



**JUNE/JULY/AUG 2019**

**Volume 8 Issue 6**

# VE3ERC-LUB



**Lighthouse Weekend  
August 17-18**

- President: Brian VA3DXK**
- Vice-President: Ted VE3TRQ**
- Secretary: Tom VE3DXQ**
- Treasurer: Paul VA3PDC**
- Trustee: John VE3JXX**
- QSL Manager: Tom VE3DXQ**
- Repeater Trustee: Wes VE3ML**
- Website Admin: Ted VE3TRQ**
- Lighthouse: Al VA3TET**
- Maple Syrup Display: Al VA3TET**
- Newsletter: Bob VE3IXX**

## ERC REPEATERS

- UHF 444.700 TONE: 131.8**
- UHF 444.700 TONE: 123.0**
- VHF 147.390 + TONE: 123.0**
- EMERGENCY SIMPLEX: 147.51**
- UHF- IRLP node 2404**
- VHF- IRLP node 2403, ECHOLINK node  
VE3ERC-R**

**In an emergency, tune  
Into our repeaters,  
UHF 444.700 or  
VHF 147.390 or  
HF 3.755 LSB or  
Simplex 147.510  
For coordination and  
assignments.**



**Radio Amateurs  
of Canada**

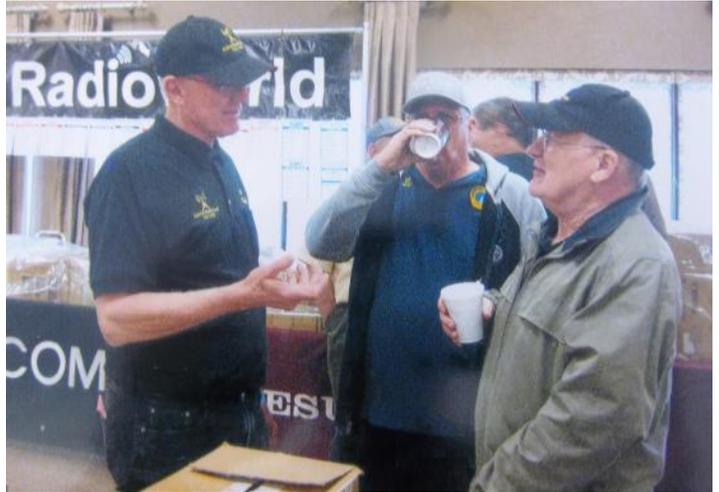
# CLUB ACTIVITY REPORTS

BY Reg Horney VE3RVH

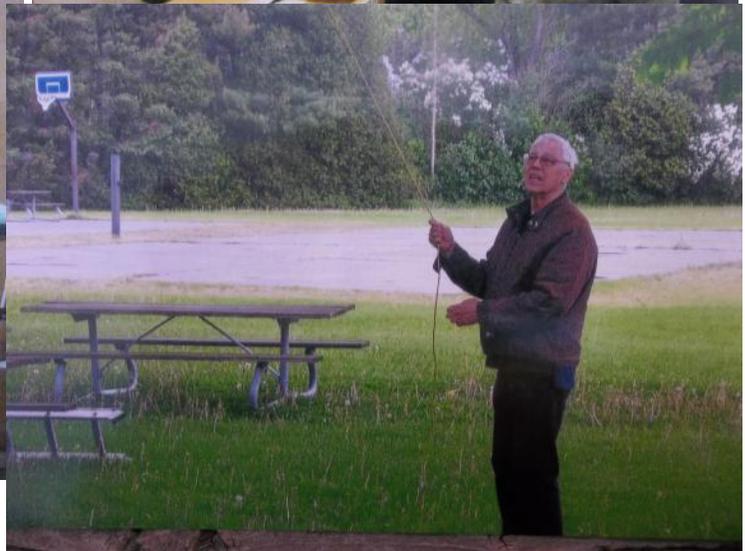
The annual Central Ontario Hamfest was held Sunday, June 2, sponsored by the Guelph Amateur Radio Club and the Kitchener-Waterloo Amateur Radio Club. The location of the event was at the Waterloo Regional Police Association near the Roseville area.

