Dec. 1988

THE RAMBLER

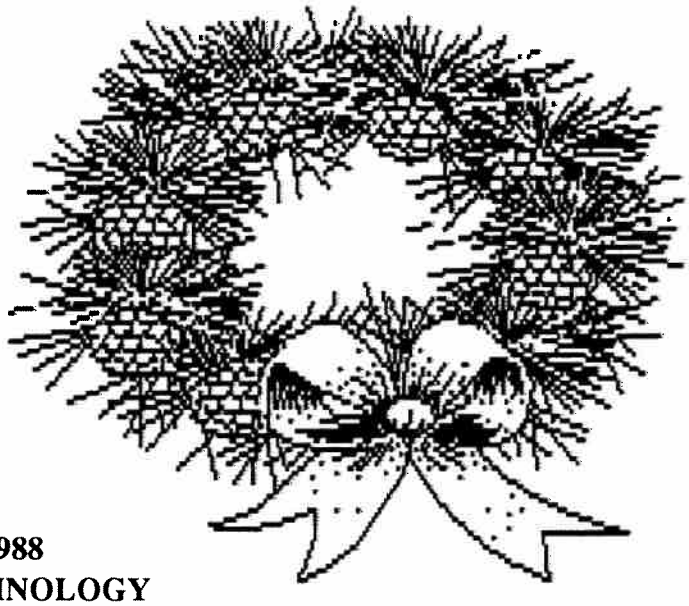
The Ottawa Valley Mobile Radio Club Incorporated

P.O.Box 5530

Station F

Ottawa Ontario

K2C 3M1



NEXT MEETING: **THURSDAY, DECEMBER 15, 1988**
PLACE: **THE MUSEUM OF SCIENCE AND TECHNOLOGY**
TIME: **7:30 P.M.**

The Ottawa Valley Mobile Radio Club Inc.
P.O. BBox 5530
Station F
Ottawa, Ontario
K2C 3M1

LARRY WILCOX
565 EASTVALE DR.
GLOUCESTER ONT.
K1J 6Z4

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MERRY CHRISTMAS FROM THE EXECUTIVE!

THE OTTAWA VALLEY MOBILE RADIO CLUB INCORPORATED

OVMRC SPONSORED ACTIVITIES

POT HOLE NET - OVMRC NET - Every Sunday, 1000 local time on 3760 kHz, SSB. All Radio amateurs are welcome to participate.

THE WISE OWL NET - OVMRC NET - Rag chew net every Friday evening at 2000 local time on the club repeater VE3TWO - 147.30/90 mHz.

VE3JW - Amateur radio station of the National Museum of Science and Technology. The **OVMRC** helps maintain the station and schedules operators for the station as part of an Amateur Radio public relations display. VE3JW operates on all HF bands, both CW and phone. Slow scan TV is also demonstrated. For information or if you wish to operate the station, contact the Public Relations Coordinator.

AMATEUR RADIO ACTIVITIES IN THE NATIONAL CAPITAL:

POT LID NET - Sponsored by Ed Morgan VE3GX. An informal slow speed CW net meets each Sunday (except July and August) at 1100 hrs. on 3620 kHz to provide and stimulate interest and proficiency in CW procedures.

CAPITAL CITY FM NET - Sponsored by the Ottawa Amateur Radio Club Inc. every Monday evening at 2000 hrs. local time. Conducted on VE2CRA repeater 146.94/146.34.

SWAP NET - Sponsored by Ed Morgan VE3GX, each Sunday as part of the Pot Hole Net, and each Monday as part of the Capital City FM Net (except July and August). Ed may be reached at 733-1721 for listings and queries.

THE MILITARY NET - Sponsored and conducted by Frank, VE3MSC, Tuesdays at 2000 hrs. on VE3TWO 147.30/147.90 mHz.

Membership in the **OVMRC** is open to all those interested in Amateur Radio. Regular meetings are held on the third Thursday of each month (except July and August) at 2000 hrs. unless otherwise posted. Meetings normally take place in the auditorium of the Museum of Science and Technology on St. Laurent Blvd. (south of the Queensway).

The **OVMRC** provides code practice 24 hours a day. Dial 825-0786.

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The Rambler

Volume 31, Number 11
December 1988

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The next meeting of The Ottawa Valley Mobile Radio Club is scheduled for Thursday December 15, 1988 at 7:30 p.m.

The speaker will be Bob Campbell, VE3KLK. Bob will infoarm us about COMSONT - its operation and history. This net operates on 40 meters at 7.074 Mhz, LSB, everyday at 10 a.m. local time.

Publishing Committee:
Fred VE3NJF
Eric VE3OTT
Don VE3PUZ

RAMBLINGS

By Alan Boyce VE3LNH

In spite of the commercialization of Christmas, and the rushing around we do in order to take time off to recover from the rushing around, it seems that we are more reflective and thankful at this time of year.

I'd like to tell you about a man whom I am very thankful to have known, and who, now that I stop to think about it, had an enormous influence on my life.

Did any of you ever have a QSO with VE3GDE?

Doug Edmonds was active on and off from sometime in the sixties until the mid-seventies. He died in 1976, three years before I got my licence, so I never talked to him on the air. Ironically, the last time I saw him (and the event that put the ultimate strain on his heart) was at the installation of amateur radio station VE3NWS at my old high school, Northwestern in Stratford.

