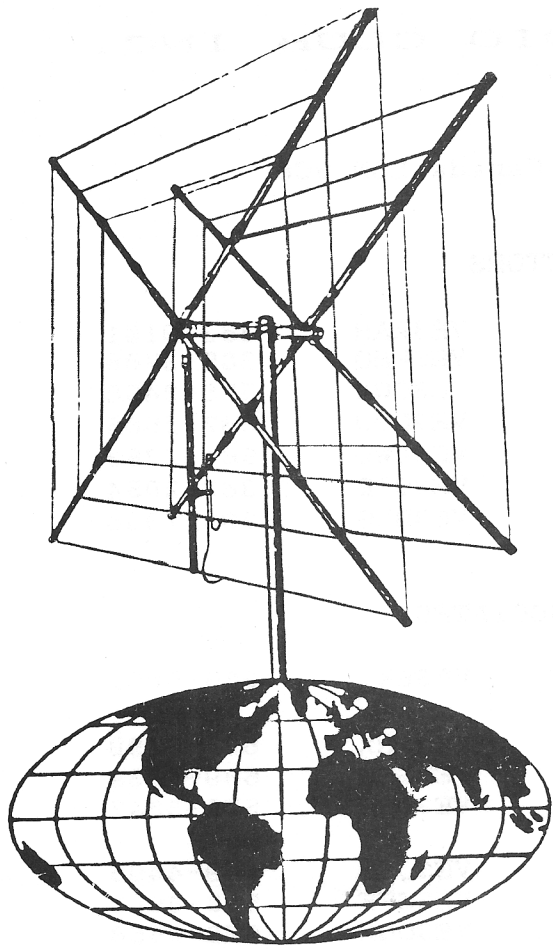


Nov. 187



THE HAMILTON AMATEUR

HAMILTON AMATEUR RADIO CLUB INC.
P.O. BOX 253
HAMILTON, ONTARIO
L8N 3C8

HAMILTON AMATEUR RADIO CLUB INC.

Established 1932

P.O. Box 253, Hamilton, Ontario, Canada L8N 3C8.

1987 OFFICERS & DIRECTORS

PRESIDENT	:	Gordon Barber	VE3AAH	383-9161
PAST PRESIDENT	:	Glenn Gibson	VE3FHQ	385-2786
1st VICE-PRESIDENT	:	Everett Englert	VE3OQX	578-2458
2nd VICE-PRESIDENT	:	Peter Goodson	VE3DOU	387-2585
SECRETARY	:	Wayne Staat	VE3LWD	561-2253
TREASURER	:	Bob Wilson	VE3CIB	383-2054
MEMBERSHIP	:	George Olenick	VE3BLG	383-7338

COMMITTEE CHAIRMEN & ASSOCIATES

AWARDS & CONTESTS	:	Norman Smith	VE3BK	385-5661
CLUB HISTORIAN	:			
CLUB PROPERTY	:	Bill McCaslin	VE3ARX	634-5190
EDITOR	:	Jim Walsh	VE3SON	689-6839
EDITOR'S ASSISTANT	:	Gordon E Murray	VE3JSJ	575-3647
EDUCATION	:			
EMERGENCY SERVICES	:	Jack Heywood	VE3JTR	689-4406
HEALTH & WELFARE	:	Stan Bolibruch	VE3GFE	528-4002
PROGRAMS	:	Everett Englert	VE3OQX	578-2458
PUBLIC SERVICE	:	Fiore Manga	VE3OQG	560-6329
PUBLICITY	:			
REFRESHMENTS	:	John Faber	VE3CNF	692-3805
REPEATER	:	Glenn Simpson	VE3DSP	385-8478
SWAP NET CONTROL	:	Ralph Tufts	VE3BYM	388-6146
TECHNICAL	:	Mark Gibson	VE3MWH	389-4308
TECHNICAL	:	Paul Fleck	VE3HTF	383-1101
VE3DC LICENCEE	:	Glenn Gibson	VE3FHQ	385-2786
VE3NCF LICENCEE	:	Glenn Simpson	VE3DSP	385-8478
VE3RCB LICENCEE	:	John Kassay	VE3FDK	385-0422

The Hamilton Amateur Radio Club meets at 8:00 pm on the 3rd Wednesday of each month except July & August. The location is the Nash Auditorium, in the Chedoke Hospital grounds, Hamilton. Non-members & friends are welcome.

