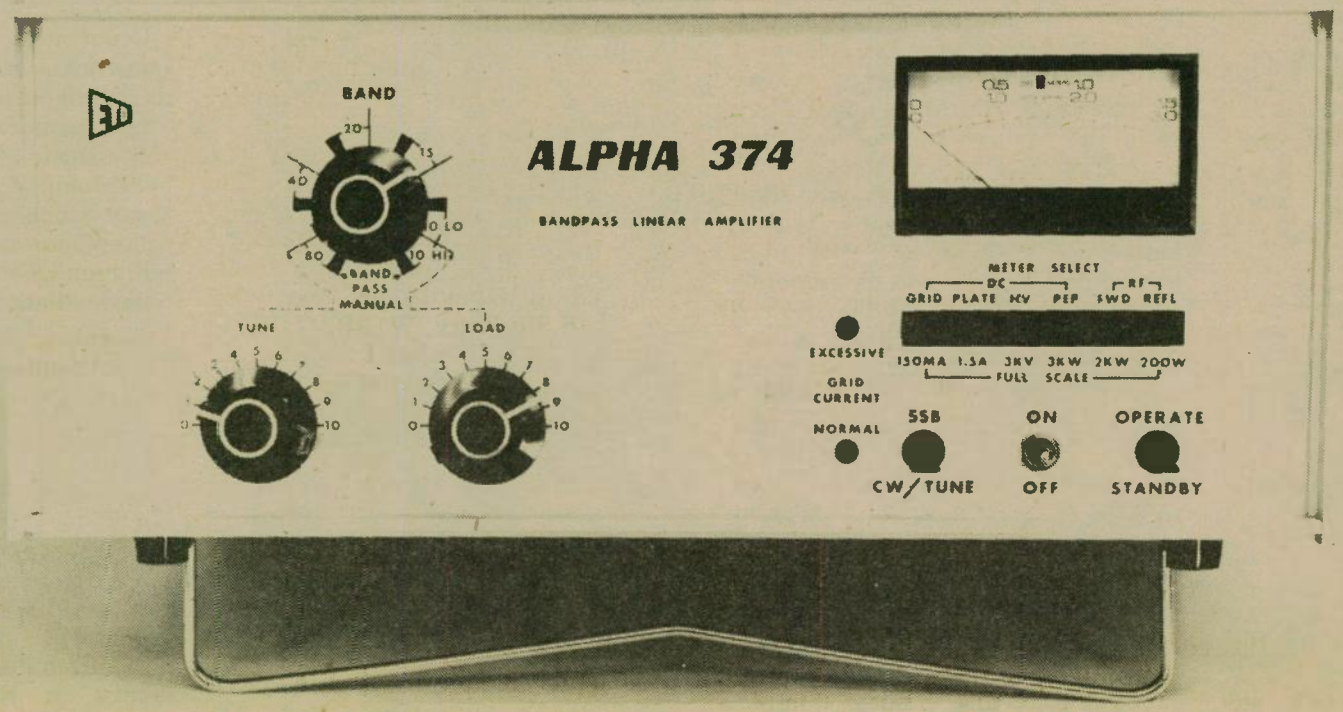

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Hams are funny

By Dave Bell, W6BVN

Hams are funny people (and they may be funnier in California than most other places).

Take for instance a recent ARRL Southwestern Division Director's meeting in which it was recommended, by about a ⅔ vote, that amateurs under 21 not be allowed to give license examinations. I think that's a funny decision, especially in light of the fact most potential amateurs are under 18. Listening to reasons why "kids" weren't to be trusted (and that's what it really boiled down to), I thought of the 16-year-old Extra Class licensee I know and compared him to the 45-year-old General who had misplaced his key years ago and considers transistors to be "new" devices.

The League officials' attitude is understandable since amateurs probably do little more than reflect the national prejudice against youth, a prejudice which begins early in school and wanes when the kid is big enough to beat you up.

My wife tells me most adults aren't even aware there is such widespread prejudice against youth. To skeptics I suggest listening to any teenager or pre-teen being talked to by any adult (especially some teachers). Put yourself in the kid's place. How would you react if you were being talked to like that? Would the adult even consider talking to you like that?

Prejudice, of course, is fear, and why we fear our youth is beyond me. Though I hear slurs long and loud, I haven't seen evidence that youthful amateurs do more jamming, use more profanity, are more impolite or engage in brainless practices to any greater degree than the total ham population. My casual observations, in fact, hopefully as unprejudiced as possible, lead me to the quite opposite conclusion.

There's no doubt I've listened to inane conversations between teenagers, but no less so than many so-called adult conversations. It's annoying perhaps that middle-age has removed me from current teenage jargon and consequently makes it harder for me to understand their inanities than middle-aged inanities, but if you've heard one silly conversation . . .

A few weeks ago, while filling out some long overdue QSLs, I was casually listening to a conversation on ten meters between a couple of local teenagers. The only voices on an otherwise deserted band, they were having a marvelous time comparing teachers, subjects, circuits, antennas, Mad cartoons, and just generally filling a void with good humor and frivolity. So I thought it was kind of funny when an immense signal came on the frequency and ordered the "punks" to get to bed because they were up past their bedtime. Prior to the "adult" entering the conversation there had been no profanity on the frequency, but his intervention changed that with the speed of light. The kids told the interloper where to go and suggested when he get there he do some things which were very clearly anatomically impossible. His mission accomplished, the QSO-crasher departed with the satisfaction his intervention was justified since the kids were obviously just foul-mouthed punks.

It's funny how much credit youngsters get on two-meter FM too. It's easy to get the impression that if two-meters were restricted to 40-plus there would be no bird calls, dogs barking, records played (the last one I heard sounded like the Ink Spots) and big, empty signals capturing the repeater and holding it speechless against all comers.

Another thing I find amusing is the paradox of virtually every amateur understanding that we need more amateurs if we are going to keep our frequencies and then doing many things which, intentionally or not, restrict our growth.

To wit: the FCC proposes a new licensing structure. Many amateurs (and probably a lot of accepted bootleggers) oppose this idea. Why? The bottom line answer would seem to be "fear of change." The oft-heard remark that "we don't want another Citizens' Band" strongly implies there is no other alternative. There is, of course, an endless list of alternatives and any

mind with even a crack of openness would be able to think of several.

It's as if we don't have enough confidence in ourselves and our hobby to accept the challenge of turning a "no-code" amateur into a full-fledged Extra Class licensee. To be sure, the chore of turning a near-amateur into a real one will require fraternizing with him, but given the current shape (and size) of the fraternity, fraternizing isn't only desirable, it's essential. If we older types have anything positive to share, we should share it with newcomers and old timers alike.

You don't have to be a gray beard to remember when most amateurs looked askance at the novice license and single sideband and . . .

But there are those who say "the times they are a 'changin' " and therefore it's irrelevant to use history to prove an argument. Maybe so, but I'm old enough to believe the cliche "those who don't learn from history will be condemned to relive it."

Anyone who has read and absorbed some of the ideas in **Future Shock** sould be at least tolerant of change. A comfortable acceptance of change is not just an amateur problem, but is obviously a human problem. If you combine the notions in **Future Shock** with Dr. William Glasser's precept that "no decision is irrevocable" what you have is a "let's give it a try" attitude in lieu of a list of negativisms which are little more than a pessimist's delight.

It's funny that most amateurs won't "badmouth" a piece of equipment until they know something about it, but will unhesitatingly put down untried ideas and unknown people with hardly a thought.

It's probably asking a lot that amateurs be more tolerant than any other bunch of humanity because as has been often observed, there is an elitism permeating the ranks of Amateur Radio and the elite of any society are not long on tolerance. In fact, elite societies the world over are crumbling, many without the help of the C.I.A.

There's not a person who has gotten to this point who can't think of exceptions to the generalities of this piece. While one can take heart there are exceptions, I'm not going to be comfortable about the future of our

(please turn to page 36)

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nets

PREAMBLE

This Net Directory lists all nets that have registered with ARRL since the latest printing of this directory in July 1973. Annual registration is required for listing. Nets listed in this directory are not carried over to next year's directory unless re-registered prior to June 1, 1975. Nets not included in his directory also must register by June 1, 1975 in order to be listed in next year's directory. Nets are registered on form CD-85, available from ARRL. Only those nets on frequencies inside the amateur bands, and whose primary function is public service are listed.

This directory is for information only, and does not necessarily imply that the net listed has any official connection with ARRL. Listing does not give any net the right to prior or exclusive use of a frequency at any time. Information is reproduced as accurately as possible in accordance with the information supplied by the registrant.

The directory is divded into three parts. Part I is the master listing which contains all information on nets registered. Part II is a breakdown by state and province where net coverage is contained within the boundaries of a single state or province. In Part III the nets are listed in order of ascending frequency. Please note that Part I, the master list, carries complete information on the nets and reference to this section will likely be necessary when using Parts II and III.

NOVICES interested in net operation may locate information on novice nets by checking Part III, the listing by frequency, for nets within the novice bands. Cross checking to Part I will give all information on such nets.

Information listed in the columns of Part I is as follows:

Net Name — Listed in alphabetical order. A double asterisk (**) indicates that the net is part of the ARRL National Traffic System (NTS). Nets are not listed as NTS unless specifically registered as such. Nets alleging to be part of NTS but not indicating proper liaison or coverage are not following the system concept, and as such are not indicated as parts of NTS. Refer to the Public Service Communications manual for further information on NTS.

Freq. — The net frequency or frequencies in kHz. When a repeater call was given, it is listed below the frequency.

Days — Days of operation. M = Monday, T = Tuesday, W = Wednesday, Th = Thursday, F = Friday, S = Saturday, Sn = Sunday, Dy = Daily (7 days per week), H = Holidays, 1/3Sn = first and third Sundays of each month, etc. Days of operation are per GMT, not local time.

GMT (UCT) = Time net starts in GMT per daylight saving time. An asterisk (*) indicates that the net does not change time (per GMT) when states revert to standard time.

Purpose — E = Emergency preparedness; T = Traffic handling; L = NTS Local; S = NTS Section; R = NTS Region; A = NTS Area; W = Weather; O = Other. All NTS nets have both E and T purposes.

Coverage — Area the net covers or serves. States and provinces are abbreviated with standard 2-letter abbreviations.

Mgr. — Call of net manager or other amateur to whom correspondence can be directed.

Net Name	Freq.	Days	(UCT)	Purpose	Coverage	Mgr.
Adair County Emergency Net (ACE)**	7120	2/3/4/5Sn	1930	L	Adair Co., MO	W00TF
Adams County CD 2 Meter Hor. Net	145,288	F	0100	ET	South Central NE	W0LZO
Adams County CD 2 Meter Vert. Net	145,288	F	0130	ET	South Central NE	K0FJT
Alabama AM Net (ALA AM)	3955	Sn	1200	ETW	AL FL GA MS TN	W4BFX
Alabama Emergency Net B (AENB)**	3575	Dy	0000	S	AL	W4HFU
Alabama Emergency Net D (AEND)	3725	Dy	2230	S	AL	WN4FZQ
Alabama Emergency Net M (AENM)**	3965	Dy	2330	S	AL	W4RQS
Alabama Emergency Net R (AENR)**	50,520	WF	0000	S	AL	W4QAU
Alabama Post Office Net (AL PON)	3920	T-S	2300	ET	AL	W4ICO
Alaska Net North (AKN)**	3735	M-F	*0645	S	AK	KL7HMU
Alaska Net West (AKW)**	3745	M-F	0500	S	AK	KL7HRK
Alaska Snipers Net (ASN)**	3920	Dy	0200	S	AK	KL7HOV
Alberta Public Service Net**	3770	Dy	*0130	S	AB	VE6ALQ
Allegany County Net**	3902	Sn	1545	L	Allegany Co., MD	W3BHE
Allegheny County RACES Net	28,560	W	0030	E	Allegheny Co., PA	K3SMB
All Florida CW Net (QFN)**	3651/7095	Dy	00/0200	S	FL	WA4GBC
All Florida CW Training Net (QFTN)**	3715	Dy	0100	S	FL	WN4GHU
AMSAT/OSCAR Net	3850	T(Oct-Ap)	0000	O	Eastern USA & Canada	W3ZM
		(May-Sp)	0100			
Anderson County CD/AREC Net (in)	146,280	M	2200	ETO	Eastern TN	WB4ZSZ
(out)	146,880					
	WR4AGL					
Anderson Rad Cl 2 Mtr Net (ARCN)**	146,520	M	*2300	L	Anderson Co., SC	W4FVV
Apricot Message Net**	51,000	Dy	2200	L	Cuyahoga & Lorain Cos., OH	K8ONA
Aquidneck Island Communication Net	50,900	Sn	1230	O	Newport Co., RI	W1JFF
AREC Net	3780	Sn	*1530	ETW	SK	VE5CU
AREC Puget Sound Emergency Net	145,350	T	0300	ET	Central Western WA	WA7ELI
	50,850		0200			WA7EBH
AREC 3 State 2 Meter Net** (in)	146,340	Th	0100	L	Mid Eastern OH, Northern	K8QEW
(out)	146,940				WV, South Western PA	
Arizona Post Office Net (PHX VHF PON)	50,340	W	*0200	ET	Phoenix, AZ area	K7WJF
Arizona Post Office Net	3732	S	*2100	ET	AZ	K7WJF
	3915	T-S	*0100			
Arizona Traffic and Emerg. Net (ATEN)**	3992	SSn	*2230			
Arkansas Phone Net (APN)	3973	Dy	0200 (0230 DST)	S	AZ	WA7JCK
Arkansas Post Office Net (AR PON)	3925	M-S	1100	ET	AR IA LA MO MS TN TX	W5POH
Arkansas Razorback Single-Sideband Net**	3995	M-F	*2130	ETW	AR	W5OEO
Atlantic Provinces Net**	3654	M-S			AR	WB5FDP
Audrain Co. CW Emerg. Net (ACWN)**	7140	Dy	2200	S	VE, VO1	VE1ARB
Badger Emergency Net (BEN)**	3985	WSn	2330	L	Audrain Co., MO	K0AHL
Badger Weather Net (BWN)**	3985	Dy	1600	S	WI	WB9CVB
Beehive Utah Net (BUN)**	7272	M-S	1145	S	WI	WA9OAY
Bergen County AREC Net	29,200	Dy	1830	S	UT	W7OCX
	50,300	W	0030	ET	Northern NJ	WA2CCF
	147,135	F	0030			
Berkshire County AREC Net** (in)	146,310	1/3Th	0000			
(out)	146,910	Sn	1700	L	Western MA Southern VT NH	W1KZS
	K1FFK				Northern CT Eastern NY	
Big Orange Novice Daytime Net (BOND)	7115					
		S	1500	ET	TN	WN4DAZ
Box Butte Co 2 Mtr AREC Em Net**	145,260					WN4GBI
Brit Columbia Amateur Radio Pub Service	3755	S	0200	L	Box Butte Co., NE	K0WPF
Corps Net		Dy	0100	ET	BC AB WA	VE7AGZ
British Columbia Emergency Net (BCEN)**	3650					

(continued in next month's issue)

Emergency Supplies

Chuck Bennett, WB8GQW, prepared a list of supplies and equipment emergency-minded amateurs should have. If you would be prepared for a communications emergency, consider the following:

- Radiograms
- Pens, pencils, erasers
- Station log
- Flashlight
- Antennas
- Microphone
- Broadcast receiver
- Matches (water-proof box)
- Key, straight
- Water, 5 gallons
- Eating utensils
- Hand towels
- Soap
- Can and bottle openers
- Aspirin tablets
- Soldering Iron
- Extra gas and oil
- Jumper cables
- First aid kit
- Hatchet, saw, axe
- Rope, guy wire
- Extra xtals, tubes, fuses
- Foul weather gear
- ARRL operating aid 9
- ID cards, signs, passes
- Food — 3 days worth, not to be heated
- Large wooden box to hold items of equipment
- Bug bomb
- Generator 110/12 v
- Scratch pads
- 110/12 volt desk lamp
- Headphones
- Radio equipment
- Coax, long, short patch
- Maps
- Tools
- SWR bridge
- Speaker
- Face Towels
- Toilet paper
- Mirrow & shaving gear
- Alarm clock
- Blankets
- Syphon (for gas)
- Shovel & pick
- Change of clothes
- Extension cords
- Mast sections & base
- Tow cable
- Phone directory
- ARRL operating manual

(From "Bulletin" Central Ohio AREC)

DX Diary

(*continued from page 10*)

cool of evening. Streets are jammed with people and shops open late. Few cars and little actual buying, mostly greeting friends and catching up on local news and gossip.

Thursday, 5 September

Jim and I decided to leave the troops in Bluefields and take Lanica "around the horn" to Pto. Cabezas, Wespan, Bonanza, Siuna thence speed boat down river to Pto. Isobel — his duty post. I wanted me see how "other half lives" or "how it really is". Reputed one of roughest routes in C.A. Entering Pto. Cabezas I ran into Tom Waddell, YN4ZTW, who had his company's Cessna Skylane. He talked us into flying back to Pto. Isobel and cancelling of rest of route.

Nuff said — reclaimed gear from C46.

While QRX'g for plane refueling made a quick spin of the town. Chatted with YN4JAG, he's a VE and chief electrician for a mine up the river.

Northbound on Lanica and southbound in Tom's Skyland, I noted most of eastern Zelaya is composed of many rivers, lakes and savannahs. I was amazed to learn though grass/vegetation are abundant, savannah cattle operations are not profitable — not much nutrition in the local grass.