Mr. Edmonds was the high school electronics teacher and ran the camera club after hours. He was a soft-spoken, gentle man, and a bit of an absent-minded professor. We fondly referred to him as Eddie. It was through the camera club that I first came to know him. He had endless patience in showing us how to process film and prints. I also recall that he always trusted us on our own with the school's photography equipment.

In his electronics classes, we were always amazed by what we could learn.

Eddie was one of those magical teachers who could explain anything in a way that made it seem easy. He made you want to be around him so that you might understand things as well as he did.

I had studied basic electron theory about four times, but I never really understood it; one semester in his grade eleven course and it all became, as they say, intuitively obvious. When it came time to graduate from tubes to transistors he again put the impossible in terms that a person without university physics could understand. He helped me to understand what all of those fascinating numbers, formulas, and graphs in the electronics data books meant. One evening, with about fifteen minutes of explanation and sketches on a scrap of paper, he explained the principle of Fourier Transforms to me and it made sense!

I will always remember Eddie in his white lab-coat, beetling off to have a roll-your-own cigarette in the darkroom during his spare classes. We would often sit in the darkroom, drinking coffee brewed in an Erlenmeyer flask over a bunsen burner, and discuss the problems of the world with him.

Frequently, he would invite some of us over to his house for an evening to work on an electronics project, or just to talk. A special treat was a Saturday trip to the electronics surplus stores in London or Kitchener.

What made Mr. Edmonds special to me, I think, was that he would always treat us like peers, which was doubly ironic considering his great knowledge. He always had time for us, and was clearly pleased when we came home from University to visit him during the summer holidays or at Christmas.

I wish he was there to visit this Christmas. I'd like him to know that I now work in electronics, and that I still do photography. I'd like him to know that I eventually got my ham ticket, and I'd love to get a QSL card from him.

If you know an Eddie, cherish every moment with him, and make sure that he knows that you do.

And have a Merry Christmas.

EDITORIAL

By Bob Baillargeon
VE3MPG

Those dreaming of a new rig under the tree, I hope you get it. The one with all the latest bells and whistles. That new rig from Icom with the built in scope would look great in my shack. Wonder if you can watch TV on it when the scope is not in use? Icom are you listening? Wouldn't it be great to have something like that in the shack for the lulls during those contests?

Most new transceivers now include an all mode general coverage receiver, and an RS-232 port that allows computer control of your station. Soon you won't even need to be in the shack to work that rare station. Voice recognition software is coming along. Some packages are able to grasp a vocabulary in excess of 400 words. Voice synthesis is already here, and you can make those chips sound like male or female or even Mr. Spock. All you'll have to do is check your log once or twice a week, when you have the time, to see what other robot stations yours has worked. Gone will be those days of working dupes, let alone banned countries. Your station will control which band to use according to MUF data received twice a day on its internal auxiliary receiver tuned to the nationally supported ham radio database in Ottawa. Propogation Canada will be the new governing body for amateur radio in Canada. The cost of a radio license will bear direct relation to radio conditions, and be at their cheapest during the low in the sunspot cycle.

Ultimately your new ceramic home will have an invisible antenna built into a super insulated synthetic roof. No need for rotators - that's built into this revolutionary antenna, using the same engineering as that of phased verticals. Gain is high, thanks to cheap superconductive amplifier circuits that will run for ten years on internal batteries. Oh yeh, no more fading and stuff like that. Signal processing circuits in the antenna virtually eliminate that. Now you can really say, all the time, "you're 59 O.M.". The 2 kilowatt amplifier built into the antenna runs nice and cool too, thanks to the new generation of superconductive devices, developed here, in Silicon Valley North. To further lessen signal loss, coax has been eliminated and fiber optic cable carries your digital signal to the antenna circuit. All these new fancy rigs use digital voice/data mode. There are still a few hold outs using the outmoded SSB and CW, but the new rigs are downward compatible, by ordering a downgrade kit, for resurrecting those nostalgic modes.

RFI will be eliminated too. All consumer items will have an on board chip that will tune out digitally encoded RF emitted from all transmitting devices, preventing the offending radiation from rendering the device useless. In effect, it will notch out the RF, regardless of frequency. This brain on a chip will sniff out the offending RF by recognizing assigned product codes, listed in its 4 megabytes of memory. Any unrecognizable code will indicate un-approved appliances being operated. These chips will add about 18¢ to the manufacturing cost. All consumer items including amateur radio gear will be protected from Electromagnetic Pulse (EMP) by conductive shielding and active bypass devices. Maybe next Christmas?

I doubt it. 1995 maybe.

Let's go back a bit. The year is 1924. Its December. What was happening in ham radio that year?

In the Editorial on page 7 of the December 1924 issue of QST, a story titled "New Problems" reads as follows:

"The recent Washington conference went on record as favoring the dis-continuance of the amateur spark. In fact it made no provision whatever for the continuance of the said spark. The Department of Commerce as far as is possible will follow the recommendations of the conference. Ergo, there should be no sparks.

The Department does not feel that it should issue an order cancelling the licenses of all amateurs possessing spark equipment, first because the 1912 law really permits their possession, and second because the situation is taking care of itself. Less than 1% of ARRL operation is now on spark; we do not believe there are a hundred active spark station in the country. There ought not to be any. The day of the spark is past. We have said so many times in these columns, and we repeat it. The spark is selfish, and in these days of congested services there is no place for it whatever!

The ARRL here and now calls for the complete and immediate abolition of the amateur spark. Its day is done; let it begone. This is a civilized age and we have no place for the decrement today. The Editors of QST have owned and operated sparks that were their joy and pride, sparks as good as most of them, and nobody knows better than we the romance and fascination of the old rotary.