Membership fees are \$20.00 per annum with a common renewal date of January 1st. Included is a subscription to the club bulletin. Family memberships are available at \$1.00 for each additional person.

VE3NCF Repeater is owned and operated by the Hamilton Amateur Radio Club. It is located on the Hamilton escarpment and is available for use by any amateur within range. Input is 146.160 MHz, Output is 146.760 MHz.

The swap net is held on VE3NCF every Tuesday at 8.00 pm except during July & August.

November 1987 Meeting

THE HAMILTON AMATEUR RADIO CLUB

Date: November 18, 1987

Time: 8 O'Clock P.M.

Place: Nash Auditorium, Chedoke Hospital

Topic: Business meeting, election of 1988 executive
Home Brew Contest and awarding of the Crawford Trophy

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Advance Notice. Keep Saturday Evening December 12 open.
Our Christmas party will be a family night at the Eastmount
Community Centre, E26th Street between Crocket and Queensdale.

We will have the same magnificent band that we had last year as
well as some innovative surprises to make it interesting to all
members of the family. If you have an act (suitable for family
entertainment) bring your ideas to the November meeting.
Most important, tell your YL or XYL as the case may be that dress is
semi casual - she doesnt need a new outfit.

////////////////////

Nominating Committe Report

At the October 28 HARC Executive meeting Glenn VE3FHQ was appointed
Chairman of the Nominating Committee assisted by Bob VE3CIB and
Fred VE3GCP.

The Committee reports that the following have agreed to accept
nomination and to serve if elected.

VE3HTC Dave Ryoma, VE3JSJ Gord Murray, VE3NYC Paul Hazen,
VE3SMF Stuart Pedak, VE3SON Jim Walsh, VE3LWD Wayne Staat.

Further nominations may be made at the meeting when nominations are
called for.

A person, in order to be Qualified for nomination shall be a full
member in good standing, and must accept nomination by assent at
the meeting or by letter of assent if not present at the meeting.
Members may vote at the meeting or by written proxy.

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Although final figures are not available, the Flea Market was a
financial success. Some improvements are being investigated for
next year, especially to reduce crowding in the aisles.

The OPP support group had a very successful test of the antenna and
coax contributed by Barry Garrett, VE3CDX and installed by him and
Bob Barker, VE3OIP on the OPP building in Burlington. Interest in
this activity is increasing, there now are 43 amateurs in the group.