We stopped at the Pto. Isobel sawmill strip. YN4ZTW is the general manager of the company from Louisiana which operates both saw and planing mills. Beautiful wood, no knots, etc. Most pine and Santa Maria mahogany. Most of the output goes to Jamaica — $200 per thousand at the mill.

The logs are cut by hand some 100 kilometers up the Prinzapolca River and are rafted or barged to mill.

Perhaps to a lesser extent vs. KL7 — aircraft are indispensible in Centra America — no sugar plantation, ranch, mission post or mill is without one. Taking meals at local boarding house — YN4JAB can't boil water! Community population is about 130.

Friday, 6 September

Jim showed us the Aduana (customs) offices. While we were there a ship from the Cayman Islands came in. Appears there is a lot of ceremony in receiving a ship at port of call in the tropics, it takes eight people to do it right. I noted a couple of sharks chasing fish near the dock. Good place for a 160 antenna . . wharf is a mile long. YN4JAB has the only car in this area. ZF1 ship's captain bought some local beef, had it slaughtered for ships' mess.

YN4TW and YN4JAB kicking around rhombic on states when they find the time. 20-40M only fair. 80M miserable — lots of junk on the band. On CW, word "Isobel" giving me fits at times — all thumbs. It's so humid my bug paddle gets gummy, arm and underside of hand sticks to desk.

Saturday, 7 September

Good rain last night. Tom advises the soil is poor in the upper reaches of river due to rainy season erosion. Deep jungle trees reach enormous size, but not commercially suitable as the wood is porous. Slower growing trees in poorer soil are actually better quality. Non-residents still have "boss-man" jobs with fabulous salaries when locals could do well if not better. It's been this way since "year one" and will undoubtedly remain so.

Lots of hurricane type tfc on bands today. Word is YN4TW is not feeling too hot today — may have QRX til tomorrow to fly back Bluefields.

Sunday, 8 September

Rained again during the night and early a.m. Up early, quick chow, pack junk and peer at wx. Ceiling looks marginal but the locals agree OK by noon as no wind . . . if windy, be sorry all day. Tom feeling better — sez if wx breaks a bit — quick trip to Pto. Cabezas, drop off a couple of mill employees, back to Pto. Isobel and off for Bluefields. ZF1 ship ready to go but the tide is out and it's stuck on the bottom. Finally winched itself off in about an hour and underway. Ship QTO/QTP is an isolated area is about like circus in town to populace.

Wx looking better around noon. Wayne came by with truck when Tom buzzed village and it's off for sawmill strip. Had his upriver foreman, Gilly Watson, with him — four of us underway again southbound. Passed abeam sugarcane plantation and several isolated villages. In Bluefields by 3 p.m. — all QSY'd to YN4JAB's casa for coffee/cake. Then Gilly and Tom away for Managua — 1:40-1:50 ETE across jungle and low mountains — not navaids except ADF from LF NDB's.

Corn Island trip is off! YN4JAB's leg bothering him a bit due to pinched nerve and Jody came down with stomach ailment. Dr. Yolanda thinks probably due to dietary change and more specifically milk. She is taking Kaopectate. As for trip next day, best not take chance — once on C.I. can't return mainland for two days. Jody seems o.k. late evening but couldn't bank on that for next a.m. Alternative we agree spend few days on Pacific side lieu missing C.I.

I chatted with Capt. Webster — master coastal freighter anchored El Bluff during visit there. Nancy, Edith and Jody observe rehearsal of Maypole dance by local young people. Old time custom being revived for national holiday. City municipal buildings, schools, are being repainted in preparation. statues and fences in small city park.

Monday, 9 September

Jim, Edith, and Yolanda drove us to the airport for the flight back to Managua. Mayor on hand again — wished us godspeed. Some last minute ticket purchasers were left behind due to too much freight on board from previous stops. Nancy and Jody had a seat together. I was

(*please turn to page 16*)

international friendship

A friend from JA

by Mike Stalter, W6DPV

On the 28th of December I met Takao Hashimoto, JA1RRU, at the Monterey, Calif. Airport. Tak flew in for a two weeks visit with my wife and me.

I first made radio contact with Tak on CW late in 1971. Besides many contacts after that, we started corresponding by mail and cassette tapes. This continued until his recent visit. Tak is a well-educated person and speaks very good English, French and some Spanish. He's a Technician, Technical Representative and Electronics Technician for the Japan Marina Company, Ltd., in Tokyo. His company builds marine electronic equipment for many countries in the world and has several agencies in the USA, Europe and Asia. The company's equipment includes Sonar, sonar depth finders, fish finders and many other sounding devices.

He left Tokyo on 1 December on a business and pleasure trip, arriving in Seattle where he was met by my son and taken to Silverdale for a day and evening of rest and recreation. On the 2nd of December he flew from Seattle to Salem, Oregon, where he had a scheduled business meeting. His itinerary from this point on was as follows: Salem to Vancouver, B.C., to Los Angeles, to San Francisco, to Vienna, Virginia, to Lake City, Florida, to Halifax, Nova Scotia, to New York City, to Orlando and Miami, Florida, to Washington, D.C., to San Francisco and to Monterey where I met him.

While on the east coast he met three of his amateur friends in Orlando, Miami and Washington, D.C., combining both business and pleasure.

After spending, for us, very enjoyable two weeks, he departed on the 12th of January for San Francisco. From there to Salem, Oregon, on business, then to Portland and then to Los Angeles. From there he flew directly to Guam where he met three amateur friends, John Hlebovy, KG6JAQ, Joseph Frekot, KG6JAR, and Don Phillips, KG6JCJ, and probably Delvin Workman, K7RRU/KG6. After a four day visit on business and pleasure, he departed Guam and arrived back in Tokyo on the 19th.

While visiting here with me, I arranged for him to purchase a Drake SPR-4 receiver complete with all kits and 24 crystals to cover all frequencies. A Drake T-4XC transmitter and power supply was bought from M-TRON in Oakland and from Quement he got a "Slinky" antenna. I'll also purchase a transmatch by Murch for him.

Anyone hearing him on CW around 14.050 kHz or 14.250 kHz would have a very enjoyable QSO with him. He's a very good operator and very interesting person to exchange news with. He also has CW and SSB schedules with Mac, ZS6SM in Johannesburg, South Africa and Pierre, 3B8DC on Mauritius Island with whom he speaks French. He's a life member of ARRL and JARL and has about 150 DX countries to his credit.

DX Diary

with gringo from Florida — sort of vagabond type. The previous week he ferried an aircraft from Fort Meyers to Quito and made his way back north to Bluefields as a member of a tugboat crew.

We were met at Managua by Olivia, XYL of Fritz, YN3FHJ, thence by private car to Pt. Somoza on the Pacific Ocean some 75 kilometers WNW of Managua. Stowed our ditty bags at their casa in Aduana compound. 1,100 Japanese type cars, trucks, etc. were parked in an area off-loaded from a ship in harbor. Wx warmer but Pacific effect — not as much humidity.

Tuesday, 10 September

Jarred out of bed at 6 a.m. by siren wail. Uprising or something adversely amiss? Nay — only "rise 'n' shine" call for all hands.

Drove to Leon (Lay-own) for tour locale and see YN4JAB, Jr. and Maida. Fabulous old cathedral there, circa 15th century — over 100 years building — oldest in Central America. Crossroads of Managua, Leon, Pto. Somoza highway. One can see volcanos distant E to Managua. Momotombo is the more famous. Scientists are considering trying to harness the brute for commercial power

Bueno cattle country 20 km W Managua and on to coast. Noted some cotton also. Cowboy attire not uniform — haphazard garb. Most cattle resembled Brahmas — much hardier and eat anything without thorns.

We passed a couple of W6 vehicles and a Texas station wagon — Pan Am highway? Fritz is a veritable storehouse local YN history, etc. Local animal w/name similar our coyote but resembles the NA racoon and called "Kay-oat-ta". YN3FHJ's HW-100 won't key on CW so it's big action is 15 SSB. We stopped at Leon Viejo ruins — old original city before volcanic eruption back when, and inhabitants QSY'd present Leon. Only a portion of the site is evacuated — apparent modern civilization as contained Mayor's, Governor's, etc. offices, church, plaza, etc. Appears chaps of short stature — walls low. A most informative trip.

Wednesday, 11 September

Off mid p.m. to Masaya (Mah-sie-ah) for a go at native market/shops with stop at Las Mercedes to double check reservations back to Houston.

Airport is knee-deep in military — seems Gen. Somoza about to depart for Formosa — invitation of Chiang Kai-shek.

Our reservations o.k. but Olivia most helpful at Masaya marketplace as interpreter and judge of goods, etc. Finished markets with time to spare and on to Granada.

Granada is sort of showplace of YN — clean city, local pride, etc. Conservative party baliwick.

Aground on shore Lake Nicaragua on ship "Victoria" donated by Queen Victoria to Nicaraguan government back when. Over mucho

(*please turn to page 22*)

WCARS - FDAA

(continued from page 2)

Communications Coordinator, Telecommunications Division, ADTS, 525 Market Street, San Francisco, Calif. 94105, by calling (415) 556-7290.

Item III. Point of Contact—Amateur Radio to Federal

In times of major disasters, amateur radio organizations with traffic may contact the Federal Disaster Assistance Administration through its answering service at (415) 556-8794. The Regional Office of FDAA is located at 120 Montgomery Street, San Francisco, Calif. 94105.

Thomas L. Lew
Les Lester
January 15, 1975

Red Cross

(continued from page 2)

memo of understanding
western area, american red cross

Item I. A Memo of Understanding between the Western Area Disaster Services Office of the American National Red Cross (ANRC), and the West Coast Amateur Radio Service (WCARS) concerning the activation of Amateur Radio Capability for Red Cross disaster relief operations.

ITEM II. Points of entry into the Amateur Radio Service emergency communications nets shall be provided by the WCARS organization in the following manner. Prior to 18.00 C.U.T. (GMT) each Friday morning WCARS shall provide the telephone numbers and the locations of one primary, and two alternate Net Activation Coordination Stations who will serve to 18 00 C.U.T. (GMT) of the following Friday (seven days) to—

1). The Western Area Red Cross Disaster Services Office, 1550 Sutter Street, San Francisco, Calif. (415) 474-1944.

2). Division offices located in the Western Red Cross Area, where the need for and capability to do so exists.

ITEM III. Points of entry into the American National Red Cross Disaster Services organization by the West Coast Amateur Radio Service shall be through the duty workers at the ARC Western Area Office or the closest ARC Division Office.

ITEM IV. Activation of Amateur Radio Capability by Red Cross. If in the opinion of ANRC officials a need is generated for emergency communications to support an ANRC disaster relief operation, the ANRC duty officer shall call the designated WCARS Net Activation Coordinating Officer or alternate(s) concerning the location and nature of the emergency communications requirements, including routing of incoming and outgoing traffic.

ITEM V. WCARS will respond to an ANRC request for emergency communications by first forming an Amateur Radio Coordinating Net through which interested amateurs and amateur radio organizations in or adjacent to the disaster area, can focus and coordinate their capabilities on the communications required.

The communications requirements may include—

1). Between ARC Western ARea Office and ARC Divisions (long range).

2). Between an ARC Division and ARC Chapters affected by a disaster.

3). Between a number of ARC district administrative offices in the disaster area.

This may require WCARS to form a number of nets to meet the communications needs.

If no organized amateur radio capability exists prior to a disaster within oradjacent to the disaster area, WCARS will provide leadership, in cooperation with other Amateur Radio Organizations, to set up the communications nets required.

ITEM VI. All ARC communications are confidential and are not to be shared with or released to any other individuals or organizations without specific directions to do so.

ITEM VII. Unless specified otherwise, all information requested from a disaster area is to be procurred fromt he appropriate ARC office.

ITEM VIII. To reduce the responsibility of the amateur radio operator in message transmissions, it is preferable where practicable and to the extent possible, that communications be by phone patch or hard copy.

Bryce Torrence
Les Lester
January 15, 1975

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Our Overseas Friends

The Federal Communications Commission has amended its rules for the amateur service by removing the nationality requirements wherever they occur in Part 97. The changes resulted from Senate Bill 2457, now public law 93-505. The result is that immigrants and visitors to the United States can take FCC exams and receive FCC callsigns, regardless of previous holding of a license elsewhere, or type of visa, or age. Though the change technically becomes effective February 5, we understand that applications are now being accepted by FCC as routine.

W4MS a pioneer still pioneering

By Bill DeWitt, W2DD

It would be hard to find a real DXer or SSTV buff anywhere in the world who doesn't know Eddie Collins, W4MS.

Eddie started his "wire-less" career at the age of 11 and is still pioneering in his 70's. Slow scan television is Eddie's strong interest at the moment, but the versatility of this fellow is a story in itself. It's a story of accomplishment and recognition. Let's start out with Eddie's recollections of the early days.

"It received my first ticket in Pensacola, Fla., on May 14, 1915. I was very anxious to become a Boy Scout and I hung around the Scoutmaster quite a bit. I wouldn't be 12 until June 25, Hi. Anyway, he was an amateur and the bug bit deeply. After much effort and study, he took me to the radio officer at the Naval Air Station for the exam. I didn't know that you had to apply for a call, so when I asked about a call (after getting through the exam) I was told to just use PB.

I used that until WWI closed us down. I had a spark coil, a double slide tuner, and a galena detector. Just a single headphone. It wasn't until after WWI that I worked anyone out of town. Oh yes, I was 11 years old when I received my license."

It must have been a bit of Americana at its best when that 11-year-old lad marched into the Naval Station to take the exam! Norman Rockwell, where were you?

At the end of WWI, Eddie was issued the call, 4MS, and was back on the air with a Thordarson 1KW transformer, a rotary spark gap, and a DeForest audion detector—all of which he still has!

It wasn't all wireless, wireless, wireless, for Eddie. He was a formidable football player in high school, the University of Florida, and as a pro. (He's still an avid fan!) And, hard to imagine, he played a saxaphone in a big band for many years. Did I mention versatility? In the twenties, Eddie was Southeastern 100-yard AAU swimming champion!

Early in WWII, at the age of 40, Eddie volunteered for the Navy. He served as an electronics specialist in guided missiles and radio controlled aircraft, and as a communications officer. At the end of WWII he was separated from the service with the rank of Lieutenant Commander. He has logged over 7000 hours of flying time in military aircraft.

In the post-war years, Eddie had a long career in the U.S. Civil Service. Prior to his retirement five years ago, he worked as an Aeronautical Engineering Draftsman, Chief Engineering Draftsman, and Radio Engineer. At the time of his retirement, he was the Supervisory Electronics Engineer in the weapons engineering group at a Navy installation in Pensacola.

Apart from WWI and WWII shutdowns, Eddie has been continuously active in Amateur Radio. He was SCM of the Western Florida Section, ARRL, for over 20 years. He also handled the W/K-4 QSL Bureau for 10 years. Service to others has been a way of life for W4MS.

DXers will recall that W4MS stands at 320 Mixed DXCC, phone with a 280 sticker. Other credits include WAZ mixed phone and SSB, WAC on Phone, SSB, and SSTV, and #3 WAS on SSTV. Eddie remembers the thrill of having the first two-way phone contact with Antarctica in the late 30's, and being the first W contact for Gus (W4BPD) in Tibet. His SSTV score is nearing the 100 mark at this writing.

About 20 years ago W4MS was putting out a fast scan signal on 430 MHz. Lack of stations to work was discouraging. Eddie built a MacDonald monitor in the early 60's, and his career in still another facet of Amateur Radio was under way. You can see the collection of gear in the accompanying foto, but in addition to the familiar Robot and Venus equipment, Eddie is the proud owner of a WØLMD keyboard and a plumbicon camera of his own construction.

Eddie Collins, W4MS and his wife Clyde

Everyone who know W4MS knows Clyde! Clyde is Eddie's bride, a petite brown-haired lass who is a green thumb gardener, ace photographer, sews like a pro, and collects stamps. She wields the Rettysnitch and Wouff-Houng with great vigor when Eddie tries to climb the tower! Clyde is a gourmet cook, but she counts the calories for Eddie and keeps him busy installing new stoves, sinks, dryers, and other household gadgets when she can pry him away from the circuit boards.

Clyde and Eddie have been married nine years. Both have been married before. They have two children, a son and a daughter, both married, and four granddaughters.

Like many other hams, Eddie Collins is also interested in photography. Other hobbies include HO Model Railroading, and stamp collecting. Another creative talent is painting pictures—and people say that all those radio characters ever do is twist the dials and call CQ!

Over the years, Eddie has held a number of call signs. In addition to W4RE at his summer home, he has held 40L, W4PAA, and W4ZZP. He holds the Amateur Extra Class license.

We'll let Eddie tell you over the air about his antenna, tower, and the nuts and bolts items because this is a story about a pioneer in our ranks, and how he has maintained his interest and increased his accomplishments over the years. He is a versatile, progressive, knowledgeable fellow of many talents and a generous nature. He's stayed young in his technical capabilities as he has grown older in years. When you talk to Eddie on the air, you can always expect to hear about something new that he's doing. He has a great capacity for learning.

As the years pass, will we have more amateurs like Eddie Collins? We can only hope so.

interference

Dr. Theodore Cohen, W4UMF

Grundig scoops television industry with an interference-free TV receiver

As reported in the leading German electronics magazine FUNKSCHAU (E. Koch, **Now, An Interference-Free Color Television Set,** Spring 1974 issue), Grundig recently introduced a line of color television receivers which are virtually immune to interference from high rf fields.