Won't the few remaining spark-pushers please take note that they are in decidedly poor form, standing in the way of progress, losing friends at every turn, and keeping themselves completely out of the possibilities of modern DX ham radio? Junk the dem things today, OM, and get a bottle perking tonight!"

Merry Christmas to all, and a Happy 1989!(Zap!Crackle!)

Letters To The Editor

A HAM OF PRINCIPLE

Last week I had a delightful chat with 40M cw with one of our own genuine Old-Timers, Bill VE3JC of Hamilton, Ont. It was a pleasure to copy his highly professional code (he QRS'd a little for me). He was working me from his balcony with a random-wire antenna, and I had the same set-up here. We exchanged the usual courtesies, and I followed up our QSO with a QSL card and a letter, asking him (in part) to tell me something about his career in electronics and about his involvement with Amateur Radio. It is a privilege to be able, with his permission, to print his answer below.

"Thank you for your nice letter and QSL card. I gave up these cards after the last war so cannot send you one.

To answer some of your questions-I got on the air first in 1914 when I was 14 years old. The outfit consisted of a large spark coil, spark gap, helix, condenser and loose coupler with galena detector and Browns head phones. There were four of us in the city of Hamilton at the time, all working morse for short distances. In early 1919 we all got rotary spark gaps and one half KVA transformer and things looked a lot better.

In the fall of 1919 I attended the Dominion School of Telegraphy (wireless section) and six months later had acquired a first class operators ticket. I never used this as I went to the Western Electric Company in Chicago and worked for three years there on experimental tube transmitters being built for the U.S. Navy.

I came back to Canada in 1925 and opened a small radio business in Hamilton. Time went along and I joined the R.C.C.S and obtained a commission as a Lieutenant in this outfit. When the war started I tried to go active in signals but they laughed at me, saying, you are forty years old, we want young officers. However they sent me to Ottawa where I joined the Inspection Board of the U.K. and Canada. Leaving the Board in January of 1945 I became manager of the Delco Division of General Motors Co. and stayed there until retirement in November of 1965.

All down the years I built all my own amateur equipment and actually enjoyed this more than operating. Four years ago I sold what I had and decided to build a transceiver to end all transceivers. I made up the parts list and found that I could not obtain the parts in Canada. I therefore sent the list to Circuit Specialties Co. in Scottsdale, Arizona as I knew they carried all parts for radio. They came back with the prices on my list and it came to some $550 in U.S. funds. I decided right then and there to quit building and called a dealer friend of mine in Quebec and ordered a Kenwood transceiver.

The Kenwood job was good on transmission but left something to be desired on reception. Eight months ago I obtained a Heathkit HW101 for practically nothing. It did not work and I therefore rebuilt it, which took me a month. With realigning, new resistors and new tubes I realized I really had something so I sold the Kenwood and was quite happy. No, I don't have a computer and still send Morse with the same "Bug" that I purchased at the radio school 68 years ago.

I am using a 90 foot long wire antenna and loading it with the (tuner) circuit (shown herewith). This works very well and I have got several amateurs around here using it from their apartment balconies. I enjoyed your excellent CW and hope we work many times this Fall and Winter. Best 73's. Bill."

Bill, I really believe you have always had the right idea about being a Radio Amateur -- may you have many more happy years on the HF bands and in your workshop.

73 Serge Stucken VE3JRG

MINUTES OF NOVEMBER 17 MEETING

The president opened the meeting at 7:35 pm with approximately 40 people on hand. He welcomed the visitors in attendance who included onestudent from the current course (Bruce) VE3PXB, a former club member, and Don, VE1..... Following this, he called for Executive Committee reports.

Membership Coordinator, Pat Brewer, VE3KJQ, reported that the club had 139 paid-up members to date, while 18 others had not yet renewed. He noted that the November RAMBLER mailed to the latter group was a bonus since their memberships had expired last month.

Editor, Bob Baillargeon, VE3MPG, indicated that he needed more articles from members for the January and February issues of the RAMBLER. These could be sent directly to his home or via Packet Radio. He further noted that several copies of the RAMBLER had been sent via special delivery to the USSR for SKITREK members.

Technical Advisor, Ed Leblanc, VE3VLF, advised that in view of the interest expressed at the last meeting in another "Introduction to Ham Radio" evening to be held in Spring '89, there would be a planning meeting at his QTH on December 8, at 7:30 pm. Anyone with ideas or suggestions is welcome to attend.

CRRL Director, Ray Perrin, VE3FN, advised that the election results should be available the coming weekend at which time his future would be known. Ray indicated that the JRSD Fund is still underfunded and further donations would be welcomed. He also stated that the CRTPB would be holding its annual meeting on December 1, 1988.

The guest speaker of the evening was Merv Lemke, VE3CV, whose topic was HF Mobile Operation. He opened with an interesting and informative review on how he had gotten started in ham radio and on the many changes that have occured since then. Merv was licensed in 1935 and has held the same call since then. He credited his very early interest in technical matters to his electrician father who always had fascinating bits of wire, batteries, etc. around the house which piqued the interest of a young lad. This led to the "homebrewing" of various radios, utilizing whatever parts he could scrounge. Merv joined the RCAF during WW II, serving as a radar technical officer, and remained in the service until 1965. He was also a founding member of the Pot Hole Net and described some early OVMRC mobile operations. Merv demonstrated a collection of mobile operation hardware, including an imaginative multi-band vertical antenna, installation, operation and hazards. Questions following Merv's presentation led into an interesting discussion of FM operation on 10 meters. Those not holding Advanced Amateur licenses could after 6 months apply to DOC for an endorsement, allowing 10 meter voice operation.