THE SWAP SHOP



Oct-Nov

SWAP NET CONTROL: RALPH TUFTS VE3BYM
TUESDAYS AT 8:00 PM LOCAL TIME (EXCEPT JULY & AUGUST)
ON VE3NCF 146.160/146.760 MHZ

VE3GFE-	Stan 528-4002 Hamilton. Multi 7- 2meter xcvr. 6 chns. xtailed.-	80.00
VE3LGT-	Less 547-2717 " Iaesu 727R. c/w op. manual.	425.00
VE3NYG	Paul 644-5247 Stoney Creek. R.S. Pro 30 scanner, c/w nicads.	200.00
SWL-	Jack 1-519-443-8802 Waterford. Bearcat 175AL scanner	265.00
	AEA CPI & software for comrde.64 for c/w rtty/.	265.00
VE3OIG-	Tom 1-416-227-1522. St. Catharines.	
	Kenwood TS700A almode, 10W, builtin p/s, pre amp. kit, man.	350.00
VE3OQM-	Bob 389-0631 Hamilton. HW101 c/w p/s spkr. & Manual.	300.00
	5 in number 8ft. sect. Delhi tower, top wid bearing, hardware.	250.00
VE3CZI-	Norm 335-8962 Burl. Drake (C)line R4C, T4CX, allbands, spkr, p/s.	750.00
	Contact 80 rtty, cw, interface for TRS80 Model 3 computer.	175.00
	DT600 rtty decoder board complete keying AFAK, mans.	125.00
	2- Dow keying coax relays 115 volts.	each 20.00
VE3FWX-	John Mississauga. 1-416-820-2508.	
	Squires/Sanders SSRI Rcvr. c/w spkr. & Manual.	325.00
	Panasonic RF600 Gen. coverage, digital readout.	525.00
VE3CIB-	Bob 383-2054 Hamilton. Comm. computer. \$50.00. Airforce rcvr.	10.00
VE3RNR-	Dave 689-6671. Waterdown. S.W. rcvr. Trio 64RX, 55kc. to 30 mc.	125.00
	40' Tower, miniquad & rotorwid RS control box.	300.00
VE3LVO-	Ferg 634-4156. Burlington. KPC-2 Complete neg.	
VE3NXP-	Allen 1-519-745-2447 Kitchener.	
	Iaesu 757GX mint condx., c/w H.D. P/s almode, 2 mikes & mans.	1500.00
	Lunar 2 mtr. preamp. 15 db gain \$60.00. Amsat sat. software	50.00
	Low Pass Filter .	20.00
VE3EKY-	Bernie 527-7175 Hamilton. Ruffin Fan 5" square.	20.00
VE3MDF-	Janet 523-0385 Hamilton. Beckman DM25 digital multimeter.	neg. 90.00
VE3NKKZ-	Ted 846-4915 Brampton, UGAIN 2 m. 14 EL beam #214LJ.	85.00
VE3CTH-	(Estate) of Gerrard. Adolph. Call 383-0629, ask for Mrs. Adolph	
	homebuilt 32' self support tower, hinged so it can be lowered,	
	plus a Swan 4 m. 10-15-20 beam, UDE Ham 1V rotor.	575.00

W A N T S

- VE3LON- Ron 500-2103 Stoney Creek. Disk drive for apple 2.
- VE3PNG- Gary 389-7687 Hamilton. Emerson Wireless set Mark 1. (1944) field radio.
- VE3TQ - Jim 385-8245 Hamilton. Flexible coupling for TS830 5/8" od. 1/4" shaft
- VE3NYZ- Frank 562-7578. Hamilton. RV75 remote vfo.

73 de VE3BYM



HAMILTON AMATEUR RADIO CLUB INC.



P.O. BOX 253
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THE CRAWFORD TROPHY

The Crawford "home brew" Trophy is awarded annually for the best home made device for use in the amateur radio shack.

The name "home brew" portrays the idea that the device was constructed in the home workshop, thereby requiring skill and patience in producing a product of quality. It also suggests that the device was made at home during his leisure hours, in contrast to his place of employment.

A. Purpose

To encourage Radio Amateurs to build their own equipment. The prime purpose for making a device would be for improved amateur radio communications, and/or for testing amateur radio equipment.

B. Rules

1. The device submitted shall have been completed in the 12 months prior to the contest.
2. Although a limited number of operations in the fabrication of the device may be processed outside the home workshop, the majority of the work shall have been done in the contestants own workshop, or that of a friend, during his leisure hours.
3. A contestant cannot act as a judge for this contest.
4. Each contestant is to be given an opportunity to explain operation and purpose of the device, and any other details he may deem helpful about the construction.

What is Stanley up to now?

See over for more on his secret life.



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5 Thorpe Street, Dundas, Ont.
L9H1K2 Phone 416-628-0822

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3 element 2 meter beam \$25.00	5 element 6 meter beam
5 element 2 meter beam \$32.00	with 300 ohm feed \$55.00
10 element 2 meter beam \$65.00	with 75 ohm feed \$69.00
300 ohm feed	wide space available upon request
Gamma match extra	

Towers, crank up, self supporting, middle section I6 gauge,
10 foot section, 2½ inch step \$40.00
Top section CDR plate welded, thrust bearing plate welded \$69.00

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Call Ray, Jim VE3FBU or Martin VE3HYL at 416-628-0822.