These receivers, the Super-Color-Series 1974-75, demonstrate that it is not only possible to produce and market economically a set which will reject out-of-band radiation, but that at least one manufacturer — Grundig — recognizes that the production of such sets is in the public interest.

What led to Grundig's action was a report issued by the German National Post Office (DBP), which is also the licensing authority for that country. Noting the increasing numbers of radio stations which are being placed in operation by all services throughout the country, the DBP stated that steps must be taken to reduce the susceptibility of home-entertainment devices to rf fields from nearby transmitters. Further, the DBP said that it was going to seek legislation which would give it the authority to require manufacturers to reduce the susceptibility of their products.

Grundig did not wait for legislation to be passed. It immediately set about to design a television receiver that would meet DBP RFI standards, whatever they might be!

There are essentially three areas of interest which must be considered in the design of an interference-free receiver:

1. Susceptibility of the tuner to signals which enter through the antenna terminals:
2. Direct interference, which results from signals which enter the set by virtue of its placement in an rf field (e.g., pickup on the leads in the video IF);

3. Susceptibility of the receiver due to radiation which enters through the AC line.

Each of these areas was thoroughly treated by the Grundig engineers.

To combat out-of-band signals which enter the set through the antenna leads and tuner, Grundig developed a new tuner. Among other things, this tuner featured a high-pass filter (40 MHz cutoff), proper placement of front-end protection diodes, a series-tuned circuit resonant at 145 MHz (30-40 db rejection in the 2 meter amateur band), additional out-of-band suppression circuitry, transistors with low cross-modulation characteristics, and circuitry for additional high-pass and band-pass plug-in filters, should they be required.

Handwriting-on-the-wall Department

"We are going to keep pushing for, and asking for whatever enabling and supporting (RFI) legislation is necessary."
Mr. Raymond Spence, Chief Engineer, FCC
From a speech given on 22 November 1974 in Washington D.C.

★ ★ ★

Momentum in the fight against RFI is picking up, with many lending assistance to the ARRL RFI Task Group during the past few months. William. Grenfell, W4GF, recently attended a meeting of an advisory group to the American National Standards Institute which is concerned with RFI susceptibility. Bill will also be treating RFI from time to time in his AUTO-CALL column. Also working with the Task Group is Harold Richman, W4CIZ, formally a District Engineer with the FCC. Hal is presently engaged in sending out questionaires to the manufacturers of home-entertainment electronic devices in an attempt to catalog those products which have a capability to reject out-of-band radiation. The results of Hal's study will appear in this column later this year. Finally, a big Thank You to Ed Redington, W4ZM, who typed up a mailing list of those who have requested RFI packets from the ARRL Task Group.

★ ★ ★

The Santa Barbara Electronic Interference Assistance Committee, under the direction of Don Gerue, K6YX, has embarked on a program to measure rf fields in the vicinity of "typical" amateur installations. These measurements, to be made both inside and outside of buildings in the vicinity of these installations, will be used to help set susceptibility standards for home-entertainment products.

★ ★ ★

The fight against RFI is picking up momentum, and we need your help. Together, we can end RFI problems for all time! Send today for your RFI Packet, and learn how amateurs are moving to eliminate the biggest source of irritation we have. Send a 9x12" Manila envelope with 40¢ postage affixed to:

Theodore J. Cohen, W4UMF
Secretary, ARRL Task Group
8603 Conover Place
Alexandria, VA 22308

Why not do it now?

Turning to the problem of direct interference, Grundig carefully placed switches so as to minimize lead lengths. Further, all interconnecting wires between the receiver's sections were made as short as possible, and were shielded. Liberal bypassing of components, especially those in the audio section, completed their efforts.

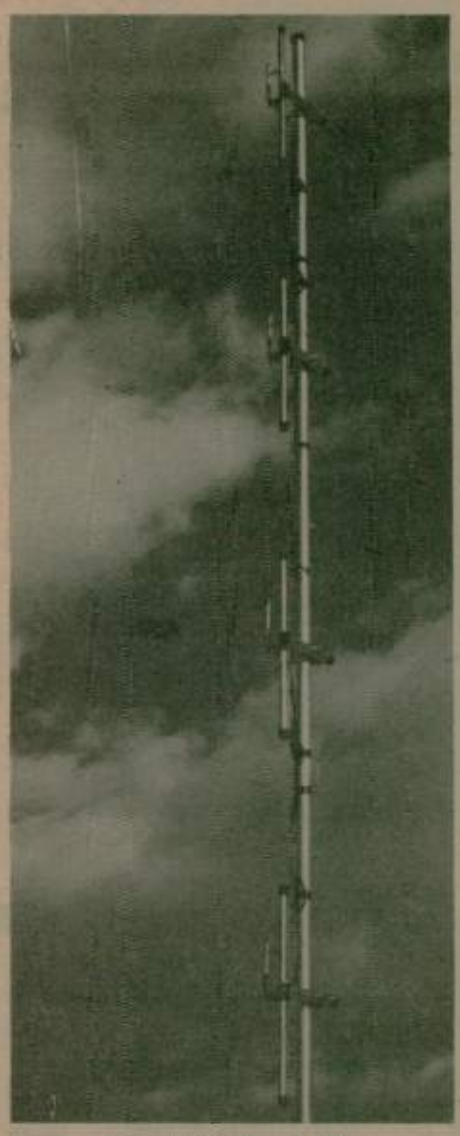
With the respect to signals which enter a set through the AC line, Grundig bypassed these to ground by using feed-thru capacitors at the point where the AC line enters the set.

To design a set is one thing . . . to test it for susceptibility is quite another. And Grundig's tests on their new set can only be termed "brutal." Employing a FLDX 500 transceiver, FL 2000B linear amplifier, and a 60-ohm dummy load, the engineers coupled the transmitter directly to the television receiver. Then, using a tone generator or a microphone, and with the transmitter on the 80 meter band, the engineers began transmitting. No interference to the picture or sound output on the television set could be detected! Even looping a wire antenna around the set failed to produce interference. And when the transmitter was capacitively coupled to the AC line, the set was still "clean."

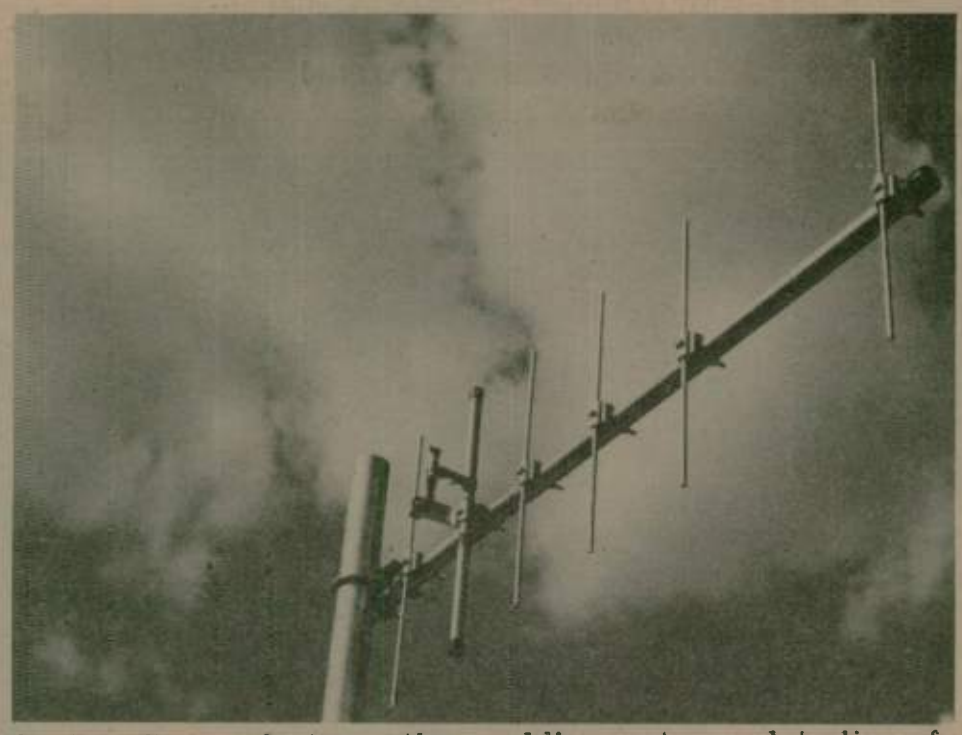
The author of the article in FUNKSCHAU, E. Koch, also tested the Super-Color-Series 1974-75 set at his amateur station. Using a 200 watt PEP transmitter feeding a ground plane 6 feet from his TV antenna, tests on the 10, 15, 20 and 40 Meters produced no interference. On 80 meters, where one end of a dipole was tied to the TV antenna's mast, the story was the same — no interference. Finally,

(*please turn to page 39*)

A147-11 The standard of comparison in VHF communication. Cut for FM and vertical polarization. Rated at 1000 watts with direct 52 ohm feed and PL-259 connectors. Boom 144", Longest element 40", Weight 6 lbs., Turning radius 72", Gain (reference 1/4 wave whip) 13.2 dB, Front to back ratio 28 dB, 1/2 Power beam 48 degrees, Wind area sq. ft. 1.21, Frequency MHz 146-148, Price $23.95. For 2-M DXers ask for the A144-11, cut for low end of the band, SWR @ Freq. 1 to 1, Price $23.95

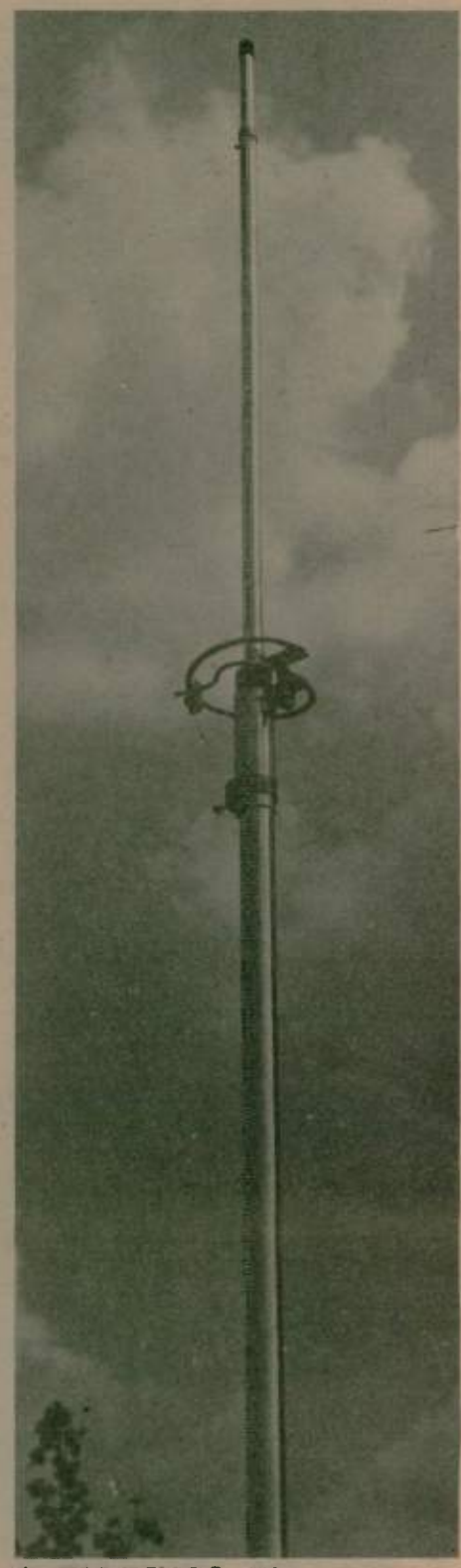


AFM-4D-Handle 1 KW-Gain 6 or 9 dB depending on pattern. All but mast supplied. $52.50



Cushcraft manufactures the world's most complete line of quality antennas for amateur FM repeater service. Cushcraft antennas combine superior electrical and mechanical features with the best quality materials and workmanship.

By stacking two yagis you will have double the power of one. For example: If you have the Cushcraft 11 el. yagi, do this-order another--and the A147-VPK stacking kit(complete with stacking boom, feedline harness, hardware and instructions, Price $22.95) then you have 16 dB. Neat. The A430-11 (thats 11 el on 3/4 meters) is only $18.95 each. The stacking kit is $18.95. For $56.85, look at all that gain. Can't find an amplifier at that price to do all that for you.



A-FM RINGO-There are more Ringos in use than all other FM antennas combined. Low angle of radiation. 1-1 SWR. 3.75 dB gain(reference 1/4 wave whip) Handles 100 watts. AR-2 for 2-M, Price $16.50

RINGO RANGER- 4.5 dB over dipole-6 dB over dipole -extremely low angle of radiation. ARX-2 Price $26.50

UPDATE UR RINGO- Kit turns AR-2 into into ARX-2 makes big difference, Only $10.95.

RINGO For 440-460 handles 250 watts. Price $16.50

Cushcraft at M-TRON

Pre-Inventory Tax Sale

Are you tired of the big bullys on the 20 meter beach who kick sand in your face? In just a short time you can show up with real muscle. This could be the last amplifier you ever buy. The great ALPHA 374. We have one only at this price. It was our store demo, never turned on. Regular $1295, now $995. For all intent and purpose it is new. But we can't call it new. Nothing you've seen is built like the ALPHA.

QUALITY RADIO EQUIPMENT

Atlas 210/215 $599--Drake TR4C $599--T4XC $580--LB4 $825--R4C $549--SPR4 $579--TR 22C $229--Mobile bracket or desk mount for TR 22 or 22C $10--Ten Tec Argonout $319--Triton II $669.

MORE

Xtal calibrator for Drake 2C $18.75. Johnson hybrid phone patch $34.50. Galaxy PR-550 phone patch/output for tape recorder $49.00. BOOM! the KLM 10 watt in and 140 watt out 2M amplifier $189.95--Semi-boom-KLM 2 watt in and 12 watt out 2M amp $44.95.

GO MOBILE - USED POWER

Drake DC-4 like new $89.95--Heath HP-13 was $55, now $49--Linear Systems 400-12M was $95, now $49--Hallicrafters PS-150-12 was $59, now $54.

M-TRON/AMATEUR RADIO SUPERMARKET

Rubber Duckies, noise bridges, HF Yagis, speech processors, CW courses, Callbooks, keys, bugs, antenna switches, the whole nine yards.

SUPER USED VALUES - READ THESE.....

Heath HW-22A 40M xcvr $99.95--Drake SW-4A rcvr. $249--Drake R4B $349--Heath DX-60A $69.95--WRL Duo Bander 80/40 $169--Drake T4XB was $379, now $399--Drake 2NT $99--Heath HS-24 spkr $9.95--Standard SR-826M w/ac ps, spkr, mike, dc line filter, 16/76, 76/76, 94/94, 34/94, hi-low power, w/manual $229--Pickering keyboard w/ built in monitor, manual, $189--Swan MB-40, solid state 40M ssb xcvr, very clean, was $209, now $199.

ROTATOR CLEARANCE

CD-44 was $109.95 now $89.95
HAM II was $159.95 now $129.95

TRANSCEIVER - HF
Hallicrafters FPM-300 Mk II many features, store demo, full warranty, was $525, yours for $399

MAGNETIC MIKE HOLDERS ONLY
ninety-five cents

ROTOR CABLE 4-conductor flat
50-foot roll was $4.29 now $1.99
100-foot roll was $6.95 now $3.80
make multi-band dipoles yet with it

12 V REGULATED POWER
4A was $49.95 now $39.95
8A was $72.00 now $59.95

BE NEAT ABOUT IT
Plastic QSL card holders, hang on the wall-holds 40 cards, one buck

LARSEN VHF 3.4 db gain antenna. HY-150 3/8 24 thread(fits standard ball mount) $22.50. PO-150, SO-239 mount $22.50

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rcv 146 82/85/52
rcv 147 00/06/18/36/90
xmt 146 04/25
xmt 147 18/66/87/90/96

Regency HR 2B will use rcv above

xmt 146 10/22/25/28/52
xmt 147 66/87/96

FM FM FM FM FM FM FM FM

Midland 2-Meter/VHF pocket monitor. w/carrying case, NEW in original box was $125.95, now 109.95

REACH EVERY REPEATER WITH

KLM VHF & UHF antennas/in stock

144-148: 7 el $23.95 -- 8 el $29.19 9 el $34.49 -- 11 el $38.79 -- 12 el $42.19 -- 14 el $49.69 -- 16 el $53.95

420-470: 14 el $21.55 - 27 el $41.95
440-520: 6 el $15.19

VHF/UHF baluns for the above - $13.95-specify your choice

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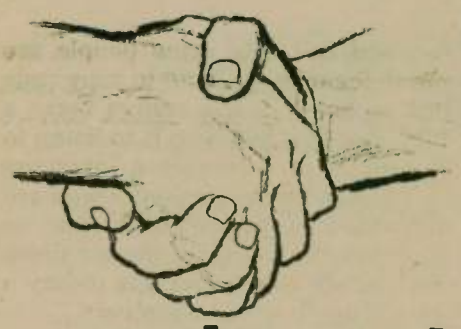

reach out

Sister City Program

Chuck Towns, K6LFH, President of OSCAR, and a special committee from the Northern California DX Club, are working to organize Amateur Radio support of the Sister Cities Program.