The meeting was adjourned at 8:40 pm.

Acting Secretary Kris Anderson VE3OWE

Project Starfish- Part I

By Bob Baillargeon, VE3MPG

AMERIKA is the mini-series filmed by ABC-TV at a cost of more than $40 million (U.S.). It is the 1990's and the Soviet Union has conquered and enslaved the U.S. population. The U.S.S.R accomplished this by exploding several nuclear devices high above the United States, wiping out all communications with the resulting electromagnetic pulse.

A single nuclear device, of medium intensity, detonated over the central United States at a height of about 200 miles would completely wipe out every IC and transistor within a 1000 mile radius.

This may not sound significant or even have any strategic importance to many of you, but our whole economic system would be severely impaired or completely wiped out in the process.

The North American and Canadian banking system would collapse. All banking records, stock market transactions, health records and virtually all information now collected by computer by any agency in the country would be wiped out. Just try withdrawing funds from a bank with it's internal computer down.

The scenario you've just read is called limited nuclear warfare and a first strike would have enormous advantage. A country's economy and communications would be reduced to nothing in a matter of milliseconds. That's the time it takes for the enormous energy released in an atmospheric detonation to wipe out any country's sensitive micro-electronic dependent economy and communications system.

The huge energy grid distribution system that exists in the U.S. and Canada would act as huge antenna receiving system, re-transmitting the huge pulse of electro magnetic radiation by an above ground detonation, to almost every home and office building in North America. Of course nothing of consumer origin is made to withstand such shock and everything from your TV to your bedside radio would be blown. Even appliances not plugged into the power mains would succumb to the pulse. Remember that most consumer and industrial machinery today is built around those little IC chips.

EMP or electro-magnetic pulse was first detected in 1962 during STARFISH, a detonation over Johnston Atoll. It knocked out street lights and triggered burglar alarms in Honolulu, 800 miles away. Since this day EMP has become a major military concern.

The Limited Test Ban Treaty of 1963 halted all nuclear tests except those conducted underground, to prevent the spread of radioactivity.

This fact, reassuring to most, has been vexing military leaders since. The "hardnesss" of an electrical or electronic circuit - it's resistance to the sudden shock generated by EMP - is greatest for vacuum tubes, much less for semiconductors, and still less for integrated circuits. Vacuum tubes have 10 million times more hardness against EMP than integrated circuits.

All military testing must be carried out underground. The tests are expensive, costing $40 million to $60 million each. The close quarters restrict the size of the equipment that can be tested: "It's very difficult to put a B-52 underground." Defense planners fear that a series of EMP weapons exploded high over North America could shut down the national power grid for hours or even days, incapacitating large segments of the military network. Such weapons could be concealed in orbiting satellites or launched from submarines stationed outside territorial waters. Although Soviet military electronics are more primitive and hence somewhat more resistant to EMP, most analysts conclude that the vulnerability to nuclear effects is roughly equivalent on both sides.

Atmospheric explosions greatly increase the density of positive ions in the ionosphere (the layer of the upper atmosphere that reflects radio waves), blacking out long-distance high-frequency and ultra-high-frequency communications for several hours. Also these atmospheric explosions emit vast numbers of free electrons that cluster along the earth's magnetic-field lines, creating an effect known as "scintillation" that interferes with the propagation of many radio frequencies.

Satellites are also vulnerable to EMP, which can erase their electronic memories and damage integrated circuits. This vulnerability is important because both superpowers depend heavily on satellites for photo-reconnaissance, communications, navigation, weather forecasting, and early warning of nuclear attack. The U.S. military routes 70 percent of its messages through satellites and the Soviets roughly 60 percent.

Because of the nature of positive control, an adversary planning a first strike would have a strong incentive to destroy, jam or spoof the U.S. command, control, communications, and intelligence (**C3I**) system to prevent the go-code from reaching the strategic forces. To ensure that the signal could be delivered, the national command authorities have access to 43 different communications systems, including priority and commercial telephone, teletype, microwave relays, and radio transmitters ranging across the electromagnet-

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ic spectrum. All these systems are somewhat vulnerable to direct attack, sabotage, jamming, nuclear blackout, and EMP, although they have different strengths and weaknesses.

The most survivable communications channels are provided by the *Minimum Essential Emergency Communications Network* (**MEECN**). This crucial core of the C3I system includes two-way teletype communications with the Strategic Air Command (SAC) missile and bomber forces, and special channels on military satellites. A modernization program exists to upgrade these channels and "hardening" them against nuclear effects. The goal is for the system to be able to withstand EMPS of 50 kilovolts per meter (the maximum expected from high altitude nuclear bursts) and 10,000 rads of radiation - well above the dose that would kill or incapacitate humans.

Large systems such as computers or telephone exchanges can be shielded from EMP by encasing them in screened steel shelters known as Faraday cages, or by locating the facilities deep underground. Conductors that pick up EMP, such as cables or antennas, can be isolated from sensitive equipment by means of "surge arrestors" - filters similar to those used to protect against lightning but designed for the much faster current rise-time of EMP. Metal cables can be replaced with fiber-optic transmission lines that do not pick up EMP.

It is also difficult for designers to know whether their hardened systems will perform reliably during nuclear war. Although large EMP simulators have been built, is is not known how closely they imitate the effects of a thermonuclear blast. Moreover, the EMP hardness of electronic components has been found to vary widely depending on the manufacturer so circuits made of components of different makes would not be equally survivable.