The registrar was Nick VA3NN and coordinator was Wes VE3ML. The indoor vendors arrived at 7 am, the tailgaters at 8 am and the doors were opened to the public at 9 am. The flea market lasted until 12 noon.

Tom VE3DXQ, Jim VE3JMU, Reg VE3RVH and Al VA3TET arrived early to set up the club



G5RV antenna and Al ran ONTARS for an hour.



There was a good crowd of vendors as well as attendees looking for bargains. Sales were very good for our club's VE3ERC tables totaling \$1516.50.

Many thanks go to Bruce VE3QB, Al VA3TET, Tom VE3DXQ, Bill VA3QB, Jim VE3JMU, Wes VE3ML and Reg VE3RVH. Tony, VE3DWI also had good sales at his table.

Many draws were made during the course of the morning but unfortunately there were no winners from the VE3ERC members.

The Emergency CAER Program was held at the Elmira Arena. Several displays representing organizations such as the Military, Emergency Dog Care, VE3ERC cw and monitor set-ups, Police, Fire Department etc.

Students and teachers came from the Woolwich area. Schools such as St. Boniface, Park Manor, St. Theresa attended. Approximately 150 students came by the ERC table with many questions. Al VA3TET, es VE3ML,



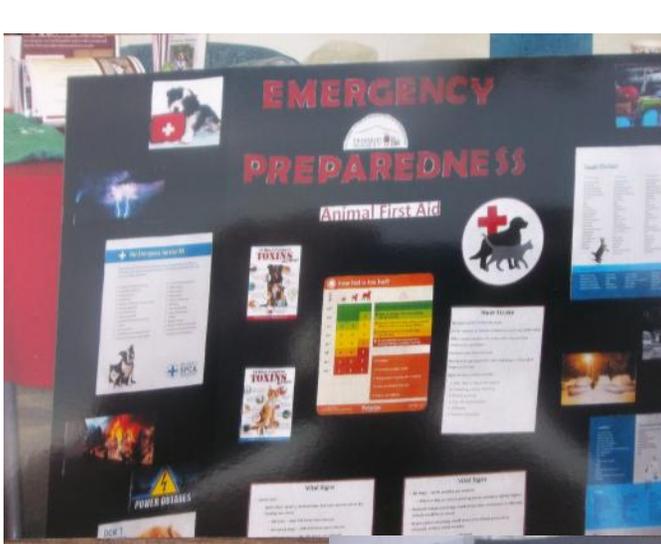
Bill VA3QB and Bruce VE3QB showed different types of cw keys and different ways of communicating messages. Al enjoyed testing students on cw. Reg VE3RVH handed out pamphlets about VE3ERC's history plus a sheet cw and Morse code to each teacher of each of the groups as they passed through.

Meals consisting of 2 hot dogs, an apple, a bottle of water and a bag of chips were provided by smiling food servers.

Many thanks go to the ERC volunteers Bill VA3QB, Bruce VE3QB, Wes VE3ML, Al VA3TET, Frank VA3FJM and Reg VE3RVH.



Activities closed down shortly after 2 pm.



# Back-of-the-Napkin Eyeball

## QSO notes and stuff

by Rich, ve3DCC

**JUNE 2019**

An Amateur (HAM) Radio license is a legal "ticket" to experiment and innovate.

This theme threaded through the sessions during our Elmira Tech Seminar Day last Fall, and that same focus will be in our forthcoming Tech Seminar Day on Sept. 21, 2019. Our feature speakers demonstrated leading edge ideas in both hardware and software. But for those with imagination, these need not be the limits.

In fact we can use formulae and equations to fantasize new things without having to play with tangible objects!

Let me demonstrate by introducing Albert to George....(??? read carefully....)

First, here are some thoughts to consider:

There is some philosophic debate over which came first: the Mathematics or the Universe. I have always believed that Mathematics is the language that we use as we attempt to describe and predict the physical behaviour of the Universe. Our number system, base 10, is a result of our 10 digits.... One must wonder what would have happened had our ancestors amputated those pesky thumbs.. and we would have a counting system based on 8. That said, our base-10 system has flaws as evidenced by the peculiar behaviours of some numbers. It may be that the natural language of the universe is in terms of vectors and forces.