This program is established to promote good will and intercommunications between cities in the U.S. and other countries. The program works by having cities in the U.S. select a city in another country to be their sister city and the two cities exchange communications and culture.

As an example, San Jose, California has as its sister cities both San Jose, Costa Rica and Okayama, Japan. Much communications has taken place between the cities and there has been cultural exchange. This type of program does a great deal to build good relations between the U.S. and other nations on a people-to-people basis.

Here is a place where Amateur Radio can provide a service while at the same time building our image in other countries around the world, as well as in the U.S. In the case of San Jose, California and San Jose, Costa Rica and various city officials have communicated via Amateur Radio in this program. It is this type of Amateur Radio Service that can make us the friends that we need at the next frequency conference in Geneva in 1979, the WARC.

How can your radio club help? By working with your local city government and with amateurs in your Sister City to provide this type of service. We need friends both at home and in other countries. To find out more about the program, read an article on this subject in the June issue of Worldradio and September issue of QST.

Would you like to include your club in some of our planning?

Please fill out the attached questionnaire and return it to Chuck Towns, K6LFH, 13035 Regan Lane, Saratoga, CA 95070.

Name of your club

Club Address

Does your city have a Sister City?
Yes No Don't know

Is your club interested in taking part in this program? Yes No

DX Diary

(*continued from page 16*)

years party in power flip-flopped capitol between Leon-Granada. Finally Managua designated permanent capitol.

More volcanoes near road Granada-Managua. Crater smoking — lot ash/pumice in area. Cone/craters this area lower than average. Arriving back in Pto. Somoza locals advised that news reported minor tremors in area we traveled — not noticable as we were in auto most of the time in question.

Another late evening drive Leon for goodbys YN4JAB's ninos. While parked near the university QRX ninos class dismissal, a couple of hundred protesting students marched by — seemed they were up-tight over a political prisoners matter. Many students loathe military — good it's dark — Fritz in car with us was in full colonel's uniform!

Thursday, 12 September

Up at siren again — much dashing madly about getting squared away and get started at 7:30 a.m. for Managua and Pan Am back to Houston. Adios to Fritz and QTO. Flat tire at Leon-Managua crossroads — guess near record change. Managua vehicle tfc at 8 a.m. is something else! Bid muchas gracias y hasta luego Olivia and away on sked.

We're ashamed/ On Mexico City-Houston leg some loudmouthed overbearing gringos on board — majority passengers are Latin nationals.

Good approach Houston but messed around good bit when broke out — funniest holding pattern ever seen — after landing roll captain shut works down and says gotta be towed to the terminal — hydraulic system shot — nose gear unsteerable — ho boy!

This QRX pinches our customs, connecting times. Made HOU-DFW Braniff flight just as door closing behind us. Rolling out DFW-AMA leg captain advised "back to the barn" — due generator malfunction. Can't correct. Change aircraft and QSM. Arrived Amarillo two hours late.

Some observations:

North Americans could retire in most Central American countries and continue to live in style accustomed for same U.S. tab. If one goes somewhat "native" then consider about 60-70 per cent USA cost. A plus here is a minus there and vice-versa. It's the imports that get you — like YL hair spray at $4 U.S. each.

Most W's still call DX stations too long. I know my call — I wanna know yours!

A 1 x 2 or 1 x 3 does nicely. Lots of blind calling still going on. Some W chaps continue to fiddle with regulations on ID's. Too much audio vs RF is being used by lot so. EU's. USA Consulate-Embassy personnel C.A. most helpful. 15M WN's don't tune far enough after CQ's or roam band enough — missing lot DX. Trip tab four figures — worth five. Can't "get out amongst 'em" in travelogues, books or school rooms.

Good Lord willing and finances permitting give it another go en el tiempo venidero . . .

•

ARRL Board meeting highlights

The Board of Directors of the American Radio Relay League in annual session 16-17 January, 1975, examined FCC proposals for restructuring in Docket 20282 and laid the groundwork for an extensive survey of member attitudes and opinions to be gathered prior to a special board meeting called for 16 May, 1975.

Directors will seek member reaction in each division but agreed to ask similar questions in each case so national as welll as regional views can be tabulated. ARRL officers were authorized to take all necessary measures in opposing continuing efforts in government agencies to reallocate a portion of the amateur 220 MHz band to a class E citizens radio service. In response to an FCC inquiry, the League will file a brief seeking U.S. support for expansion of amateur bands at the 1979 World Administrative Radio Conference.

Richard L. Baldwin, W1RU, was named ARRL General Manager effective 1 February on retirement of John Huntoon, W1RW, who continues his term as secretary.

Thomas Watson, W6DW, plus League directors K2SJO, W4ACY and W8ETU were elected to the board of the ARRL foundation. W4WHN, W5EYB, W6KW and W7PGY were reelected to the ARRL Executive Committee.

In the operating awards field, a CW DXCC will become available for contacts after 1 January 1975; a special WAS will be issued for contacts during bicentennial year 1976; a plaque will become available to DXers reaching top of the Honor Roll. The technical merit award was made to DJ4ZC and DJ5KQ.

A cooperative project with the Sister Cities program will be expanded. To increase public service capability, a workbook will be designed for quick reference use in disaster communications procedures and W1AW will expand bulletin information during emergency communications activities or alerts. A world-wide system of alerting amateur networks in impending or actual disasters will be explored. Minutes of the meeting will appear in March **QST.**

teacher

Today, probably no one is more important to the future of Amateur Radio than those who conduct the classes that lead to licenses.

Thus, this new monthly column in this newspaper. We see it is an "idea exchange." It should be a discussion of the various methods used.

First, we should establish the obvious fact that we are in dire need of "numbers" and anyone helping to bring about the growth of amateur radio is performing a real service.

The "front line" should be the radio clubs themselves. But, if they don't get on the ball, it is up to individuals. You may ask, "Where would I conduct such a class?" Call on your local adult education center. Many of them are most pleased to add another class. In many cases you will be paid. One does not need to be a certified teacher in order to teach. Your professional experience will often give you the necessary qualifications.

To the techniques—there are two trains of thought regarding teaching the code. One school says the code should be taught at 13-word-a-minute character lengths but with long spaces between letters. . . and then tighten up the spaces. The other method is to send slow characters and then as the speed increases send faster characters. The first method is, of course, the better method. However, according to Bill Welsh, W6DBB (who has taught more licensees than anyone), you will lose more students that way.

The important thing is to hold the attrition rate of the class down. Even the most dedicated, when they see others dropping out of the class, may get a shaky feeling.

Theory—Obviously, the ARRL License Manual is a good place to start. We can also recommend "Posi-Check." You will find their advertisement in the classified section of QST. They have sample questions and the answers (and why they are the answers).

Attitude—Many times the person running the license class is employed in electronics and he will attempt to turn all of his students into electronic technicians. He says "I just don't want them to get a license, I want them to know why it works." All we can say is "dumb." Don't expect people with no technical background to learn everything that it took you all your life to do. Don't expect people to become technical hot-shots at the beginning any more than you could be a doctor, lawyer, architect, accountant, etc., in a few weeks in your spare time.

We know of one class in which the instructor took two years to move through the General Class theory. Ridiculous. Get the people their license.

Method—One can make theory classes as dry as dust. In today's world you've got to jazz things up. You need anecdotes, stories, metaphors, etc. "It don't mean a thing, if it ain't got that swing."

Every class should have something zippy in it. Bring a collection of DX QSL cards, bring a hand-held and explain the local repeater. Tell about Field Day, contests, the history and fraternal spirit of this great avocation.

Don't just drone on. Get as much inter-play with the class by asking lots of questions back. Keep them on their toes. They will have more fun (and keep coming) if they are participating.

Don't start off with dc, ac, resistors, capacitors, inductors, etc., and work your way up. Start off with the radio system, tell about the transmitter and work your way down. Get them plugged into "radio" as soon as you can. Then give the elements of it.

So much for the preaching from this end (based on experience teaching). Now it's your turn. your turn to share with your fellow instructors your successful methods. Share the ones that didn't work, too, so we can avoid them at the beginning.

How to copy code

(*continued from page 5*)

trying to read cuneiform much like that appearing on ancient Egyptian stone tablets.

After countless fruitless attempts to copy 35 wpm, I remembered QST published a list of amateurs who had passed the 35 wpm tests. It occurred to me maybe they could give me the secret of their success. I immediately looked up the latest list. There must be a secret for mastering 35 wpm and they should be able to tell me.

It was a refreshing thought. It was much like the incentive given to a group of tired boy scouts on a hike, when the leader says, "Come on, boys, just over the hill and you will be back at camp." I thought "what man has done, I can do." So I wrote to some members of the 35 wpm elite club and asked, "How did you do it? What was the secret?" There must be a secret for attaining 35 wpm just as it is thought there must be a secret for attaining old age. But just as there were varied secrets for attaining longevity, so there were different ways of achieving 35 wpm.

One said, "Practice and practice copying code until it comes to you. But he admitted that on some days he could not copy even 25 wpm.

I had been practicing copying for ten years, 1962-1972, but 35 wpm had eluded me. I came close, I suppose. I submitted copy again and again with guessed words. I often wished that the code copy checker would inform me how close I got — whether I had 150 characters in a row out of the 175 or maybe 169 or what.

Number two said, "Some persons are gifted with a natural talent and get good speed in two or three years, just the same as one who has talent with a musical instrument can be real good in a few years. Others may take many years longer. Still others who are not cut out for this take many years longer. Still others who are not cut out for this kind of thing, find it a struggle. To copy code with a stick, you have to learn to write fast, because you are really doing two things at once. In your mind you are translating the code into the alphabet and another part of your brain in telling you how to write it down. It is the dual concentration that causes most of us to slow down or lose out. Thirty-five wpm is about the top limit with pencil and paper. But writing at 35 wpm will not win any penmanship awards. The main thing is to be able to read it back. Using the mill is better. But your typing speed must be twice as fast as what you expect to copy."

After hearing what number two had to say, I thought I would learn to type. But I soon found out that typing at the rate of 70 wpm was going to be an achievement in itself, beyond my poor power. Back I went to writing.

Number three had this to say, "Analyzing code copy was helpful. One principle is taking advantage of long dahs to catch up on the dits. This reaction time varies with the individual and circumstances and it is a sad fact that some people are physiologically not built to copy code just as some people cannot carry a tune. Another principle is to listen to the sound as if it were a language . . . we need more amateurs who are interested in improving speed, as there are too many on the air these days whose sole purpose is to buy a set and get on radiotelephony."

Number four said, "I had no talent. I worked at it for hours until I got it down pat. I got so I could supervise three men who were typing incoming bulletins in code from loudspeakers. I could listen and look at their copies as they typed to see if they were getting it down right."

I thought this was an ability devoutly to be wished. But it was much like the unattainability the hens must have realized when the rooster rolled a huge ostrich egg in front of them and said, "This gives you an idea of what can be done!"

I studied what these much admired achievers of 35 wpm stickers had said. My frailties and peccadilloes having been thus highlighted, I applied myself even more industriously. I even studied the tape issued by "The Sound History Recording" company in Washington, D.C. This tape told me, "The person who has the ambition to study has the ability to learn." But I was getting nowhere rapidly.

I decided to appeal to that master of CW, George Hart, W1NJM. I had first learned about his high speed code practice sessions from QST. I wrote to him, telling him that I had a 30 wpm sticker and was trying for a 35, and that I listened to his broadcasts. I copied his instructions and comments which were at a speed of 25 wpm which I could handle and was fascinated just listening to the 40 and 60 wpm transmissions that only a Ph.D. in code could understand.

I told him my problems. I lose track of words of any length like "determination" and "proficiency" and "hesitation". I can't carry it in my head. Does each person have a definite limit to the speed he can attain? Is this speed limited by the physical qualities, by that I mean the speed at which his nerves can carry impulses from the ear to the brain and then from the brain to the hand? If this is so, then no matter if one practices all his life, he can attain, let's say, only 30 wpm.

I am thinking of, for example, Babe Ruth. He had a terrific speed of nerve connections between his eye and the muscles that swung his bat. It would seem that if a person had a slower nervous reflex, he could never equal Babe Ruth in batting, even if he practiced a life time. Can it be that there is a short cut in the brain so that when you hear dah didididit dit, some nerve center tells the hand to write "the" without the conscious brain taking the time to say, "Hmm, that must be the word "the" and then flashes the message to the hand to write "the", which it will do after proper meditation? I get

(*please turn to page 30*)

dx digest

by Gary Stilwell, W6NJU

In February, with 20 meters closing very early in the States, I guess one can only think ahead to the spring and summer months.

About the only things to look forward to are the upcoming DX conventions and, of course, the ARRL DX tests in February and March. Don't forget the first CW weekend of ARRL 15 and 16 February, the second phone weekend on 1 and 2 March and second CW weekend on 15 and 16 March.

The 26th edition of the annual International DX Convention, presented jointly by the Northern California DX Club and the Southern California DX Club, will be held at the Hilton in Fresno, Calif. on 19 and 20 April. (Early arrivals start socializing Friday night.)

The featured banquet speaker will be Fred Laun, LU5HFI, one of the most famous DX contesters in the world. Fred, with the U.S. State Department, ran into some QRN in South America (See Worldradio, June 1974) so it should be most interesting.

There is a packed program of high-interest discussions. Jay Holladay, W6EJJ, will talk about DXing through OSCAR. Jim Maxwell, K6AQ, will tell about a new system designed to use less spectrum space on SSB. Jack Curtis, W6JNJ, will present the latest in electronic keyers. Ken Keeler, W6PAA, of the ARRL Contest Advisory Committee, and Fred Caposella, W2IWC/6, of **CQ Magazine** will conduct the Contest Forum. Gary Stilwell, W6NJU, of the ARRL DX Advisory Committee will conduct the DX Forum and also show slides of his recent trip to YJ8. The Kingman Reef group will show and tell about their adventure. Armond Noble, WB6AUH, editor of **Worldradio**, will be featured speaker at the breakfast. Many prominent DXers such as Phil Wight, VS6DR; Fernando de Macedo Pinto, CR9AK; Marcos Avellan, YV4AGP; Darleen Magen, HC-2YL; Sean Flannery, EI5HSI/HI5; (and more to come) will be on hand. And, after the banquet there will be a big beer bust.

The latest happenings will be announced in a brochure put out by the convention chairman Don Schliesser, W6MAV. Why wait? Pre-register now. Send $19 to W6-MAV (check made out to Northern California DX Club) 1151 Ivy Court, El Cerrito, CA 94530. It must be postmarked no later than 10 April. (After that — $21) Pre-registrants will be eligible for an FT-101B or TS-520 (to be announced) from Ham Radio Outlet (Bob Ferraro, K6AHV). The tardy may be eligible for a Gonset Communicator I 2 meter AM device.

Those who have attended this convention before, keep coming back. It's a good one. For reservations call the Hilton at 209-485-9000. Mention the DX convention.

Dayton

Dayton is a spectacular! What more can be said about Dayton that hasn't already been said . . . by thousands. When an event draws seven to eight thousand amateurs (that's right, thousand) every year you know something is being done right. For information or pre-registration write Dayton Hamvention, Box 44, Dayton, OH 45401. Advance registration with banquet is $8.00 and must be received by 24 April.

Spratley

Maurice, VS5MC, has lined up transportation and could show up operating from the Spratley Island group at any time.

Cocos

Aldo Diener, HB9AQM, and several others are working toward operation from Cocos planned on or about 20 April.

Kermedec

Operation during March is planned from Kermedec by the YL's who operated on Chatham last fall. It would appear that ZL1BKL, ZL1AMN and ZL1AJI will be in on this effort.

Formosa

Tim, BV2B, has been active on 14.218 and 14.250. Main operations are on Fridays 1100 to 1500 GMT and Sundays 0100 to 0400 GMT. Also QRV for European stations 0800 GMT Sundays on 14.240 with EA8CR as MC.

Special prefixes for Canada

To celebrate the Centenary of Listowell, Ontario, resident stations during 1975 will be using the special prefix CG3. There will be an attractive award for working 2 CG3 stations and applications should be sent to VE3GCO.

QSL information

BV2B to WB2UKP
CR6SN to W0GS
CT2CNE to W0JHY
CX5AH to PY5ZAF
HS3AET to K0VIF
KB6ZDE to K6SGD
KG4EQ to WA9PQY
PA9AEH to W3MX
PJ8YCQ to W4YCQ
TI2WX to W4MYA
CT3WA to W2AYJ
CT3WH to W2AYJ
VK9JA to WA4NRE
GP1FF to W0ELT
VP2GM to W5MYA
VP2MRA to VE8RA
V5MC to W4ZMQ
VP8HA to W3HNK
YV5ESN to WB2SFF
ZE6JJ to K6ZDL
ZF1SV to K6SVL
3D2DD to VE3GUS
KG4DS to WB8LUI

Southern California DX Club

New officers of the Southern California DX Club are Erv Emig, W6GC, President; John Cashen, W6KNC, Vice President; Wayne Spring, W6IRD, Secretary; and Cleyon Yowell, WB6EHT, Treasurer. Directors also elected are Wayne Gingerich, W6EUF; Dick Reimer, W6OSU; and Larry Weaver, W6JPH. The club meets the first Thursday of each month and meeting details are available through Jay Holliday, W6EJJ.