The second part of this article will follow in a couple of months. -VE3MPG

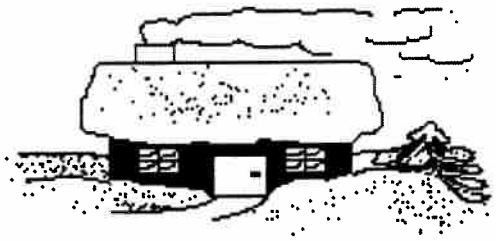
THE PACKRAT SYNDROME

I've just bought a new house and so I'm looking at a move in the next few months. When you start to think about moving, you start to think about all the things that will have to be moved. It can be frightening to find out what you have hidden in the shack and around the basement.

I haven't been in amateur radio long enough to collect a bunch of tube equipment, but that hasn't prevented me from collecting all the same. Some of the things I've come across can be a source of embarrassment, such as the anemometer club project or the QRP rig kit from QST that I bought at the first club flea market I went to about nine years ago. In case you couldn't guess, they aren't started yet. There are still a bunch of RS-232 cables that I bought from Dave VE3KMV at a flea market, but I did manage to sell some of them back to him two years later. I might still make use of that active CW filter I bought at an RSO convention or those 70cm antennas or that Ringo Ranger. Gee, you say, you could use those things. The problem is that I THINK I might use them, so I don't want to give them up.

Perhaps my biggest "storage" problem is books and magazines. I'm sure that you have noticed that as soon as you join an organization they insist on sending you a bulletin or magazine. They all have to be "stored" of course, because I might use them some year (decade). Just to be sure that I don't miss a chance to increase the "value" of my hoard, I sometimes buy them in bulk at flea markets. In a losing battle I remove the advertising pages from the back of QST to cut back on the space required, but it only helps for a while. There are also club bulletins to store and then all those photocopied articles from the magazines and bulletins that I can't afford to get. I might use them some year too. If I ever get the time I could put a catalog of the whole mess on my computer and then I might be able to find an article if I needed it. In the meantime I'll just continue to store things and continue to hunt for boxes to put it all in for the move.

Pat Brewer, VE3KJQ



"I stopped believing in Santa Claus when I was six. Mother took me to see him in a department store and he asked for my autograph."
-Shirley Temple

"I never vote for anyone. I always vote against."
-W. C. Fields

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Codes and Standards?

By Bob Campbell, VE3KLK

One of the many problems inherent in providing emergency support communications cropped up recently at an exercise in Ottawa, which simulated an extensive fire at a lodge for senior citizens, many of them partially handicapped. The problem highlighted the great, and often unfortunate, influence television dramas have on the thinking of many people. It came to light during the post-exercise critique.

The scenario for the exercise presupposed an electrical fire in a tunnel connecting two buildings of the complex. Dense and acrid smoke invaded the upper floors of the buildings and staff immediately notified Fire and Police services. Also, since evacuation of the buildings could be an obvious necessity, the staff, in accordance with a set plan, notified the local transportation company that busses were needed to move ambulatory patients. In the course of events, the Ottawa/Carleton Emergency Amateur Radio Group also responded to the callout.

Response from all agencies was rapid, except for the Bus Company, where initially there was some confusion. To be fair, their response was rapid after the problem, which was not of their making, was cleared.

Responsibility for reaction to an emergency was assigned to senior nursing staff at night, and during daytime hours, to the building Superintendent. The exercise took place during the day.

So - what was the problem?

When the alarm was sounded, Lodge Staff immediately reported to predesignated stations and awaited further instruction. The main switchboard called Fire, Police and Ambulance in that order, reporting (in accordance with a printed text) that there was an emergency at the Lodge. All the concerned agencies had been alerted that the exercise would take place, and responded quickly with token quantities of equipment. Police arrived and controlled traffic in, and around, the area. Two pieces of Fire Equipment, with Firefighters impressively dressed in smoke masks and breathing apparatus and under the command of a Station Captain, deployed at either end of the tunnel, to combat the fire. Three ambulances arrived and evacuated designated bed patients to a nearby school. EMARG Radio Operators accompanied Senior Lodge Staff and the Region's Emergency Coordinator, at the same time, opened stations at each of the schools being used as evacuation centers.

When the first alarm sounded, the Building Superintendent, who was near the switchboard, used a spare telephone and called the Bus Company, reporting that he was calling from the Lodge and that they had a "CODE 777". Having done this he disconnected and rushed off to his appointed station, to assist in the evacuation of the building. The switchboard operator assumed that, since the superintendent had made that call, buses were on the way. Unfortunately, they were not. The operator on the bus company switchboard had no idea what "CODE 777" signified and dismissed the matter as just another nuisance call.

When the expected bus, or buses, did not arrive in reasonable time. a second call was made. This time, in response to a radio call, a nearby bus pulled to the curb, discharged all its paying passengers with transfers, and rushed directly to the lodge, arriving in four minutes. From there, the exercise proceded quite smoothly and predesignated Senior Citizens were treated to a bus ride to a nearby evacuation point.

During the critique, which followed the exercise, the Building Superintendent was most critical of the delay in the arrival of the bus, and the fact that two calls had to be made before there was any response. He believed that his "CODE 777" report should have resulted in the rapid appearance of a bus at the front door.

The representative of the bus company protested that his people attached no meaning to "CODE 777" but would have responded immediately to a plain language report of the situation. He pointed out also that the superintendent had disconnected so quickly, that the operator had no time to ask what he meant.