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Hamilton, Ontario L8K 5W4



- 1: To help publicize the Commonwealth Heads of Government Conference, to be held in Vancouver, British Columbia, this week, DOC will permit Canadian amateurs to use the following special prefixes during October 13-17: CY1 and CY2 in Newfoundland and Labrador, CZ1 in the Yukon, and CH1 through to CH8 in the remainder of Canada.
- 2: There may be a difficult RF susceptibility case developing in Winnipeg, Manitoba, a case which, in many ways, resembles the Jack Ravenscroft case. As with Jack, Robert Kauffman, VE4GV, found that his troubles began when he erected an antenna tower. DOC checked out Robert's station and, essentially, found his signals "clean". One of Robert's neighbours, experiencing an RF susceptibility problem, is refusing to make modifications to his equipment, modifications that could eliminate the problem. One difference between this case and the Ravenscroft case: the susceptibility problem is a television set used for "broadcast reception", and not is a non-radio device. Thus, DOC has a clear jurisdiction in this case. More later.
- 3: DOC has dismissed a number of requests from manufacturers and importers to amend the Radio Regulations to permit the use of low-power wireless video transmitting devices designed to operate in the VHF-UHF tele- vision bands. After testing the devices, DOC concluded that there was a potential for interference with the reception of television broadcasts, and for mutual interference among the devices themselves. Meanwhile, in the US, FCC issued a Notice of Proposed Rulemaking which, if implemented, would allow a low-power "general class of RF device" - including the video transmitting devices rejected by DOC - to operate on virtually any frequency a manufacturer chooses for them. This would include the amateur bands.
- 4: Get those beams ready. According to the W5YI Report, better DX days are coming. Apparently we are well into a new sunspot cycle, Cycle 22. Periods of extreme ultraviolet radiation, and a more closely packed ionosphere off which to "bounce" our radio signals, run in approximately 11-year cycles. Peak long-distance propagation is now predicted for 1989-1992. Even by the end of this year, you should notice a marked improvement in your ability to work DX

- 1: Nominations are now open for the office of Section Manager, Maritimes- Newfoundland Section. For complete details, see the "Canadian NewsFronts" column in October or November QST.
- 2: There has been very little progress in the appeal in the Jack Ravenscroft case. Jack, VE3SR, is the Ottawa-area amateur who was convicted of "interfering" with the operation of a furnace control and an electronic organ in a neighbour's home. There will be a hearing in the Ontario Court of Appeals on October 26. However, this hearing will only deal with the acceptability of certain evidence presented in the plaintiff's factum. There are a large number of criminal cases that must be heard this fall. Criminal cases have priority over civil cases. As a result, the appeal in Jack's case will not likely be heard until January or February of next year.
- 3: CRRL President, Tom Atkins, VE3CDM, recently represented Canadian Amateur Radio at Emergency Communications, a four-day symposium sponsored by Emergency Preparedness Canada and DOC. The symposium focused on "defining emergency communications requirements to support various phases of emergency management in an all-hazards context".
- 4: Six Canadian skiers, four of whom will be chosen to take part in the USSR-Canada Transpolar Skitrek expedition next February and March, have just returned from rigorous training in the Tien Shan Mountains of Soviet Central Asia. They, along with their Soviet colleagues, will resume training, this time in the Canadian Eastern Arctic in November. At that time, they will carry out initial communications tests between themselves and an Amateur Radio station established for that purpose. CRRL people coordinating communications will then be able to determine the final location of the main Canadian base station which will be operational throughout the Skitrek expedition.
- 5: According to Gateway, ARRL's packet radio newsletter, DXCC on packet radio is now possible. As of September 18, 101 DXCC countries were "packet- radio active".