DX Advisory Committee

Upon recommendation of the DX Advisory Committee, the Board of Dir-

ectors at their January meeting passed motions that would implement the following regarding DX matters: 1) establish a two-way CW only DXCC certificate beginning 1 January. 2) Make available a plaque of those DXers who have reached the top of the DXCC Honor Roll. 3) Request the Editor of QST to publish annually a listing of holders of 5 Band DXCC.

The board also carried over until the next meeting any action on Rule 9 of DXCC Rules which has to do with how far one can move and still retain DXCC credit. The DX Advisory Committee will establish a sub-committee to further study this matter for preparation of a recommendation and the Committee would be interested in any comments for revisions of Rule 9.

While looking at January board actions there was also an item to establish a special WAS award for the 1976 Bi-centennial year in the United States.

How To

In December we addressed the subject of how to make out the QSL card. Assuming the card is now made out correctly we'll discuss some of the possibilities on sending out QSL cards and how to obtain the maximum return.

In sending out a QSL card there are several options. These options are: 1) Send to a foreign bureau. 2) Use an outgoing QSL Bureau. 3) Send QSL direct. 4) Send QSL to station's QSL Manager.

The simplest way, particularly when handling many cards, is to use the QSL Bureau of the foreign country. Foreign QSL Bureaus are listed in the **Callbook** and periodically in **QST**. Cards in bulk may be shipped fairly inexpensively. This method, depending on the class of mail used, would be the slower route to follow This is particularly true if the foreign station also chooses to return your card by bureau.

The ARRL has a series of QSL bureaus in the United States and in Canada for incoming cards and if you expect any DX cards you should maintain an envelope at your local QSL bureau. It is generally helpful to bureau personnel if separately on the top or back of your card you will rewrite the call-sign of the station so that the cards can be handled expeditiously.

There are several forms of outgoing QSL bureaus now in operation in the United States. You would send your cards in bulk along with the necessary fees to the bureau. These in return would be sorted and forwarded generally using the foreign bureaus for distribution. This method would probably be more economical if you are not dealing with a great number of cards. Various outgoing QSL Bureaus are as follows:

W3KT QSL Service, RD1, Box 66, Malvern, PA 19355; World QSL Bureau, 5200 Panama Avenue, Richmond, CA 94804; John Woitkiewicz, W3GJY, 1400 Chaplin St., Conway, PA 15027.

You may contact these bureaus directly to get the details of the services they provide.

Sending your card direct is probably the fastest way of obtaining a QSL. It is also probably the most expensive of the alternatives. In order to enhance your chances of receiving a return card, you should remember that a self-addressed envelope and paying the return postage would be the simplest and most effective way of assuring a card from the other end. Another alternative in a desperate situation would be also to provide a QSL card with QSO information so that the DX station could sign the card for verification.

The simplest way to pay foreign postage is by use of an International Reply Coupon. These coupons are issued through the Post Office and are easily obtainable. By using an International Reply Coupon the foreign station can get stamps equal to the number of coupons for paying the postage to return your QSL.

There are some countries which may appreciate a reply coupon and in some countries several coupons must be sent to make up the postage. I would appear that if you had a small country with perhaps one amateur who was deluged with cards that the post office would be very upset if he brought in IRC's by the hundreds.

Another way to provide the postage would be to obtain a foreign stamp from that country to put on your self-addressed envelope. Foreign stamps for this purpose are available through the DX Stamp Service, 83 Roder Parkway, Ontario, NY 14519.

Many stations have enlisted the aid of somebody to handle QSL's. This is commonly referred to as a QSL Manager. The manager would receive the stations' logs and would verify the contacts. Generally when you send a QSL to a Manager you are expected to provide a self-addressed stamped envelope or sufficient IRC's to provide the return postage.

QSL Managers are published in all the DX publications, DX columns and club bulletins. If the station is an expedition or relatively active station, the the manager's call should be readily available.

Complete up to date listings of QSL Managers is available in one publication — the QSL Manager Directory, 7632-B Woodland Lane, Fair Oaks, CA 95628.

Hopefully, with this information you may have a little easier time in obtaining that rare QSL.

Something else that may help is K3CHP's DX QSL GUIDE. This book gives you 12 standard amateur radio sentences in 54 different languages. This way you can drop a little note to the DX station in his own language. Shows you care. The guide is $3.95 from Joe Mikuckis, K3CHP, 6913 Furman Parkway, Riverdale, MD 20840. Joe says he gets about a 95% return using the system.

Our thanks for information to Geoff Watts' News Sheet, QSL Managers Directory and West Coast DX Bulletin.

Gary Stilwell, W6NJU, operating YJ8GS

vhf-uhf

(*continued from page 7*)

Guys in the Northern part of US and VE have worked JA and Europe. The level of activity appears worldwide to be at a high and still increasing.

Thus far, to my knowledge, none of the countries to our South have been on. Tim Peterson, KØMTY, may rectify that by mid-Feb. He hopes to be on from TI2 land by then. If any of our neighbors to the South are trying to get on Mode B and having difficulty; a line to me and thru this column can surely be a means of getting assistance.

While on OSCAR, I'd like to outline a proposed project we have undertaken to use the OSCAR 7 to both attempt very long paths using tropo duct assists to QSO and to make measurement on how long the duct might be. I've written several dozen who might be able to participate in this; but, we are looking for and welcome others, and perhaps in other areas, similar tests may be conducted. Typically, the normal range to get into and back from the satellite is 4000 KM. Ten meter propagation has done some considerably greater one-way paths. From my QTH overlooking the Pacific to the West, I've managed, on several occasions, to acquire the satellite when it was well below the visible horizon. To date, I've received my own sigs from the Mode B system from distances in the range of 5000 KM on several occasions; and once from about 5500 KM. I've heard Katashi Nose, KH6IJ, when the satellite was about 4800 KM and we had a QSO at 43-4500 KM.

What made these considerably longer paths possible is the very excellent tropo inversions we fortunately obtain over the Pacific. The prime season from May thru Aug. which may develope ducts well over 2000 KM long, and perhaps several times a season see 4000 KM and more ducts present, should be of great interest to those who can take advantage of these ducts.

Not only in the Eastern Pacific, but in many places the tropo ducts abound. These ducts may be quite capable of providing well over-the-horizon paths to the user.

From my QTH, I intend to operate on those passes which cross between 120 and 200 deg W Longitute when conditions seem appropriate for the purpose of observing these long ducts. Participation from users in all areas of the Pacific, ZL, VK, JA, KH6 and all the many islands are especially desired. Using such ducts for 2-way QSOs is possibly the only means a S. Calif. guy may work to JA, ZL or many of the S Pac islands.

Similarly, if the duct is too low to allow effective coupling, KH6s may extend their coverage over much of the E US and VE on the passes over the W US. Many other extended paths are possible. Those who are interested in attempting such experiments, please let me know and I will include a list in this column to facilitate others to get with you.

Observers who might note stations being heard from areas not normal to their range are asked to forward me the stations heard, time (WWV standard) and any other pertinent data.

Another interesting OSCAR experiment now being tested, is the double link from 7 Mode B to 6. Going in on 432 and coming out on 29 has been accomplished, and the first to accomplish this was apparently Leroy May, W5HN, and another Dallas, TX station. Details of other who have accomplished this and documented it would be well received at the AMSAT HQ (or ARRL or myself for that matter). Signals are apparently quite weak, as one would expect, and most probably a Wed. GMT pass would yield best results in the low use mode for those stations who are designated to experiment with the satellite.

One last comment on the OSCAR 7, as a means of assisting some of those operators who seem to be having problems in receiving. Several 7B users have been noted to leave their xmtr on while tuning the satellite passband. As a consequence, considerable trash is emitted from their station, which in turn clobbers a bit of the band. Especially when that station is running high power, it is almost impossible to get back to him unless one also runs high power.

I've heard the same fellow complaining of a high QRM/noise level from the satellite, which really makes me wonder. I've tried to get some of those who do this to stop, and have heard Randy Smith, VE2BYG, likewise ask same. In one case, the station Randy was asking to cut xmtr when receiving, indicated he was not able to hear Randy due to QRM. Only QRM present, was that being generated by himself.

Please don't think I feel I'm without any faults. Far from it (I've got more than the average guy). However, if we sit quiet and say nothing, seldom is a problem corrected by silence. We are here to help each other, that idea used to be and should still be a basic creed of radio amateurs.

The other big operation going on is the moonbounce activity centered on the 22-23 Feb weekend. Thru the efforts of Vic Frank, WB6KAP, and Bruce Clark, K6JYO, the 150 foot dish at the Stanford Research Institute will be in use for amateur EME QSOs. They had considerable success last year, and some advance publicity this time should see a large number of guys turning their antlers to the heavens. If things are not too badly thwarted by Murphy, this should be an EME weekend to remember. Besides the 150' at SRI, (as of late Jan.) there is a better than even chance there will be a 60' on 432 from College, Alaska; the 250' on 432 from Jodrell Bank England; the big Mama under 'Fuzzy Face's' direction down at Aricibo probably on both 144 and 432; the 60' at La Posta (run by NELC) with my gear and several W6RDF (Point Loma ARC) members help; plus a host of other smaller, but not small, dishes by such as Allan Katz, K2UYH; Tom McMullen, W1SL; T. Naughton, VK3ATN, and others. The SRI test periods will be as follows: 22 Feb. 0500-1000 GMT (FRI eve US local time); 23 Feb. 0000-0500 GMT. Operation will be on both 144.190 and 432.190, transmitting the 1st 30 seconds of the minute and receiving the 2nd 30 secs. They will listen around 144.1 and 432.1 within about 20-30 KHz either side of frequency. The reason for the slip frequency is to avoid the QRM problems previously experienced with locals on their frequency QRMing them when others were trying to copy. The Point Loma ARC, W6RDF, is to be on .125 on both bands, but only on one band at a time. We will probably split Friday evenings operations between both bands in equal periods; while Sat. eve will be mostly on 432. There is a possibility that the big Mama at Aricibo will be on Sun. eve also, to

(*please turn to page 32*)

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San Jose, CA 95121

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Escondido, CA 92025

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Henderson, NV 89015

by Bill DeWitt, W2DD

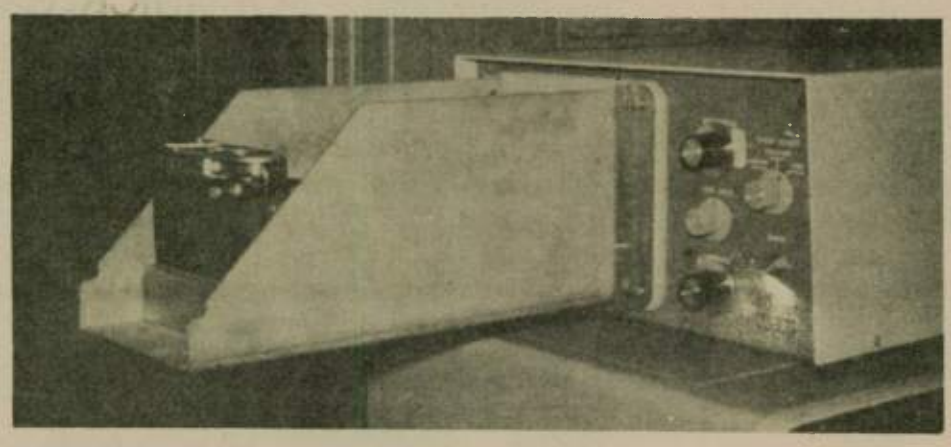
As a result of early 20 meter band closings, evening activity on 40 and 75 meters has increased considerably.

Although SSTV activity on 3845 kHz seems to peak on Wednesday evenings (9:00 PM EST Net Schedule) scores of slow scanners coast-to-coast are enjoying medium distance contacts around this frequency. Multi-path problems seem to vary with distances and conditions, but picture quality has been surprisingly good most of the time when I've been watching. At about 7170 kHz, evening activity has picked up a bit, but not as much as on 3845 kHz. In contrast to comments about a dwindling amateur population, SSTV seems to be on a rather fast growth curve.

Those interested in racking up an SSTV DXCC score would do well to get a copy of W8YEK's list that appeared in the Robot Research newsletter of last December. It makes a good check list for the ambitious slow scan DXer and should be useful in the upcoming SSTV contest. **Worldradio News** readers may recall seeing Gene Kundert, W8YEK, and his wife, Edith, pictured with his famous console operating position in our December issue. You can now see Gene and his console in glorious color on the front cover of **73 Magazine** for February — and there is a story to go with it.

Tape recording slow scan pictures is an easy task, but photographic records of SSTV images present more of a problem for the average SSTVer. This need not be so. A fixture to hold your camera firmly at the correct distance not only makes picture taking easier, but insures consistently good results. The accompanying photo shows a quickly removeable device I have used for both black and white and color slow scan photos for the past few years.

It's a thin sheet metal piece formed on a metal "brake". The trough-like piece hangs on two pins set in brass angle pieces drilled to fit the escutcheon plate screw positions on the Robot Monitor. (Similar arrangements can be devised for other units.) The camera position is determined by using a piece of ground glass or waxed paper in the opened back of the camera. A close-up lens must be chosen by test to insure best image size at the film plane. Then a block shim with provision for a screw mount can be set in the sheet metal fixture. The brass angle pieces remain on the monitor at all times, but the camera devise is only "hooked" in place when you wish to photograph the screen.



With all arrangements pre-determined and available, it becomes no chore at all to secure good off-the-screen photos of SSTV for slide talks, to send back to the originator at home or abroad, or just to prove to your non-SSTV friends that you DO receive pictures from all over the world on your "electric-wireless television set"!

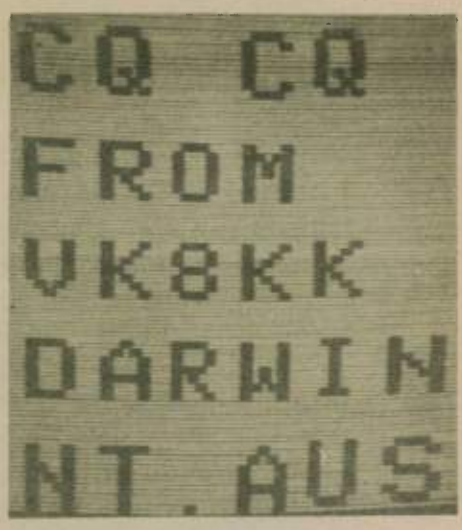
Speaking of photographs, I have Cop MacDonald's (WØORX) permission to use the accompanying "shot" of a wind-powered generator. Cop made the picture during one of the "New Directions Net" sessions last Fall. I have a feeling that we'll be seeing more wind-powered generators on amateur towers in a great big hurry if predicted jumps in utility rates take place.

If you want a change of pace from the "Rig here is — etc" type of SSTV contact, plus some exposure to a bit of creative thinking, check in on one of the following New Directions Roundtables: U.S. and Canada, Sundays at 3:00 p.m. EST on 14.253 MHz.; Midwest and East, Sundays at 5:30 p.m. EST on 7163 kHz.; West Coast, Tues., Thurs., and Sunday at 8:00 p.m. PST.

As a follow-up to last month's comments about getting a foothold in the realm of solid state, here's a list of some additional books that are easy to understand. "Integrated Circuit Projects", Volumes 1 and 2, by Forrest M. Mimms III, offers the uninitiated a series of simple building projects to get acquainted with gates, LED displays, BCD decoders, etc. Everything is spelled out carefully and no assumption is made that you already know anything about digital devices. Very basic, these books go for $1.25 each. All parts listed are available at Radio Shack stores.

Not so basic are two other books: "How to use Integrated Circuit Logic Elements", by Jack W. Streeter, and "Linear IC Principles, Experiments and Projects" by the versatile Edward M. Noll. These SAMS publications are excellent, priced at $4.50 and $8.95 respectively. These two books also give the name, rank, and serial number of the ICs used in various circuits.

For the benefit of any readers who are not familiar with some of the jargon heard on the so called slow scan frequencies, there is now in use a thing called a "keyboard". Keyboard is a short name for a character generating device that permits the transmission of graphic characters without the use of an SSTV camera. (See photo of VK8KK CQ call.) The operator simply "types out" the desired message on the keyboard and it appers on the monitor screen in absolute black and white, no shades of gray. There is generally a limit of about 30 characters to a frame, running five lines of say, six characters per line. It's sort of an SSTV-RTTY! However, it's easy to see how keyboards can become habit forming because of their convenience for calling and quick message changes. I feel little risk in predicting that keyboards will become a standard item in the slow scanner's equipment line-up, but let's hope that their use will not completely discourage the transmission of camera generated material. Pictures, we keep saying, can convey much information that cannot be communicated by the spoken word.



John Wilson, VK3LM/T supplied the "keyboard" photo of Doug McArthur's transmission made with one of the earliest keyboards seen on the air. Doug's station, VK8KK,is located at Darwin, scene of the great storm devastation. I am sure that all of Doug's friends around the world join me in hoping that he and his family survived the horrendous cyclone.

Little gem department: Just in case you've ever wondered where to look for SSTV articles, here's the box score for 1973 and 1974 combined. **Ham Radio**, 4; **QST**, 8; **CQ**, 29; **73**, 28. I think there's a message there.