The Fire Chief also disavowed any knowledge of "CODE 777", and strongly supported the suggestion that plain language would have been more than adequate. Subsequent discussions with the Ottawa Fire Department also confirmed that, although they do have a limited code, they only use it in certain specific cases where they wish to keep the media of their backs. Otherwise, they use plain language.

The superintendent protested that the use of codes was designed to speed up the passing of information and ensure accuracy. In this case, obviously it did neither.

So - what have we learned? (excluding of course, the "code-happy" building superintendent, who protested vociferously to the end, and left the meeting entirely unconvinced).

Well, not only was "CODE 777" a mystery to the bus company and the Fire and Police Departments, but, we have been unable to track it down any place, even in the wierd world of the "Good Buddy" groups. So we can dismiss that one.

On a more serious note however, given that some professional codes contain hidden information, it is obvious that improper use could create serious misunderstandings. For instance, some Police codes embody a sequential factor which depends on the order of transmission. So, don't use someone elses code unless you are a recognized and properly trained and authorized member of that organization. After all, what is wrong with stating clearly and concisely in plain language, the information you wish to convey. Remember, that the building superintendent and his ilk, will be with us always. Don't join him in believing that everything seen on TV is reality.

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AMATEUR RADIO STATION VE3JW

Amateur Radio Station VE3JW was officially opened at 7:30 pm, Tuesday, March 19, 1974. The call letters VE3JW presently used at the National Museum of Science and Technology amateur radio station, were originally used by Jim W. Cotter, a "white caner".

In early childhood, Jim Cotter lost his sight when a box of dynamite caps exploded in his hands. He went to the school for the blind at Brantford and upon completion, returned to Ottawa, his home town, where he acquired the radio "bug". He was able to assemble his own apparatus from hook-ups read to him by the various Ottawa amateurs. Before World Was II he owned and operated a radio repair shop, then during World War II he worked as a machinist at Hughes-Owens, Ottawa. In the early days, there was no test equipment available for the blind, so Jim tested voltages with his fingers and was reputed to be able to judge (A.C. or D.C.) with great accuracy in accordance with the intensity of the shock! (Press release - 1974 - by the National Museum of Science and Technology, number 74302.)

Station VE3JW is dedicated to the late Jim W. Cotter and to the many Amateur Radio operators who pioneered present-day radio communication. Jim was initially on the air using call letters 3EN, and when VE letters were allocated to Canadian amateurs, he requested and received the call letters VE3JW, his initials. Jim W. Cotter became a silent key on December 28, 1969 at the age of 67.

During the opening ceremonies of Amateur Radio Station VE3JW, Jim Cotter's family was well represented. Unfortunately Mrs. Cotter, Jim's widow could not be present because of illness. Members of the two local radio amateur clubs, representatives from the National Museum of Science and Technology, and a representative of Heathkit Canada participated in preliminary opening cermonies.

Amateur Radio Station VE3JW is located at the National Museum of Science and Technology on St. Laurent Blvd. in Ottawa and is sponsored by the Ottawa Valley Mobile Radio Club Incorporated. The antenna system and the radio equipment supplied by Heathkit Canada in kit form were initially assembled by members of both the Ottawa Valley Mobile Radio Club and the Ottawa Amateur Radio Club. The station was relocated within the museum and rebuilt to its present state in 1984.

Volunteers of both clubs man the station during scheduled weekend hours of operation. The object of the station and its volunteer operators is to demonstrate to the general public modern communications technology and to answer questions on the many aspects of the hobby.

(The author wishes to express thanks and appreciation to Mr. Ernie A. DeCoste, Senior Curator, Communication and Space of the Museum of Science and Technology, Ottawa, Ontario, and Ed Morgan, VE3GX for supplying the above information and background history on Amateur Radio Station VE3JW)

Alexei Melkinov, Soviet Radio & TV, films VE3LNH in contact with UA3CR. VE3JW was seen accross USSR!

A brief update on some low-level diplomatic contacts with our Soviet friends:

During the Canada/Soviet Ski-trek expedition of last spring several Canadian hams travelled to the Soviet Union to aid with the expedition's communications; similarly, towards the end of the expedition several Soviet hams were here in Ottawa. If you couldn't get through to 4K0DX on the North Pole back in April, you may have had a chance to work UA3CR/VE3 on 147.15/75 in June.

The contacts are continuing. Sasha (one of the base operators for the expedition) and Dmitry (the expedition leader) were in Ottawa last month especially to catch the fall flea market. It seems that Z-80 chips are hard to find in the GUM department store. Afterwards, Sasha & Dmitry joined Editor Bob & me for a Canadian meal followed by some Russian tea & Armenian Brandy. (My kind of cultural exchange!) It was a thoroughly enjoyable evening. I'll wager that Dmitry has read more Canadian authors than many Canadians have, and the evening's conversation ranged from Glasnost and Gorbachev to DX, Farley Mowat, Fords, and Philately.

When we first met, Sasha said that he had seen me before. Back in March the local Soviet TV reporter, Alexis Melnikov, had interviewed Leonid Lobutin on Sredniy Island from our very own VE3JW. Leo Desjardins, Don Reavely, and Bob Baillargeon helped while I operated, and it seems that our picture appeared on Soviet News from the Crimea to Kamchatka. *-VE3LNH*

Dec. 1988

The World of Shortwave Broadcasting

The Amateur radio shortwave bands offer amateurs around the world countless hours of DXing and ragchewing pleasure. Countries from around the world can be heard with amateurs from all walks of life communicating with one another in a variety of modes. The thrill of being able to talk to different parts of the world is as strong now as it was in the early days of radio. However, the amateur bands themselves are not the only places in the HF spectrum where interesting DX is to be had. An equally exciting world exists on the shortwave broadcast bands which offer fascinating listening.