- 1: Get ready for CRRL's November "QST" QSO Party. This is one of the two times each year when all CRRL stations using "QST" Callsign can be heard on the air at one time. Listen for up to eleven different "QST" stations, on CW on 14.000-14.050 MHz at 1500-2400 UTC,

November 7 and 8, and on USB phone on 14.100-14.200 MHz at 1500-2400 UTC, November 14 and 15. Work any eight "QST" stations to qualify for the CRRL Worked All "QST" Award. To receive the award, send a copy of your log and a self-addressed stamped envelope (one IRC in place of the stamp for amateurs outside of Canada) to CRRL Awards Manager Garry Hammond, VE3XN, 5 McLaren Avenue, Listowel, Ontario N4W 3K1. Item

2: Amateurs everywhere will be saddened to learn of the death of Takafumi Arai, JI3YKT, in a cycling accident outside of Portage la Prairie, Manitoba. Arai had completed a 70-day voyage in June, sailing his 7.3 metre fiberglass sailboat from Japan to the South Pacific and then on to Victoria, B.C. He had hoped to cycle across Canada, meeting fellow radio amateurs along the way.

3: DOC has released a new background paper entitled "Utilization of the Radio-Frequency Spectrum in the Range 30.01-890 MHz" for public comment. The paper is available from DOC Ottawa and DOC regional offices in Moncton, Montreal, Toronto, Winnipeg and Vancouver. CRRL is concerned that the paper appears to judge amateur activity on the 50, 144, 220 and 430-MHz bands on the basis of the number of amateur FM repeaters in these bands. This makes certain bands appear to be under used and could become a basis for concluding that amateurs neither use or need these bands. CRRL will be formulating a response that will correct any such impression.

4: CRRL will soon be moving into a new and larger headquarters office located in Arva, Ontario, on Ontario Highway 4 two miles north of London. Address for CRRL will remain the same: Box 7009, Station E, London, Ontario N5Y 4J9, we'd still like you to think of CRRL as being "in London". There will be a new phone number: After November 01, if 519-225-2188 doesn't work, try 519-660-1200.

Bulletin 32 CRRL, London, Ontario 1987 November 01

1: In a surprise move at the Mobile WARC being held in Geneva, Mexico requested the use of 430-440 MHz for their Land Mobile Service. The U.S. delegation was strongly opposed. The Mexican move, which has serious implications for the Amateur and Amateur Satellite service, received considerable attention at the IARU Region 2 Executive Committee meeting, held last week in Barbados and attended by CRRL President Tom Atkins, VE3CDM. More later.

2: There was a hearing in the Jack Ravenscroft appeal on October 28. However, the hearing did not deal with the merits of the decision against Jack, but with the appropriateness of certain evidence, a description of the plaintiff's offer to make an out-of-court settlement included in the plaintiff's factum. A written judgement is pending.

3: CRRL has been invited to take part in a November 25 meeting of CTAC, the Cable-Television Technical Advisory Committee, to discuss ramifications of the released standards in the latest issue of BP-23 (Broadcast Procedures 23), the DOC document which outlines the maximum amount of RF energy a cable television system is allowed to radiate. CRRL is concerned that the relaxed standards will have an adverse effect on Amateur Radio communications, particularly in the 2-metre band. Other users of the VHF spectrum, including the RCMP, will be taking part.

4: A reminder: Plan to take part in CRRL's November "QST" QSO Party, one of the two times each year when all CRRL stations using "QST" callsigns can be found on the air at one time. Listen for up to eleven different "QST" stations, on USB phone on 14.100-14.200 MHz at 1500-2400 UTC, November 7 and 8, and on CW on 14.000-14.050 MHz at 1500-2400 UTC, November 14 and 15. (Note: Phone and CW weekends were inadvertently switched in CRRL Bulletin 31. This is the correct information.) Work any eight "QST" stations to qualify for the CRRL Worked All "QST" Award. To receive this award, send a copy of your log and a self-addressed stamped envelope (one IRC in place of a stamp for amateurs outside of Canada) to: CRRL Awards Manager Garry Hammond, VE3XN, 5 McLaren Avenue, Listowel, Ontario N4W 3K1.

CRRL Bulletin 33, London, Ontario 1987 November 08

1: According to Amateur Satellite Report, the recent successful launch of the European Space Agency's Ariane 3 rocket means that AMSAT's new Phase 3C satellite could be up and running as early as spring of next year.