Roy Connell, W2VDE, reports that Ed Link, VP7BC, operates SSTV from a yacht plying between Freeport, Bahamas, and Miami. Sitting here on a frozen hilltop in New York

(*please turn to page 36*)

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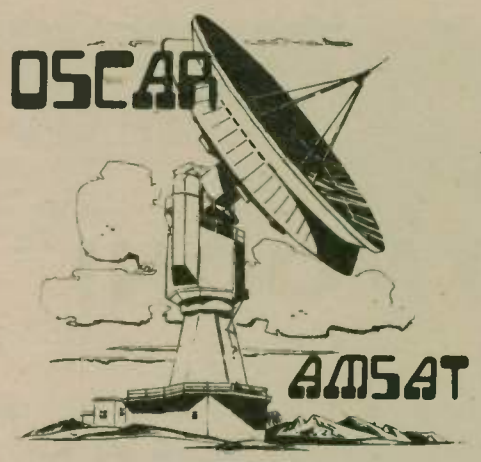

Performance and orbital data on AMSAT-OSCAR 7

Given below are orbital predictions for AMSAT-OSCAR 7, launched 15 November 1974.

Operating Schedule

Mode A days (two-to-ten meter repeater and 435.10 MHz beacon ON) on odd numbered days of the year, GMT. (For example, Dec. 7 is day 341 and therefore an odd day.)

Mode B days (70cm-to-2m repeater ON) on even numbered days of the year, GMT. (For example, Feb. 3 is day 34 and therefore an even day.)

Experiment days — All Wednesdays, GMT are reserved for experiments, and operation is not permitted even though the repeaters will be on.

AMSAT-OSCAR 7 Operating Schedule: Mondays, Thursdays and Saturdays GMT ON for ascending node (south-to-north, evening) passes. Sundays ON for descending node (north-to-south, morning) passes. During weekday mornings, the repeater will be on over the USA on even numbered days for education bulletins only and not for general use. Operation is not permitted at other times, even though the repeater may be on.

QSL cards for AMSAT-OSCAR 7 have recently been donated by Stephen Hay, Jr., K5RZU, and the Hesse Envelope Co. and are now available in return for your A-O 7 report.

Performance Notes

1. Because of improvements in the sensitivity of the 70cm-to-2m repeater receiver, the maximum ERP needed for the Mode B repeater is 80-100 watts instead of the higher values reported previously. All stations are therefore asked to keep their ERP below 100 watts. (If you prefer to use a power amplifier, we recommend that you use very low antenna gain.)

2. The AGC in the AMSAT-OSCAR 7 two-to-ten meter repeater is set to activate at lower uplink power levels than the repeater in AMSAT-OSCAR 6. As a consequence, stations using more than 200-500 watts ERP are depressing the gain of the Mode A repeater, with the result that users having lower power are suffering. The 100 watt ERP rule (200 watts if using linear polarization with AMSAT-OSCAR 7) must be adhered to by everyone if we are to achieve best results with the repeater.

3. The 435.1 MHz beacon occasionally drops off drastically in power to a few milliwatts output, but can be copied under this condition by suitably equipped stations.

4. Morse code telemetry channel MC-1A (total solar array current) appears to be sensitive to RF from the two repeaters and tends to read 00, even in sunlight.

5. Morse code telemetry channel MC-1B, 1C, 1D and 2A (the solar panel currents) also appear to be affected by RF and tend to read in the 70's in darkness. This represents an offset, which changes with repeater loading.

6. We are sometimes running the teletype telemetry on the 29.502 and 145.972 MHz beacons in a "space-only" (rather than AFSK) form. Many stations equipped for teletype reception should be able to copy the data with slight modification of their terminal units. The data sounds to the ear like very fast keyed pulses (A1).

Inclination: 101.73 degrees

Mode A

Input — 145.850 to 145.950 MHz
Output — 29.400 to 29.500 MHz

Mode B

Input — 432.125 to 432.175 MHz
Output — 145.975 to 145.925 MHz
(output passband is inverted)

W	REV	DATE	TIME Z	LONG W
A	969	FEB 1	0042.7	60.6
B	982	FEB 2	0136.9	74.1
A	994	FEB 3	0036.3	59.0
B	1007	FEB 4	0130.6	72.6
AX	1019	FEB 5	0029.9	57.4
B	1032	FEB 6	0124.2	71.0
A	1044	FEB 7	0023.5	55.8
B	1057	FEB 8	0117.8	69.4
A	1069	FEB 9	0017.1	54.2
B	1082	FEB 10	0111.4	67.8
A	1094	FEB 11	0010.8	52.6
BX	1107	FEB 12	0105.0	66.2
A	1119	FEB 13	0004.4	51.0
B	1132	FEB 14	0058.7	64.6
A	1145	FEB 15	0152.9	78.1
B	1157	FEB 16	0052.3	63.0
A	1170	FEB 17	0146.6	76.6
B	1182	FEB 18	0045.9	61.4
AX	1195	FEB 19	0140.2	75.0
B	1207	FEB 20	0039.5	59.8
A	1220	FEB 21	0133.8	73.4
B	1232	FEB 22	0033.1	58.2
A	1245	FEB 23	0127.4	71.8
B	1257	FEB 24	0026.8	56.6
A	1270	FEB 25	0121.0	70.2
BX	1282	FEB 26	0020.4	55.0
A	1295	FEB 27	0114.7	68.6
B	1307	FEB 28	0014.0	53.4

X — Repeater will be ON, but use is not permitted during this day (GMT), except for special experiments and bulletins scheduled by AMSAT.

•

How to copy code

(continued from page 23)

mad at myself when I see youngsters lap up code and handle traffic as easily as if they were talking plain spoken words.

Some of his points were:

The point to remember is that whether a dit at the end of a word is followed by a dit at the beginning of another word, or whether the letters in a word are a bunch of dits without dahs (like wishes, possesses, etc.) is not the problem. The problem is to recognize the sound of the syllable or word as a sound in itself, not as a combination of dits and dahs. The sound of the word directly triggers your reflexes and conveys an instantaneous impression to your brain, a process 1000 percent more complicated and intricate and difficult than a similar process involving only three units: a short sound, a long sound and spaces between them. In speech, you would not be confused between "misses" and "wishes" as long as they are distinctly spoken. Neither would you be confused between them in code, if they are distinctly sent, regardless of speed.

In other words, learning proficiency in code is the same process exactly as learning proficiency in speech, only 1000 times easier. Anyone who can learn to speak can learn to copy code at a high rate of speed. These excuses you hear are a lot of malarky, excuses for not wanting to learn. Ninety-nine point nine percent of those who want to or need to enough can do it. Only a few mentally and/or physically handicapped can't do it — and they can't speak coherently either. Fascinating subject, code. I guess some people are slow at picking it up — slower than others, anyway.

With these pointers from George Hart, I proceeded anew. I gathered from him that I had to abandon the dit and dah concept, which was all right for 15, 20, 25 and 30 wpm, and enter the world of 35 wpm with its concept of grasping words and syllable sounds. Hart has said repeatedly that the sound of the word was the thing. It was similar to speaking, where we hear sounds which are instantly recognized and translated into meaningful words. Just as in learning to read, I had to do some first and second grade reading such as, "Jim sees the ball. The dog sees the ball. Jim and the dog see the ball." All the words had three or four characters.

In listening to W1AW transmissions at 35 wpm, I began to practice recognizing and writing down three letter words like — the, and, but, who. As I progressed, I copied four letter words like — when, what, need. Then five letter words came to me — which, meter, radio. I found that by practicing holding longer and longer words in my head, it prepared me for more advanced words. Later on, some words were recognized and clicked in my head through sheer repetition. I found that the word "frequency", for example, was heard so often that it would barely be started when I recognized it and wrote it down with fluency as it unrolled during the transmission.

And who has not met these frequently used words — amateur, emergency, public service, meter, voltage, electronic, battery, amperes, commission, communications, and equipment? The thrill of listening for and actually hearing and writing down familiar words was growing.

There was still the problem of learning to write down a familiar word at a speed of 35 wpm, while listening for the next one — still a problem of reading back what I had written after the transmission was finished. But in reading what I had written, the context of the transmission and remembering the general idea of what was sent, I would occasionally, and I mean occasionally, help me to figure out what that scribbled word might mean.

After many periods of painful strivings to translate my hieroglyphics, I gradually learned to extract the secret from the scribbling. It was much like learning to read shorthand.

This is not to say because I would recognize and copy a certain word, that I could recognize and copy similar words. For example, because I could get the word, "invalid", is no sign that I could grasp the word, "valetudinarian".

I haltingly wrote down words from broadcast after broadcast, listening for words, disconnected though they might be. I hoped that some day I could string together one hundred seventy-five characters, either by luck or sheer mastery which might be built up by diligent practice and by learning to write down a word while keeping an ear open for the next one. I leaned heavily on context and the jist of what the transmission was all about.

I used to listen to my sisters — I had five — while two of them would be holding an animated and swiftly flowing conversation. Both would be talking at the same time — they were listening and talking simultaneously and understanding what the other was saying. When, at some point, one said something the other disagreed with, the other would drop

(please turn to page 39)

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HELLO OSCAR!

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maritime mobile

by Bill Yost, WA6PIU

Survival radio

The apparatus

Last issue I discussed the amateur bands as offering great potential in obtaining rescue via a QRP HF mode. This month I would like to share some ideas on suitable liferaft applications.

The act of abandoning your vessel because of fire, storm, or collision, etc., requires special consideration for your survival radio gear. Take the case of a sudden sinking, say through a collision with a whale. Assuming you react rationally without panic, your first reaction would probably be a quick analysis of the damage with all effort devoted to stop the flooding. By the time the hopelessness of the situation is realized, your power has been disabled negating any "Mayday" through the main boat radio. With the decision to "jump ship," you make for the liferaft grabbing up any loose provisions that may be available in the flooding cabin.

With only seconds involved to clear a sinking vessel, the survival package must either be loosely secured to the deck or an easy one-second grab on your way out the hatch. Another factor is waterproofing (you may be swimming with the radio under your arm). Since most commercial gear is very poorly protected against the wet and corrosive sea environment, modifications must be made to assure reliable operation. Through modern polymer chemistry, there are several potting compounds which can be applied directly to P.C. boards. While these coatings provide excellent corrosion protection there are some inherent disadvantages. Coated boards are difficult to troubleshoot and would probably be ineffective in case of total immersion.

Instead, I propose enclosing the entire radio in a waterproof container. Such enclosures are nothing new to underwater photographers. Using plexiglass encasements with neoprene "O" rings to seal the controls, the radio can be completely submerged. A small package of dessicant can be enclosed to assure zero moisture inside the case. Such a case would adapt nicely to most QRP rigs. Controls would be minimal — VFO and audio-on off. All other controls could be preset before the rig was put into the case. Antenna, key and earphone connectors would be handled through external jacks, sealing the holes with silicone seal. While I haven't calculated the weight-displacement ratio, I would assume the package to be positively bouyant. To assure a floating package, however, small styrofoam blocks can be glued to the side of the case.

A battery package supplying power would be incorporated within the case. To replenish the power, assuming that you had trouble getting through, a solar cell array may be used. The cells could be sealed under the plastic forming the lid of the waterproof package. With such a combination the rig could be used intermittently for an indefinite period. While such a back-up may not be necessary (only one short QSO is required to effect rescue), it provides extra assurance plus a chance to work a little unique QRP while awaiting the Coast Guard.

Antennas for our rig can be either a vertical loaded whip stored in collapsed sections or a balloon suspended wire. The balloon is probably the best plan for greatest efficiency. Pre-cut resonant lengths of wire, which when joined in various combinations, would provide operation on any of the amateur bands. Balloons can be found in most surplus stores. I haven't seen helium in small canisters but I assume they are available. In a pinch a plastic kite can be used to elevate the antenna wire.

This entire package — waterproofed enclosed radio, balloons, wire, helium, key and earphones could be neatly stored in a bouyant typewriter type case ready at a moments notice.

While I haven't built such a package, I hope to play around with a few prototypes in the future. If any amateurs have played around with anything along this line I would sure like to hear from them.

•

vhf-uhf

(*continued from page 26*)

allow some of us who work the dishes to go home and work them.

One might wonder what it takes to hear one of the big guys. It is possible to hear the 150' SRI dish on 144 using a single 10 el Yagi pointing at a rising or setting moon if the rcrv is super good and local QRN is nil. At 34 db gain approx. one is looking to get to 40 db total antenna gain to hear them. A pair of Yagis (10 or more El) would be sufficient when pointed up at sky to copy very well and if one can run 500 W into it, should be able to QSO them.

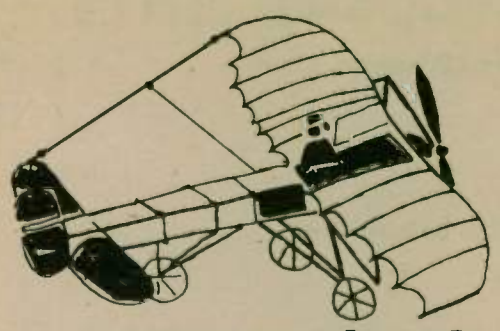
The larger dishes will of course, be much easier to hear and work. On 432 things are much for the better. Although nearly 50 db antenna gain is required, the 150' dish has about 43 db, so only need a single Yagi or colinear to do well with them.

The 1000' at Aricibo is very copiable with just a dipole! If we assume 500 W into array and the total ant gain of 40 db on 144 and 50 db on 432, and using the tabulated gains for the dishes listed; you may take your power and ant gain and determine who you may hear and work.

Band	20'	28'	60'	150'	250'	1000'
144	16.3	19.2	25.8	33.8	38.2	50.3
432	25.8	28.7	35.4	43.3	47.7	59.8

For example, assume you hve a KLM pair of 12 Els, on 144 which are

(*please turn to page 39*)



aeronautical mobile

by Vern Weiss, WA9VLK

Did I ever open-up a can of worms with the aeronautical-mobile thing. My ol' buddy in Annandale, Virginia, Bill Grenfell, W4GF, writes that the requirement of identifying "maritime mobile" or "aeronautical mobile" was discarded over five years ago. He continues, "The current FCC rule, Section 97.87(c) requires amateur mobiles on or over the high seas to only indicate that they are mobile and the world-region (e.g. 1, 2, 3, etc.) in which they are traveling." Thanks, Bill. I personally identify: "WA9VLK, Aeronautical mobile 9 over Cratchet Holler." My reasons for this are simple. I like the way it sounds.

Hart Postlethwaite, WB6CQW, sent some interesting information concerning HAPPY FLYERS (Hams And Pilots Piloting & Yakking). The California-based pilot radio amateur club is going strong with activities galore and reviewing the newsletter will attest to this. Membership is priced right, free. Hart announces that their next fly-in will be the third weekend in April to San Felipi, Mexico. Drop Hart a line at 1811 Hillman Avenue, Belmont, CA 94002. Not only are the HAPPY FLYERS doing a lot of fun things, but they're doing a great deal of worthwhile public service activities.

Since getting into aviation, one of the great things it has going for it is the abundance of good books. Right away, this may send some leaping for the couch to lapse into eye-rolling thoughts of sleepy boredom. Be assured that I too saw little reason to read. Read! Blechhh. I'd rather count mile markers on interstate highways. Reading was only for lawyers and other people. People other than me.

But then, as my interest in flying snowballed to a way of life, I caught myself hesitating at book counters. I caught myself saying to myself: "Self . . . you know there's a lotta good reading around?" That was about sixty books ago. You know? — there are books on literally every facet of aviation available! Take for instance this publication setting right here next to my bargain-basement typewriter. It's called Crack-up. In it are descriptions and photographs of a whole bunch of bizarre, non-fatal crashes. Then here, take this one for example: Biplane. Richard Bach. Need more be said? There was a time when receiving a book would have made for a raised eyebrow. But I guess if we just open our eyes we see just what is available to make life a little neater. Next time you find yourself lost in a shopping center, find a book store and open your eyes. You'll read it loud and clear.

Does anyone know whatever happened to the hams participating in the Round-the-World Hams on the Air operation in 1960? The callsign used was W8OLF and the Hallicrafters-equipped station was aboard a C-54 aircraft circling the Midwest. Many hams will remember contacting the station. If anyone recalls, please write me.

There are a number of aids used regularly in aviation which, in spite of their technical complexity, are taken, for the most part, for granted. Obtaining a working knowledge of the various systems can only lead to a personal yield of better understanding and, thus, more enjoyment from these systems. PRIVATE PILOT magazine is to be commended for their monthly publication of basics of such things as R-NAV, the DME, the transponder and the ILS, to name just a few. Recently, the magazine ran an article explaining the VOR. The VOR: The most used and most misunderstood navigation aid today. Check 'em out.

You know, we amateurs sometimes don't really realize what a valuable tool we have sitting right in our shacks, sometimes unused. Sure it's great to have state-of-the-art transceivers and compressors and keyers and potent power amplifiers and digital readout this and logic-controlled that. But look over there in the corner. When was the last time you spent a few moments with your general coverage shortwave receiver? It's a handy little piece of radio equipment when you think about it. Did you know that Radio Canada International has been running regular programs on aviation in Canada? Especially up in the northern regions, bush pilots are virtual heroes. How about the aviation weather forecasts I wrote about a while back on three megacycles? The ever-present Voice of America also does frequent features on aviation. The ol' shortwave receiver might be worthy of a reunion if you want some real, good old-fashioned fun. In the coming months, we'll compile a listing of some of the interesting aviation related picks one can receive on his SW receiver. (Like, did you know Air Force One maintains several frequencies between seven and eleven megacycles?)