While studying for my ham license in my junior high school days, I received a Realistic DX-150B general coverage shortwave receiver for my birthday. It was the first piece of HF gear I had ever owned and despite the fact it had a frequency resolution on the main dial of one megahertz, I was quite excited.

At first, I looked upon the receiver as a prime source of code practice, so I spent a lot of time on the ham bands copying W1AW code practice runs and on the air QSO's. By the way, if you are studying for your ticket see if you can buy or borrow a receiver that has a cw mode and use it for code practice. I found this method the most effective in developing my CW skills. If you can copy CW at 10wpm solid through heavy QRM and static crashes, any DOC test will be a piece of cake! AS i began to get a feel for my receiver it wasn't long before I flipped the mode switch to AM and began finding out what else occupied the shortwave band - mainly international broadcast stations.

Like the amateur service, international broadcasters are allocated frequency bands for their exclusive use. The more populated bands are 49 meters (5950-6200 kHz), 41 meters (7100-7500 kHz), 31 meters (9500-9900 kHz), 25 meters (11700-12050 kHz), 19 meters (15100-15450 kHz) and 16 meters (17700-17900 kHz).

Most broadcasters adhere to these band limits. Some transmit slightly outside the band edges. The most well known to amateurs is Radio Tirana, Albania which hangs out on 7065 kHz.

Many countries have extensive english language programming beamed to North America every evening. Most of these are European countries such as the BBC, The Voice of Germany, Spanish Foreign Radio, Radio Moscow and many others. Many non-European nations such as HCJB in Ecuador, Radio Japan and Israel Radio have extensive english programming as well. Some countries have only an hour of english broadcasting a day and not always in the evenings.

Many countries do not offer english service or any extensive international shortwave service. Many Latin American and African countries transmit domestic programs to remote regions on the "tropical" bands - those above 49 meters. These may travel many miles beyond the country's borders.

Shortwave listening is a great way of increasing your knowledge of what is going on in other countries and the culture of their land. Many countries report in depth news about themselves and offer special programs about different aspects of their country. Mailbag programs, where listeners write in with questions about the country, which are read and answered on the air are very popular. A few months ago, I listened to a BBC program where Prime Minister Margaret Thatcher was answering questions from Russian listeners who phoned the BBC studios. She was asked a variety of questions such as who does the cooking at Number 10 Downing Street.

Listening in on countries that are in or near political hot spots offer greater news coverage of the events than our own news services. During the coup in Fiji last year, Radio Australia had extensive coverage of the events. They reported events from Fiji itself to the rest of the South Pacific. In the past I've listened in on Israeli, British and Australian national elections live, complete with interviews and up to the minute election results.

Shortwave listeners are just as much DXers as their ham radio cousins. Many broadcasters run weekly DX programs with information on propagation trends, station profiles, antenna hints etc.

With many ham rigs having general coverage receive capabilities it is easy to get into the SWL game. So next time you've worked a new one on the ham bands, take a listen on the broadcast bands to find another dimension of DX.

"A fanatic is one who can't change his mind and won't change the subject".

-Winston Churchill

Radio Navigation Systems

Probably the simplest radio navigation system in common use is the Radio Direction Finding, or RDF, system, which allows determination of position based on compass bearings to two or more transmitters. The system's main advantages are the simplicity of the equipment used, wide range of application, and low cost. It has, of course, a few drawbacks: less accuracy than that offered by more sophisticated systems, and the requirement of a bit more operator skill.

The operation of RDF receiving equipment is based on two principles familiar to any ham using a beam: that certain antennas have directional properties, and that the station you want is always in the null!

Commercially available receivers combine a small directional antenna, typically based on a ferrite rod, with a compass. This allows the operator to find the null point for any received signal - nulls are used as they are more sharply defined than peaks - while observing the compass. The compass is fixed to the antenna and oriented to allow the bearing to the transmitting station to be read directly. With bearings on multiple stations, the navigator can determine his position using the same techniques he would use for compass bearings on visual landmarks.

The stations which may be used for RDF are limited only by the receiver's capabilities; commercial AM radio stations are commonly used for backup bearings or in areas where other stations are not reliable. In regions of heavy vessel traffic, chains of transmitters dedicated to radio navigation provide reliable and easily recognizable bearings. These stations are designed to have a range of up to 300 km, and transmit morse letters to allow easy identification. Virtually all navigable areas of Canada are within range of these stations, operating in the frequency band from 285 to 325 kHz.

There are a few potential sources of error in the use of RDF. Operation at sunrise and sundown is considered unreliable due to skip effects, and some deviation may be caused by nearby land, or by metallic objects on the boat itself. Error from distant stations may become significant if navigational plotting is done on a Mercator chart, as radio paths will not plot as straight lines. Most directional antennas have two null points 180 degrees apart, and the operator must use his estimated position to determine which is the correct bearing. If you're so far off course that this causes a problem you're in big enough trouble that I won't be able to help you much from here.

Although it requires a bit of operator experience and respect for its limitations, RDF provides navigational capabilities essential for emergency use on any boat voyaging offshore, and is still the primary system on many small vessels.

Brains or Volts

by "S.S.B."