2: The ARRL Board of Directors has adopted a number of recommendations made by the ARRL Ad Hoc Committee on Amateur Digital Communications: 1) RTTY subbands should be used for general packet radio communications. 2) The following frequencies outside of normal RTTY subbands will provide usable automatic message-forwarding channels: Intercontinental message forwarding: 3594.3, 7038.3, 10145.3 and 14102.3 (with

forwarding: 3607.3, 7091.3, and 10147.3 kHz. Intracontinental message forwarding: 14108.3 (with 14106.3 as backup) kHz. The 20-metre frequencies are considered experimental. Use of 30-metre frequencies is on a non-interference basis with fixed stations outside of North America.

- 3: Eric Kirchner, VE3CTP, has begun a campaign to reestablish VE3OSC, the Amateur Radio station at the Ontario Science Centre in Toronto. To help, contact Eric at 2 Adirondack Gate, Agincourt, Ontario M1T 2E7.
- 4: There are several new titles in the CRRL Bookshelf. Yagi Antenna Design by the late James Lawson, W2PV, and Transmission Line Transformers by Jerry Sevick, W2FMI, promise to be the definitive works on their respective subjects. W1FB's Antenna Notebook by Doug DeMaw, the former Senior Technical Editor of QST, is filled with ideas on wire antennas and describes many excellent configurations not published before. The ARRL Operating Manual - almost as thick as the recent ARRL Handbook - contains maps, charts, ideas and information for almost every Amateur Radio interest. And of course, the 1988 ARRL Handbook - all 1200 pages in a new hard cover - is bigger and better than ever. For ordering information, contact CRRL at Box 7009, Station E, London, Ontario/ NSY 4J9 or at its new telephone number: 519-660-1200.

Events to remember:

- Nov. 14 Newmarket Ontario Fleamarket
- Nov. 14-15 CRRL QST QSO Party - CW
- Nov. 21-23 ARRL Sweepstakes - phone
- Nov. 28-29 CQ WW DX Contest
- Dec. 01-31 Terrace Bay BC X07 Prefix
- Dec. 04-06 ARRL 160-metre Contest
- Dec. 12-13 ARRL 10-Metre Contest

The following are from the VE3KOI Packet Bulletin Board.

1. THE FOLLOWING CALLS ARE BEING BOOTLEGGED ON THE 2 METER FM SCENE AROUND TORONTO. VE3HBO (SHAWN) VE3EEF (AL) KA0BXX VE7GKU VE3NAO

2. Canada/USSR Reciprocal/Third Party: TRANSPOLAR SKI TREK USSR / CANADA

In order to facilitate radio communication with the expedition, the Federal Department of Communications has announced the signing of an amateur third party and reciprocal operating agreement between Canada and the USSR. This historic agreement becomes effective on November 1st 1987 and will be in existence until after the conclusion of

the expedition next year. The "Polar Bridge"..USSR / Canadian ski expedition will cross the North Pole from Severnaya Zemlya to Cape Columbia on Ellesmere Island beginning in February 1988.

Six Canadian skiers, from whom four will be finally chosen, have returned from a rigorous training period with the USSR team in the Tien Shan mountains of Soviet Central Asia. The next training exercise will take place in the Canadian Eastern Arctic in late November. The entire Canadian and USSR group will participate.

At that time the Canadian amateur radio system will maintain communications between skiers in the field and the main base radio station in the Canadian North. It will be in touch with the principal USSR amateur station near Moscow.

Following a most enthusiastic response from Canadian amateurs, well-known Canadian DX-er and contester Barry Garratt, VE3CDX has assembled an impressive team of Canadians who will be operating the main base station and other elements of the ski-trek amateur radio network.

This internationally important activity is a terrific opportunity to bring amateur radio before the world media and public as a demonstration of its potential. As the support of an important scientific expedition it is hailed by amateur radio societies around the world. The international Amateur Radio Union representing one hundred and twenty-five member countries has enthusiastically offered all its support and endorsement.

CONTACT : Al d'Eon, VE3AND 416 447-9360

Tom Atkins, VE3CDM 416 494-8721

Canadian Coordinators

For all of you with microwaves here is an interesting article on.....