Regardless, a good algebraic expression, in any number system, is the closest thing to a crystal ball that we may ever have... and it is good if it can predict things that we know to be true, and it can suggest things that are not obvious to us. It transcends hands-on counting.

Stephan Hawking put it rather nicely in his book "A Brief History of Time"-he describes a scientific theory as "...a model of the Universe or a restricted part of it and a set of rules that relate quantities in the model to observations that we make. It exists only in our minds, and does not have any other reality. A theory is a good theory if it satisfies two requirements. It must accurately describe a large class of observations on the basis of a model that contains only a few arbitrary elements and it must MAKE definite predictions about the results of future observations."

A FORMULA then, rather than being a mindless relationship that one substitutes into blindly, is in fact a neat way to capsulize a calculation so we do not have to develop an "answer" or prediction from scratch. It is a short cut that has a meaning. PS: Use the tool/formula only if you understand WHY it works.

A posse of formulae can combine to produce something new.

George Ohm (1787-1854) discovered the proportional relation that bears his name:

$R = E / I$  where / represents division.

With a slight algebraic rearrangement, Ohms Law becomes:  $E = I * R$

where \* is multiplication. A nice formula that is easy to work with.

According to The ARRL Handbook for Radio Communications, 2012 edition (sec. 2.2 and 2.3), in Ohm's Law

E is in volts and represents the Electromotive Force or force of attraction or repulsion between electrically charged regions. It is also called voltage or potential.

This formula makes perfect sense since it nicely shows how current and resistance interact via multiplication to produce a voltage change.

Charge is measured in Coulombs. It represents  $6.25 * 10^{18}$  electrons or protons where  $^{\wedge}$  represents exponent.

I represents the flow of charge and it is measured in Amperes.

One Ampere is one coulomb of charge flowing past a point in one second. Amperes can be expressed as coulombs per second.

Note that this sounds like a Speed, eh?

Resistance, R, is opposition to current and is measured in ohms. It will vary with the composition and geometry and mass of the materials used in a circuit.

Work is calculated by multiplying the force by the distance of movement of an object.

$W = F * d$ , with force in Newtons and distance in Meters.

A newton-meter, the work unit, is the same as a joule so the units for work are the same as those for energy.

We have formulae that can, within our number system, represent the Work and Energy expended.

Power is defined, in the ARRL handbook, as the RATE at which work is done. One Watt of power is expended by one volt of electromotive force causing a current of one ampere through a resistor.

The accepted formula is:  $P = E * I$

If we now take Ohm's Law,  $E = I * R$  and substitute  $I * R$  for E in the Power formula, We obtain

$P = R * I * I$  or  $P = R * I^2$ .

So far, we have used formulae that are required for any HAM certification exam.

I now intend to show that there is room for inspiration and suggestion by working with these simple but virtual expressions.

WARNING: there is considerable latitude in resolving units and the articulation, simplification and reducing that will go with it. We will ignore this for now, as we are looking for inspiration—we can use hardware and software to verify our instincts later!

In  $P = R * I^2$ ,

One could imagine that

Power is an expending of ENERGY (call it E) and

Resistance is developed from the mass or composition of a material (call it m)

And I, current, is intimately tied to the notion of frequency.

PS: it is interesting how frequency is pervasive in sound, in light, in radio transmission... the heartbeat of the universe?

Since current, a speed, can vary, you might wonder what happens as it increases.

In the world of Calculus this is called "taking it to the limit" ( and should not be confused with the Eagles song of the same name!).

For all intensive purposes, if I increases to infinity, infinity would seem to be the speed of light, usually represented by c so we can use this to represent infinity.

Using some Calculus notation, and substituting c for I and m for R, we have

Limit as I approaches infinity, of  $R * I^2$

Is  $m * c^2$

Or  $E = m * c^2$ .

This , of course, is Albert Einstein's famous equation.

Not to stop here, though,

Rewrite this equation as:

$$E/m = (c^2)/1$$

Now if the value on the right varies all the way up to infinity (c),

The ratio on the LEFT must be proportionally equal to it.