The American amateurs is first in everything, particularly in blowing out tubes.

The Australians have proved it unnecessary to put Lord-knows-what on the plates. Americans should follow their example and develop more efficient transmitters and fuller pocketbooks.

If overloading were justifiable or necessary it would not be my place to squawk, but it is futile and foolish. No amount of overloading will improve a sloppy station but the tubes will all go to the land of eternal darkness.

My idea of a fourth-rate ham is one that runs a third-rate station with a second-rate instinct and with no brains at all. This individual usually throws together a thing he calls an antenna, insulates it with anything at hand, lets it hang anyway, guys it too liberally, and pays no attention to soldering any portion of it.

This slothful soul allows a transmitter to collect itself. It is composed of a rotten condenser, a still rottener inductance, dubious sockets, fishy rheostats and doubtful accessories.

He connects the mess to his so-called antenna and makes up for all the follies, faults and shortcomings by overloading the tubes. The tubes try to do their duty but sooner of later they give up the ghost. Then the nincompoop goes around wailing about his hard luck and gets much sympathy, whereas he needs a spanking and a guardian.

If he does get away with it he tells everybody how he is getting 6 3/4 amperes out of a little 8-watt tube. He is also getting ready to buy another tube but he does not know this.

Must we after these years of progress go back to the habits of the barbarous spark days when the fellow with the biggest transformer got the farthest? Can't we, by the use of a little intelligence and thought, develop transmitters that will give more miles per watt? Must we continue on the road to self-destruction?

-Courtesy QST, January, 1925.

Current Notes on Working U2MIR

Musa, U2MIR, continues to make contacts, having been worked by several stations during Orbits 15826 and 15827. Following up on recent comments from N4HY and K1KSY, here are some more operating "hints and kinks":

1. While Musa's early QSO's were on 145.550 simplex, lately he has begun to vary the procedure. One station reported calling him on 145.525 and having Musa come back on the caller's frequency, an operating tactic which has come to be known on the HF bands as "Russian roulette" (no pun intended). This morning, AF1U reported working Musa split-frequency, with U2MIR on 145.550 and AF1U on 145.575.

2. I hope that Musa continues to work split-frequency, because downlink QRM on 145.550 is getting to be a problem. If you do observe Musa working simplex, please keep your calls short! No more than a "1x2" call, e.g., "U2MIR from W2RS W2RS" ought to be sufficient, with frequent listening pauses between calls. I've heard stations making calls as long as "3x3" on simplex; not only are those less likely to be effective in the pile-up, but they may also prevent Musa from being heard in the vicinity of the calling station.

3. At the AMSAT-NA meeting in Atlanta, UA3CR said that Musa's FT-290 transceiver is programmed to operate between 145.50 and 145.60 MHz. Although his primary frequency will be 145.55, he literally could tune and pop up anywhere in that range.

4. If Musa ever did "go begging" after calling CQ, those days are gone forever, at least over populated areas of North America. I've listened to several of the tapes which W0ORE made from Challenger, and from those we know what an FM pile-up sounds like...silence! A large number of stations on one frequency, with none strong enough to induce capture, results in no intelligence at all getting through. That probably accounts for Musa's long periods of silence during orbits in which he is known to be on. He's listening, but hasn't heard anything through the "silent pile-up." To break through yourself, you either need good luck in calling during a "hole" in the QRM, or to make a "hole" yourself with a high-gain antenna aimed at the spacecraft. No simple omnidirectional antenna in the world will beat a good beam for working a manned spacecraft on FM, as experience with W0ORE and W5LFL clearly demonstrated.

5. To use a high-gain antenna successfully, you need current Keplerian elements. Because Mir's orbit is constantly changing, be sure you have the latest set of keps in your computer at all times.

6. As noted by K1KSY, please do not call Musa while he is in QSO with another station; that just slows things down for everyone.

7. My suggestion for phonetics is to stick to the standard ICAO alphabet, e.g., "whisky two romeo sierra". As a cosmonaut, Musa obviously has a good background in aviation and has proven to be familiar with these phonetics. This will avoid any possible problems with unfamiliar English words, or confusion over Roman-vs.-Cyrillic letters.

8. All contacts of which I am aware were made between 2 a.m. and 9 a.m., Eastern time, with the emphasis on the early part of that range. However, be aware that Musa's available time slot may change; he could pop up any time Mir is within range. Please, therefore, encourage users in your area to keep 145.55 clear if possible.

Good luck to all, and 73, from Ray, W2RS

Subject: Mir Tips from J. Biro

U2MIR does not speak fluent English but he is doing a very good job, but you can help. Do not use fancy phonetics, use simple ones, maybe that of famous Russian names. For example he was having trouble with my 'K' prefix, but when said 'K' as in 'Komarov' he understood. You may want to learn enough Russian to say you call sign in Russian and a typical greetings, if you do be prepared for a Russian answer.

U2MIR this is K1KSY
U dvah MIR et-tah K ah-deen K S oo then in English K1KSY
note: there is no S in the Russian Letters so I may bet back my qsl card to K1KCY, I hope not...

typical greetings:
good morning = do-brah-yeh oo-tra
good day/afternoon = doh-brih dyen
good evening = doh-bri vyeh-cher

A book I have found to be helpful is "RUSSIAN in 10 Minutes A Day" - Cliffs Notes Bilingual Books
Wait until he calls CQ this is U 2 MIR before calling, he will not work the next station until he has finished the one he is working and calling before will just make the qso take longer and lower your chance of making a QSO with MIR.