This month's close comes from Al Wilentz, an SWL and private pilot in Great Falls, Montana. Al tells of a hitch-hiker trying to thumb a ride to Mt. Vernon, Washington on a large, but rarely traveled highway near Great Falls. The temperature was hot and the hitch-hiker's hopes were becoming less and less optimistic. As the distraught traveler set his backpack on the ground alongside the highway, he heard an approaching Taylorcraft BC12D-turned-glider flared-out and touched down within several feet of the hitch-hiker. The nomad from aloft stepped out and approached the non-believing hitch-hiker. After explaining that the airplane was out of fuel, they both walked to a nearby town and finally obtained the needed fuel. The two climbed into the airplane and flew off to Mt. Vernon. The hitch-hiker, we understand, since that introduction to flying, can frequently now be seen hitching a ride out to an airport for instrument time, that is — when he's not SWL'ing.

Send your news to 719 West Water Street, Kankakee, Illinois 60901 (South of the Peotone VORTAC on the Chicago Sectional).

Until next month, I'll look for you on the air and in the air!

next month

So many new things will be happening we can hardly list them all. New columns on Novice, 160M, Public Relations, Contests, Books, Antennas, and much more.

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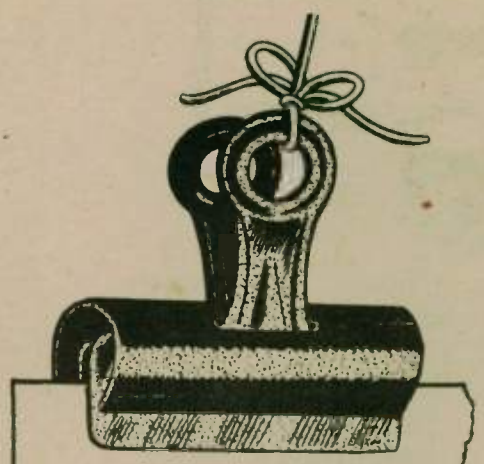


traffic

by
Paul Gagnon, WA6DEI

This month we are pleased to have two articles submitted by traffic men of note. The first is submitted by Kurt Meyers, W8IBX, who is the manager of the Hit and Bounce Slow Net. The second is by Bill Skarsdadt, VE2DR.

"Serving as Net Control Station — The Basics"

by Kurt Meyers, W8IBX

Several times I have felt the urge to write something about how to be Net Control. My previous efforts have run several pages in length, too long for the suffering readers of the Report (Hit & Bounce Net Newsletter). One day, a light flashed. Cover the basics in a first article; save the fine points for later. So, here goes.

Function of the Net Control Station is to take charge and run a net so it carries out its purpose as efficiently as possible. Of course, efficiency must be tempered with courtesy. After all, we're still amateurs.

The Net Control Station warms up his equipment ahead of time, locates as closely as possible the net frequency, and starts the net (QND) on the dot, promptly. The initial call-up should not be lengthy and should be geared toward getting all the prompt stations checked in (QNI). "Roll call" of active participants may be practiced in some nets, but almost all CW nets follow the "first come, first served" principle. While the stations check in, NCS notes time, call, and traffic listed. If the net is a "slow" net, NCS strictly maintains the "slow" code speed and doesn't get carried away.

After no more than five to seven minutes, the handling of traffic should begin. While stations are checking in and listing traffic, the NCS should be figuring out mentally who gets what traffic.

As soon as a solid link appears likely, the two stations involved should be sent off frequency to do their thing. Unless difficult circumstances prevail, all traffic should be handled away from net frequency so that the latter is reserved for q NI, QNX, procedural instructions, and so on. Of course, if the NCS sends or receives traffic, that must take place on net frequency, unless NCS turns the net over to someone else.

Once the initial call-up is completed, the prompt stations are checked in, and traffic passing is underway, the NCS should continue to make short calls so that latecomers can check in and so those returning from off frequency can indicate their presence. Although no one should be late, it still isn't fair to make latecomers wait 15 minutes to check in, simply because NCS has had the door shut.

What do you do with traffic for which there is no direct outlet? This author is a hard-nose and believes that if a station checks in, he should be prepared to take traffic when he is closest to a destination, even if that is several hundred miles away. However, there are some operators who refuse to take any message that can't be delivered in person across the back fence. NCS can't do anything about that! But some effort to move the traffic should be made, if only through a liaison to another net. A last resort should be to ask the station to "hold" his traffic. If he didn't want to clear it, he wouldn't have listed it to start with.

If a station is QRU and the net has nothing for him, he shouldn't be held for more than 15 minutes. The net itself need not continue longer than 15-20 minutes, if there is no traffic. Going the other way, 60 minutes ought to be a maximum. If the traffic can't be cleared in that time, the operators should get out their code practice oscillators for a little off-the-air workout. At the end of the net send "QNF" and vacate the frequency.

The final phase of NCS work is to report the session to the manager. This should be done promptly or else it is forgotten. Next thing, the manager is frantically trying to line up missing reports at the end of the month. Tell number of messages passed and calls of stations on board. Some nets, including National Traffic System nets, need a record of minutes in session so that managers can indulge in the higher math that appears in QST. Reports can be sent as radiograms.

Corrupt Traffic

by Bill Skarstedt, VE2DR

Quite a few messages passed by Amateur Radio unfortunately get mixed up in transit. What do you do then?

On 17 August, HBN, I received a message via W8IBX. He relayed this from W2DE who was QNP at my QTH at the time. Both Kurt and I knew that the telephone number was incorrect as it only had 6 digits. What does one do then?

a) Look up the telephone book. If no listing, b) Check with the operator. If no luck again, c) USE YOUR HEAD. If your detective qualities are lacking, then, d) Find a street directory and check occupant at street and number given. If stumped again, e) Mail the message to address given. If letter is returned, f) Originate a SVC msg for "GBA" or "CANCEL."

In the case of this particular message I tried a) and b) without success. I then looked up the phone book under businesses listed in the Town of Mount Royal (the address of the msg) and found an exchange "733." Originally, as received, the phone number was given as "336253." I then dialed "733-6253" and was pleased when the party in the address answered the phone and accepted the message. As a matter of interest this msg came from Calif via MARS and a W1.

Had I done what so many tfc men do, merely sent back a SVC msg via this W1 you can well realize how long it would take to reach the originator (if ever) and the traffic would undoubtedly have been of no value if finally a correction had come through.

I am mentioning these facts, especially directed to new stations who may be interested in tfc handling. We amateurs look pretty stupid if a msg takes, say, two weeks to get delivered when the original stated that a "letter will follow." I almost feel in such cases that a non-delivery would be the best way out but then we are not supposed to do this.

Think it over, fellows, and let us try to keep up the standard of Amateur Radio by delivering as much of the traffic we receive as possible.

QNC:

Robert Travis, W6BVB, is retiring after three years of excellent service and the new manager of the Northern California Net (3630) is Jettie Hill, Jr., W6RFF, who has been the manager of the NCN second session net. The second session helm is now handled by Allan Hills, WA6BTF. NCN Secretary, Daniel Drath, W6QNB, would like to have inputs regarding a traffic breakfast/event in the East Bay or Valley area. ARL Seven to W6QNB.

Rickey Gilligan, WB6TYA, notes that traffic to Central and South America must have a telephone number on it to assure a reasonable chance of delivery.

The Tampa Amateur Radio Club, W4DUG, will be on the air again originating traffic from the Florida State Fair in February. The traffic always seems to get heavy in February so let's be prepared.

The new Phone Activities Manager for the Santa Barbara section of the ARRL is Don Gerue, K6YX in Santa Barbara. Don has the responsibility of the Santa Barbara section net (3935 Wed.) and is also active on the Mission Trail Net (3928).

Total traffic stats for the Hit and Bounce net for 1974 show 10,202 check-ins and 4,338 messages passed for an average of 11.88 per session. This is an excellent showing and indicates the quality of the net members. Join with them and learn how traffic is handled. (7070 KHz, 0830 Eastern, Manager Walt Russell, W2OE.)

I have received several messages in regards to counting book messages as mentioned last month. Send me your ideas in message form. In fact, if you read this column at all how about sending along a message telling me so.

Steven Phillips, WA6TVA, has pointed out a couple of errors in the November column. In the chart indicating section in various areas the Orange Section must be added under the Region Six (RN6) heading. Also, the manager and founder of the Novice Emergency Net (SOCAL) is Bill Baucum, WA6YWS. Bill is also the Emergency Coordinator for Inyo County.

You traffic handlers in Virginia are indeed fortunate to have an editor like Phil Sager, WB4FDT, who does an excellent job editing "The Virginia Ham" which contains net reports on the following Virginia nets: Virginia Slow Net (Marty Brown, WB2VYK/4), Central Virginia 2 Meter Service Net (John Harvey, WB4KIT), VBSN (Randy Agee, WB4-

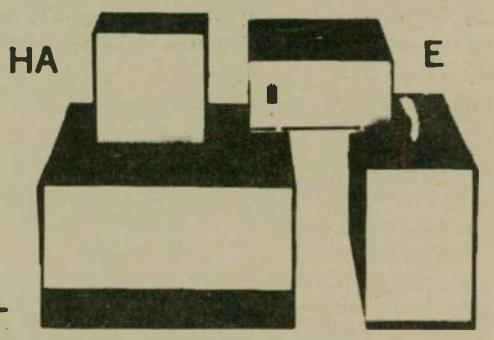
(please turn to page 39)

APOLLO PRODUCTS *by "Village Twig"*

"L"

package enclosure "Shadow Box" machined with: 2-SO239, 1-Pilot Light, 3 Rocker Switches, and 2-Knobs

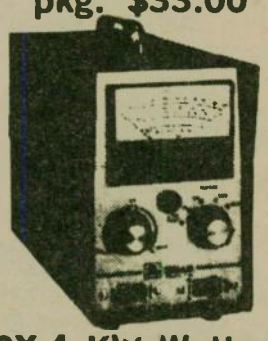
pkg. $33.00



2500X-2 Trans-Antenna Systems Matcher

KW plus 52 ohm and random wire.

$149.50



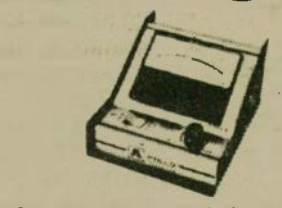
700X-4 KW Wattmeter

Dummy Load Wattmeter for 52 Ohm Input. Measures RF in 4 ranges to 1000 watts. Front panel frequency counter jack-attenuated per range for frequency counter take-off. Portable

$139.95

MODEL	WIDTH-HEIGHT-DEPTH	RESALE NET
A	5-5/8 x 2-1/2 x 3	4.25
AA*	4 x 3-7/16 x 3-1/8	5.50
B	5-11/16 x 3-3/8 x 3-3/4	5.55
BB*	9 x 2-1/2 x 3-1/8	5.90
C	7-1/4 x 3-3/8 x 5	7.80
D	8 x 2-1/2 x 8**	9.85
E	6-1/2 x 3-15/32 x 7-1/16	9.25
F	7-1/2 x 4-1/2 x 10	11.15
G	10-1/16 x 3-5/16 x 9	11.15
HA	5-1/8 x 5-1/2 x 4	7.85
D1	Mtg. bracket set for D	.40
J	5 x 3-1/2 x 5-3/4	8.35
K	4 3/4 x 7-3/8 x 11	15.00
L	11-1/8 x 6-1/8 x 12-3/4	22.95
M	11-1/8 x 6-1/8 x 16-3/4	24.40
NA	12-1/8 x 5-7/8 x 12-1/16	23.80

*.050 aluminum cover & chassis w/grained panel
**Mobil mounting available.



2100X-2 SWR Bridge

Large Meter - Sloping Panel Cabinet - Rubber Feet - Keep in Antenna Line up to 1 Kilowatt

$33.95

900X-2 Wattmeter

Measures RF in 2 ranges 25 and 500 watts. 52 Ohm input.

$33.95

2200X-2 SWR Bridge and Antenna Tuner

Both mounted in slope front cabinet

$62.50

2300X-2 SWR Bridge with 900X Wattmeter

Handles 500 watts, mounted in slope front cabinet

$66.95

APOLLO "SHADOW BOX ENCLOSURES"

are fabricated of heavy, cold rolled steel. The front panels are of 20-guage brushed chrome steel; some models are line screened and have a red Rocker DPDT switch installed with gold plated contacts and terminals. Covers are baked on Wrinkle enamel.

All cabinets are completely assembled and supplied with four rubber feet riveted in. Individually packed in a heavy-duty, corrugated mailer carton.

Chassis C thru M are CRS, nickle-plated over copper for excellent RF conductivity.

PRODUCTION CABINETS TO YOUR SPECIFICATIONS ON SPECIAL QUOTATION; 250 PIECE MINIMUM. WRITE FOR QUOTATION.

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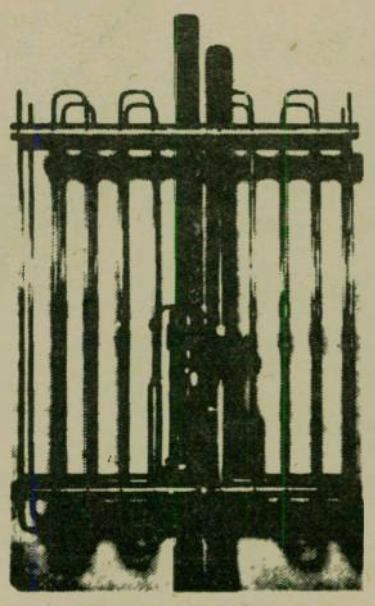
PROVEN IN EXACTING TESTS AND MANY YEARS ON THE AIR AT WØMBH — KØAST — K8VRM

THE *Little* GIANT BEAM ANTENNA

only 27 inches high by 22 inches wide



A COMPLETELY NEW ANTENNA

Here is an ultra compact beam antenna which can be tuned to any frequency between 7.0 and 14.5 MHz. Weighing only 18 lbs. this antenna may not outperform a full sized beam but it sure will give you your share of DX and state-side contacts. Will handle 1 KW over a 100 kHz bandwidth.

- Fully weather proof
- Mounts easily on TV masting
- Figure 8 pattern
- Hi-Q, attenuates harmonics
- Comes assembled & tested

KITS 10-40 $74.50

LITTLE GIANT MODEL 100X1000-40 **$149.50**

Other models available for 10, 15 & 20 meters — Add $3 trans.

Little Giant Antenna Labs, Box 245, Vaughnsville, Ohio 45893

Subsidiary "Apollo Products" Village-Twig Co.

419-646-3495

clubs

The usual purpose of this monthly column is a "forum" so clubs can exchange ideas. What one club has found to be a successful activity can often be used by another club.

This month, however, we shall talk about an important new service offered to clubs. In a joint effort, this newspaper and the **Callbook** have a program to enable you to gain more members for your club.

Here's how it works: Send **Worldradio** (2509 Donner Way, Sacramento, CA 95818) 12 self-addressed stamped envelopes. Tell us the first three numbers of the zip code your club covers. Each month you will receive back one envelope. In it will be gummed labels with the name and address of the newly licensed amateurs in your community. Use the gummed label to send an invitation to your club meetings or send a copy of your club bulletin.

Approximately half of the active amateurs did not attend a club meeting or a convention or hamfest in the past year. Club activities are an important part of amateur radio. We must do what we can to build up the clubs.

At the end of the year we will send you a bill for three cents for each gummed label you received. This represents the actual cost. No profit is made on this, it is presented as a service to clubs.

There's more. The service will be offered at no cost to the clubs who participate in our other programs. We offer a substantial discount on subscriptions to **Worldradio** that are bought through the clubs. (Here is a chance to fatten the club treasury.) Also, as many clubs are doing—giving subscriptions as door prizes—we offer savings to the club. Write for details.

Also, when you put on your hamfests, let us know, we will be happy to furnish some prizes (based on a point system on how many subscriptions your club took out.

And, let us know the meeting nights of your club so we can give you publicity in this column. We would also appreciate being on the mailing list for your club bulletin. If there's anything that you can think of how we could help your club, let us know!

•

Andree Balout, F6AYF

SSTV (*continued from page 28*)

State's own Eskimo country, I can't help feeling a bit envious of VP7BC's lot! Not to top this one, but just a question, has anyone been known to operate SSTV from an airplane? (Mobile operation from automobiles has become sort of old-hat, it seems!) Maybe we can pry a picture or two for publication out of VP7BC.

The call F6AYF is well known among 20 meters DXers. Andree Balout, a most attractive Parisienne who lives practically in the shadow of the Eiffel Tower has made F6AYF famous. The handsome fellow in the accompanying photo is the son of F6AYF, his name is Andy Balout, and he is also an amateur with the call F6AXT — and he is an active SSTV operator. Andy built his own monitor, visible just to the left of the hand-held mike in the picture. Jack Williams, K2JFV, who has visited the Balouts reports that ham radio is the number one subject of discussion at chez Balout!

I'm still looking for some reports on fast scan activity at any point on the globe. Is there any way that I can get some of you 70 Cm. characters to turn off your cameras and pick up a pen? Don't forget that amateurs all over the world would like to know what YOU are doing with ATV. My address is still: 2112 Turk Hill Road, Fairport, NY 14450.

My thanks for the response on the video analyzer item in last month's column. Look in next month for a picture of Connie Owens, WA1NXR, also known as SSTV's MAINE-stay! (Sorry Connie, I couldn't resist!)