If m ,the denominator , is small, then E, the numerator (ie the energy), is small and

If m is large, then E, the energy is large.

This seems to suggest that it will take a lot of energy to propel a large mass to the speed of light, while little masses require less energy.

One needs to ask what the significance of this might be.

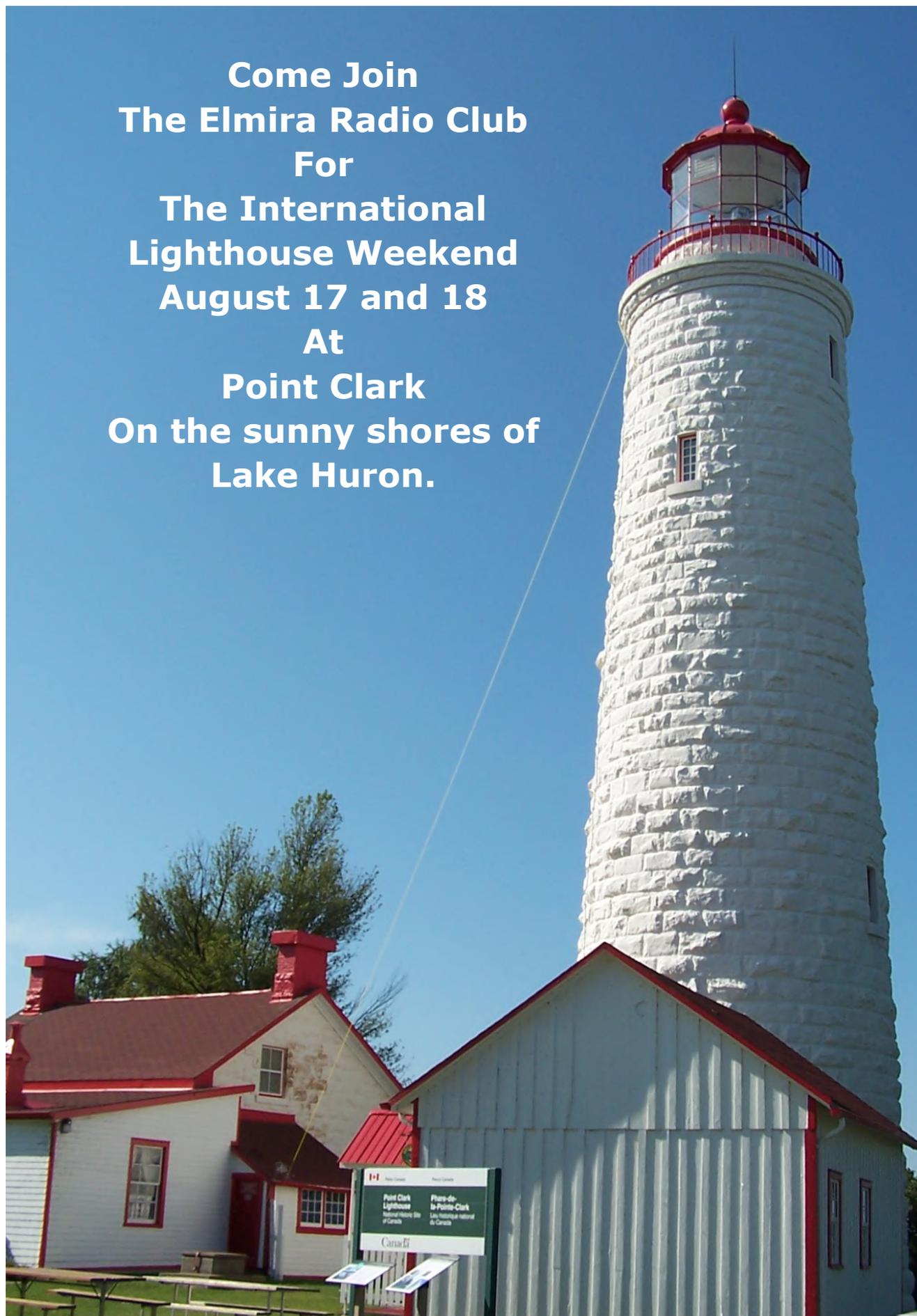
This is the fun of playing with virtual models to see what paths they might lead us down. Once an insight materializes, then more formal examination, thought and even hands-on hardware and software can be used to explore the idea.