HOW TO COOK A HAM.

RF Heating in the Ham Bands

By A. Peter Ruderman, Ph.D.,* VE1PZ

An amateur license is a license to transmit rf energy. When you key your transmitter you generate electromagnetic and electrostatic fields around your antenna; when you receive you are tapping the far weaker fields that started at the output of someone else's transmitter. We are immersed all the time in the very weak fields of all the transmitters in operation anywhere in the community: those of other hams, commercial stations, CBers, airport control towers, paging systems, microwave ovens and even 60-Hz power transmission lines.

Rf radiation is often referred to as non-ionizing radiation in order to distinguish it from the ionizing radiation that is associated with X-ray equipment and nuclear power plants. There are important differences: Ionizing radiation, for example, can have a cumulative effect. (This is why atomic plant employees and uranium miners have a lifetime total safe dose to worry about.)

Nonionizing radiation can hurt people when it causes a buildup of heat by agitating the molecules in some part of the body. An increase of 2 degrees C in the temperature of the testicles can cause temporary sterility. An increase of 10 degrees C in the temperature of the eye can cause cataracts to form. This damage is permanent. Greater increases in temperature can be fatal by literally cooking your insides.

Normally, the effect of rf exposure is not cumulative unless tissue damage occurs, since whatever heats up can cool down. The damage caused by rf radiation depends on the amount of power, distance of the individual from the power source,

amount of shielding and above all the frequency. The frequency determines how much heat will be generated in the body from a given amount of rf power. It takes only some simple commonsense precautions to protect hams from rf damage in most cases.

A Look at the Ham Bands

From 1.8-30 MHz most of the radiation passes right through you without any aftereffects. Only a small amount is converted to heat. If you consider that a 1 degree C rise in temperature is tolerable (i.e., like the low fever of a mild cold), you might have to spend an hour or more just three feet away from the feed point of an antenna radiating 500 watts of power at 8 MHz to achieve this effect.

At 144 MHz enough energy is absorbed to cause more rapid heating, and a body close to the energy source at moderate power over a prolonged period can suffer harm.

At 420 MHz about half of the rf energy is converted to heat in the body. This is probably a real danger point.

From 1000-3000 MHz the rf energy is almost completely absorbed in the body. Microwave ovens fall in this range.

At 10,000 MHz we are back to half the energy being absorbed. Still higher frequencies tend to be reflected instead of passing through, as at communication frequencies. The wavelength is such that the energy can just hit the nerve endings in the skin and provide nature's warning signal of feeling the heat.

Safety Standards

If you are operating in the 10-meter band with 1 kW of radiated power, and the operating position is 10 meters from the antenna, the power density on the operator would be about 0.8 mW/cm².

This looks safe enough, and in fact the radiation pattern from the vertical, dipole or beam, would be such that a ham 10 meters below the feed point would be receiving less than the theoretical radiation.

Unless there were serious leaks, poor shielding, lots of rf in the shack from radiating feed lines, unbypassed leads, etc., there does not seem to be much of a problem.

2 Meters and Up

At 144 MHz and higher, the picture is quite different. First of all, more of the rf energy is converted to heat in the body. Second, although power is generally lower, a mobile antenna on the car roof is very close to the operator. And a handie-talkie with a built-in microphone brings the operator within a couple of inches of the antenna.

If a mobile operator were transmitting with 10 watts of radiated power, and the antenna was on the left front fender, less than one meter from the driver's seat, you could easily get a power density of 10 mW/cm², which might be hazardous in the case of long uninterrupted transmissions. With a handie-talkie, a built-in microphone, and only one watt of radiated power, the density would be three or four times as great.

The safety precautions should be obvious. Avoid rf in the shack by using shielded or field-canceling feed lines. Use a roof-mounted antenna for mobile work in the vhf range, if possible. Avoid prolonged use of handie-talkies and use power in the milliwatt range whenever possible.

If you are sensible, and understand the frequency related nature of rf fields, you will not be at risk. I operate happily from 1.8-148 MHz myself.