•

Forum (*continued from page 3*)

He said individual comments to the FCC can only confuse the issue. "We've got to be united in this thing or we're going to lose." (applause) Another member countered that "unity is a good thing, but every individual should send in his original and 14 copies." Another agreed with Bill and the others, but offered "these are politicians. They believe in numbers, they understand numbers, not individuals."

And so it went — no final stand was taken. It seemed that members felt **both** individual and League action was required.

Hams are funny

(continued from page 12)

hobby until the exceptions make the rules and the rest of us are in the cheering section urging them onward and upward.

Dave Bell, W6BVN, produced "The Ham's Wide World" film for the ARRL and notes while he's young at heart he will never see 40 again. The illustrations are by his teenage daughter, Kristy.

Visit your local RADIO STORE

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1057 W. Hallandale Beach Blvd.-I95
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Conley Radio Supply
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Billings, MT 59101
Phone 406-259-9554
Ron Conley, K7LTV

Ham Radio Center, Inc.
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St. Louis, MO 63132
Phone Toll Free 800-325-3636
Hours 9-5 Tues-Sat.

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Dallas, TX 75204
Phone 214-526-2023
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C & A Electronic Enterprises
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Carson, CA 90745
Phone 213-834-5868
9-5 & 6-9 M-F 9-4 Sat.

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Tue thru Sat 10 a.m. to 5:30 p.m.
415-342-5757

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2811 Telegraph Ave.
Oakland, CA 94609
Phone 763-6262
Doug, W6HVN & Art, VE2AQV/W6

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San Jose, CA 95128
Phone 998-5900

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Sacramento, CA 95815
Phone 922-2212
Norman R. Lehman, WB6SBR

Oregon Ham Sales
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Albany, OR 97321
Phone 503-926-4591
Howard Truax, WR7ADC 01/61

Amateur Radio Supply Co.
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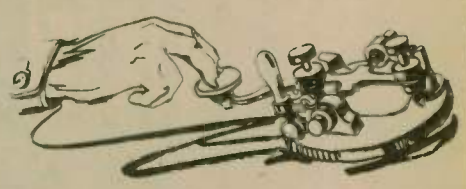
Seattle, WA 98108
Phone 767-3222

Progress Electronics
852 Commerce Avenue
Longview, WA 98632
Phone 636-5100
Dan Fiest, WA7QMV



BUILD something!!

97.1 Basis and purpose.

The rules and regulations in this part are designed to provide an amateur radio service having a fundamental purpose as expressed in the following principles:

(a) Recognition and enhancement of the value of the amateur service to the public as a voluntary non-commercial communication service, particularly with respect to providing emergency communications.

(b) Continuation and extension of the amateur's proven ability to contribute to the advancement of the radio art.

(c) Encouragement and improvement of the amateur radio service through rules which provide for advancing skills in both the communication and technical phases of the art.

(d) Expansion of the existing reservoir within the amateur radio service of trained operators, technicians, and electronics experts.

(e) Continuation and extension of the amateur's unique ability to enhance international good will.

CT5005 CALCULATOR

This calculator chip has a full four-function memory, which is controlled by four keys, +M (adds entry into memory), -M (subtracts entry from memory), CM (clear memory, without clearing rest of registers), RM (read memory or use as entry).

- 12-Digit display and calculate
- Fixed decimal at 0, 1, 2, 3, 4, or 5
- Leading zero suppression
- 7-Segment multiplexed output
- True credit sign display
- Single 28-pin chip

CHIP AND DATA.....ONLY $14.95
DATA ONLY (Refundable)..... 1.00

5001 CALCULATOR

40-Pin calculator chip will add, subtract, multiply, and divide. 12-Digit display and calculate. Chain calculations. True credit balance sign output. Automatic over-flow indication. Fixed decimal point at 1, 2, 3, or 4. Leading zero suppression. Complete data supplied with chip.

CHIP AND DATA.....ONLY $9.95
DATA ONLY (Refundable).... 1.00
5002 LOW POWER CHIP AND DATA..12.95

All ICs are new and fully-tested; leads are plated with gold or solder. Orders for $5 or more will be shipped prepaid. Add 35¢ for handling and postage for smaller orders; residents of California add sales tax. IC orders are shipped within 2 workdays--kits are shipped within 10 days of receipt of order.

MONEY BACK GUARANTEE ON ALL GOODS!

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CTμL SPECIAL:

Complementary Transistor Logic

This logic family is unique in that both NPN and PNP transistors are combined in the same package. Unlike TTL and DTL, the outputs are current sources (in the high state) as well as sinking current in the low state. Those are brand new units, some of which are mis-marked with DTL numbers.

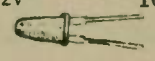
CTL 9956 dual 2-input AND buffer
CTL 9953 2-2-3input AND/OR gate
CTL 9952 dual 2-input NOR gate

Data supplied; all parts are dual-in-line.

MIX OR MATCH 5 FOR $1.00

LED's

MV50 red emitting $ .20
10-4 ma @ 2V 10 FOR 1.25



MV5024 red TO-18 $ .35
high dome 10 FOR 2.95

MV10B visible red $ .30
5-7 ma @ 2V 10 FOR 2.50

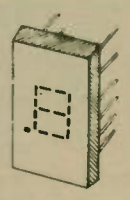
CMOS

CD4001	$ .75	74C20	.75
CD4002	.75	74C160	3.25

3-Amp Power Silicon Rectifiers Marked Epoxy Axial Package

PRV	PRICE	PRV	PRICE
100.....	$ .10	800.....	$ .30
200.....	.15	1000....	.40
400.....	.18	1200....	.50
600.....	.23	1500....	.65

MAN 1



7-Segment, 0-9 plus letters. Snaps in 14-pin DIP socket or Molex. Operates with IC voltage requirements. Long operating life.

ONLY $3.25

7400	$ .25	74L51	$ .30
74H00	.35	74H51	.35
7401	.20	7453	.20
74H01	.35	7454	.25
7402	.35	74L54	.35
7403	.30	74L55	.35
7404	.28	7460	.20
74H04	.35	74L71	.30
7405	.28	7472	.40
7406	.70	74L72	.50
7408	.35	7473	.60
74H08	.35	74L73	.75
7410	.25	7474	.65
74H11	.35	74H74	.80
7413	1.25	7475	1.40
7417	.40	7476	.60
7420	.25	74L78	.80
74L20	.35	7480	.65
74H20	.35	7483	1.00
74H22	.35	7489	4.00
7430	.25	7490	1.20
74H30	.35	7492	.90
74L30	.40	7493	1.15
7440	.25	7495	1.15
74H40	.35	74L95	2.00
7441	1.25	74107	.70
7442	1.20	74121	1.25
7446	1.75	74154	2.30
7447	1.50	74193	1.50
7448	1.50	74195	1.00
7450	.25		
74H50	.35		
7451	.25		

7400 Series DIP

RECTIFIERS

VARO FULL-WAVE BRIDGES

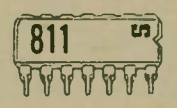
V5447	2A	400V	$ .90
V5647	2A	600V	1.10
MR810 Rect.		50V 1A	.10

Special 811: Hex Inverter

TTL DIP Hex Inverter; pin interchangeable with SN 7404. Parts are brand new and are branded Signetics and marked "811."

Data Sheet Supplied

EACH.....$ .30
10 FOR..... 2.50
100 FOR.... 23.00
1000 FOR... 220.00



MAN 3

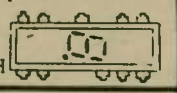
0-9 plus letters. Right-hand decimal point. Flat-pack type case. Long operating life. IC voltage requirements. Ideal for pocket calculators!

EACH $1.25
10 OR MORE 1.00

MAN4

Seven-segment, 0-9 plus letters. Right-hand decimal point. Snaps in 14-pin DIP socket or Molex. IC voltage requirements. Ideal for desk or pocket calculators!

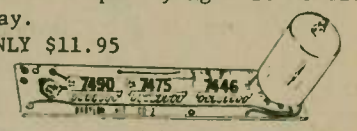
EACH.....$2.75
TEN OR MORE 2.50 EACH



CD-2 Counter Kit

This kit provides a highly sophisticated display section module for clocks, counters, or other numerical display needs. The unit is .8" wide and 4 3/8" long. A single 5-volt power source powers both the ICs and the display tube. It can attain typical count rates of up to 30 MHz and also has a lamp test, causing all 7 segments to light. Kit includes a 2-sided (with plated thru holes) fiberglass printed circuit board, a 7490, a 7475, a 7447, a DR 2010 RCA Numitron display tube, complete instructions, and enough Molex pins for the ICs . . NOTE: boards can be supplied in a single panel of up to 10 digits (with all interconnects); therefore, when ordering, please specify whether you want them in single panels or in one multiple digit board. Not specifying will result in shipping delay.

COMPLETE KIT, ONLY $11.95
FULLY-ASSEMBLED UNIT $15.00



Boards supplied separately @ $2.50 per digit.

LINEARS

NE540	70-Watt power driver amp.....	$2.00
NE555	Precision timer.....	1.50
NE560	Phase lock loop DIP.....	3.25
NE561	Phase lock loop DIP.....	3.25
NE565	Phase lock loop TO-5.....	3.25
NE566	Function generator TO-5.....	4.00
NE567	Tone decoder MINI DIP.....	4.00
NE567	Tone decoder TO-5.....	3.00
NE5558	Dual 741 op amp MINI DIP.....	1.00
709	Popular Op Amp DIP.....	.45
710	Voltage comparator DIP.....	.75
711	Dual comparator DIP.....	.40
723	Precision voltage regulator DIP.	1.00
739	Low noise op amp DIP unmarked...	1.00
741	Op amp TO-5/MINI DIP.....	.55
747	Dual 741 op amp DIP.....	1.00
748	Op Amp TO-5.....	1.00
CA3018	2 Isolated transistors and a Darlington-connected transistor pair...	1.00
CA3026	Dual differential amp.....	1.00
CA3045	5 NPN transistor array.....	1.00
LM100	Positive DC regulator TO-5.....	1.00
LM105	Voltage regulator.....	1.25
LM302	Op amp voltage follower TO-5....	1.25
LM308	Op Amp TO-5.....	2.00
LM309H	5V 200 MA power supply TO-5.....	1.00
LM309K	5V 1A power supply module TO-3..	2.00
LM311	Comparator TO-5.....	1.75
LM370	AGC amplifier.....	2.00
LM380	2-Watt Audio Amp.....	1.75
LM1595	4-Quadrant multiplier.....	2.00
MC1536T	Op Amp.....	2.00

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Box 2355 Oakland Airport, Ca. 94614

resistors

All standard values in ¼ watt, 10% type... available only in multiples of 100 @ $2.50/100

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From small-signal bipolar to PNP power to power darlingtons to UHF FETs...and for audio fans, our dual lo-noise FETs are ideal for mixers, preamplifiers, or other critical circuits... we've got diodes, too.

LINEAR-TTL-CMOS

All the types you like to use and experiment with, including RF types like the 703 low power RF-IF amp and the 370 AGC squelch amp; three-terminal regulators, timers, function generators, power drivers and many other linears; TTL logic parts and CMOS types, plus state of the art computer processor chips and memories...as well as clock chips and calculator stuff for those of you who are so inclined. We even carry sockets for all of the above, from 14 to 40 pins. No mystery packages; all ICs are marked, tested, and guaranteed.

INTEGRATED CIRCUITS

PARTS KITS

We give you a PC board (where required), a schematic, all electronic components, and a reliable, carefully designed and debugged circuit. If you can read a schematic, find a chassis, and solder, you can save a considerable amount with our kits. We have clocks, a stable time base, and a bunch of power supplies, all at exceptional prices.

Capacitors

We've got them too, in mylar, disc, polystyrene, and electrolytic types

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For your PC boards, we have micro-vectorboard-- unclad or copper clad on one side.

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1000 pf	10/$1
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4016 QUAD ANALOG SWITCH 10/$4.95

INDUCTORS- ceramic PC mount types. All values in microHenrys and are color coded on the parts (color code data sheet supplied). 10 of any value for $1

1.0 - 1.2 - 2.0 - 2.7 - 2.8 - 6.8 8.2 - 12 - 18 - 22 - 24 - 27 - 30 33 - 43 - 47 - 68 - 82 - 120 - 680 microHenrys. 1 of each value $1.95

there's more...send stamp for flyer

continued from...

traffic *(continued from page 34)*

BZX) and the Virginia CW Net (Dave Wilson, K4IAF). K4IAF indicates the VN Net Certificates for 1975 will be earned on a basis of 100 points to be earned thusly: 1 point per QNI and 1 for each function performed during the net session. Please inform NCS that you are a representative from/to another net so you get proper credit.

Traffic Tip: When you return to net frequency after you have been off passing traffic or receiving traffic simply check back with your call to let the NCS know you are back and everything went o.k. and the traffic is passed. There is no need to re-iterate what transpired. The NCS knows he sent you off. There is no need to repeat it unless something went differently.

Next month: Another guest article entitled "Stagnation."

•

interference

(continued from page 19)

on 2 meters, with 40 watts PEP fed to a 10 element yagi located 20 feet from the TV antenna, and pointed right at it, no sign of interference could be found.

No question about it . . . Grundig has indeed produced an interference-free color television receiver. We congratulate them on their accomplishments, and applaud the fact that this company took action on the RFI problem at a time when RFI legislation was not even in effect.

Thanks to Hanspeter Nafzger, HB9-AQZ and Jim Fisk, W1DTY (Editor of **ham radio**) for bringing the FINKSCHAU article to our attention. We also gratefully acknowledge the work of George Grant, WA3MBQ, who translated the article.

WWV K-index

by Ted Cohen, W4UMF

The K-index that WWV broadcasts at 14 minutes past the hour is another measure of geomagnetic activity, the numbers being those determined by the observatory at Fredericksburg, VA. One can roughly equate the K-index to the A-index as follows:

K=0	1	2	3	4	5	6	7	8	9
A=0	4	7	15	27	48	80	140	240	400

This is rough, but will give operators a good idea of the current state of the earth's magnetic field. In short, a K-index of 0,1 or 2 indicates the field is QUIET; of 3 indicates the field is ACTIVE; and of 4 or more, DISTURBED. George Jacobs, W3ASK, and I will have an article on day-to-day forecasting (including 27-28 day recurrence forecasts) which is scheduled for the March issue of CQ.

73

Ted, W4UMF

•

How to copy code

(continued from page 30)

her line and emphatically point out the fallacy, then resume her steady flow. I could not hope for this resiliency in my brain, but a certain amount of facility in listening while writing grew slowing and painfully.

When you think of it, it should not be too impossible to achieve 175 characters in a row for one minute. If you flub at any point in a five minute transmission, you still have another minute of words ahead of you, which you might master. If you then miss another word, there is still another full minute ahead that you might copy correctly, and so on.

Finally, I felt that by diligence, the day would come when I would get 35 words lined up in single file for one minute. This would be more likely to happen if I was fortunate enough to enjoy these favorable conditions:

1. Enough words of five letters or less.
2. Words I was familiar with.
3. No numbers or call signs.
4. No proper names.

And I was lucky that January night in 1972. No QRM, no QRN. I passed the test.

As you well know, that because one gets 35 wpm in a row, does not mean one can take messages solid at that speed. Not at all. It just might mean one was lucky enough to have heard a stretch of words with which he was familiar and that he was in rare form that day.

Like learning any language, learning the language of code is well worth the effort. The rewards are great. There is a profound sense of achievement which may be equivalent to or even more heartfelt than running high scores in contests, or building complicated or ingenious gadgetry.

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vhf-uhf *(continued from page 32)*

properly phased. The gain should be about 15 db or lil' more. Thus, to get 40 db, note that a 60' dish minimum on other end will yield sigs. This does assume 2 db NF rcvr and 500 W into the antenna. On 432, assume you have a quad of Tilton Yagis, and the gain should be about 16 db over dipole. Again the 60' dish is within reach of you.

Next month we will have a list of those who were worked by SRI and W6RDF. If you do only listening, a quick card, or a copy of your OVS report would help make our March column more complete. Better fly it before Feb. 25th however. My address for all cards, letters (no mail bombs or the like please) is: 4519 Narragansett Ave., San Diego, Ca. 92107. My phone number is listed. Look forward to hearing from you.

Your inputs are what will make or break this column.

Events

East Coast, 22 and 23 of March, Saturday and Sunday, New England Convention Center at the University of New Hampshire campus, Durham, NH. Contact Chuck Benavides, WA1KIR, 103 Peabody Dr., Stow, MA 01775

West Coast, 2 thru 4 of May, Sheraton Inn on Harbor Island, San Diego, CA. Contact Louis Anciaux, WB6NMT, 4519 Narragansett Ave., San Diego, CA 92107.

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MEDICAL: Any licensed amateur radio operator in the medical or paramedical field should join MARCO (Medical Radio Council). Contact: Stan Carp, M.D., K1EEG, 44 Main St., Saugus, MA 01906 (617) 233-1234

COMPONENTS: 8038CC $5.75. Ay5-1013A UART $13.95. Ay5-1008 receiver $7.95. Crystal time base kit, 5UDC input, 60Hz TTL output $9.75. MM5316 clock $10.00, "Wild Rover" calculator keyboards, removed from equipment, checked out! 2 for 5.95. Burroughs B5853-S1 numeric readout tubes, 6/$9.00. Latest flyers of new and surplus components 10¢ stamp. Tri-Tek incl, 6522 N 43rd Ave, Glandale, AZ 85301

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