Innovation does not necessarily require the expensive hardware and computing power of software. It can get by on imagination.

Oh yes, George...this is Albert!

**Regards,  
de Rich, ve3DCC**

**Come Join  
The Elmira Radio Club  
For  
The International  
Lighthouse Weekend  
August 17 and 18  
At  
Point Clark  
On the sunny shores of  
Lake Huron.**



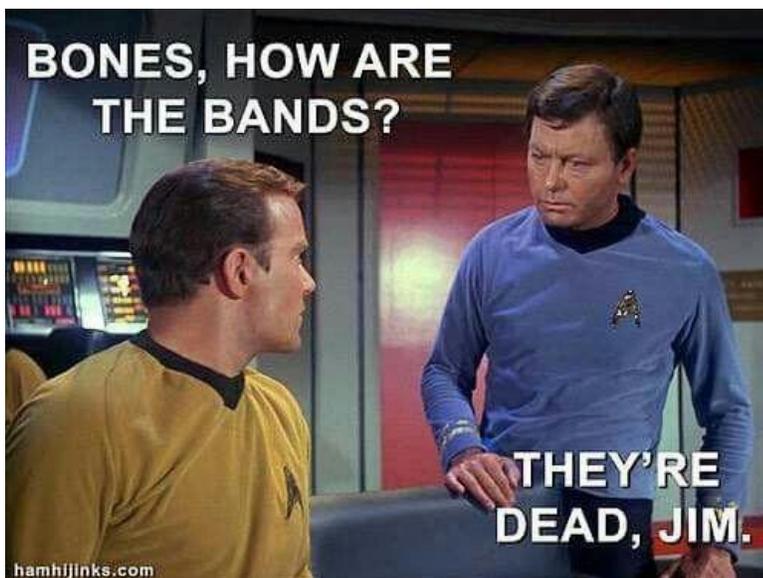
**CONTRIBUTIONS TO VE3ERC-CLUB  
NEWSLETTER**

Do you have an article you'd like to submit? Or photos? Do you have any comments you'd like to make?

Perhaps you'd like to share a photo of your shack, a special project you are working on or a special interest!

**SEND THEM TO:**

**Bob bobve3ixx@gmail.com  
(519-787-2279)**



**WEDNESDAY NITE NET CONTROLLERS**

**JULY 24 - TOM VE3DXQ**

**JULY 31 - WES VE3ML**

**AUGUST 7 - PAUL VE3PVB**

**AUGUST 14 - BRIAN VA3DXK**

**AUGUST 21 - BOB VE3IXX**

**AUGUST 28 - TED VE3TRQ**

**SEPTEMBER 4 - AL VA3TET**

**SEPTEMBER 11 - REG VE3RVH**

**SEPTEMBER 18 - FRANK VA3FJM**

**SEPTEMBER 25 - M E E T I N G**

**OCTOBER 2 - BILL VA3QB**

**OCTOBER 9 - TOM VE3DXQ**

# A Well Grounded Amateur

By Al MacDonald VA3TET

**O**ur Wednesday night VE3ERC net yielded some interesting fodder for future meeting nights. Top on the list was surprising enough—Grounding.

Well that got me to thinking and researching the subject.

I will try to outline the reasons and best practices. No amount of preparation will eliminate damage from a direct lightning hit, but good practices will reduce potential damage significantly. Let's address "safety grounding" as the primary concern for this session (I might stray a little).

It turns out that we have to treat grounding as four separate issues.

1. **Surge grounding**
2. **AC safety grounding**
3. **RF grounding**
4. **Electrostatic grounding**

## They are not the same!!!

**Surge grounding** should be in place to alleviate a lightning smack. Notice I said alleviate! If you are unfortunate enough to receive a direct antenna hit, it is unlikely that anything connected to your antenna will survive the hundreds of thousands of volts and thousands of amps potentially delivered.—**Always** disconnect your antenna **in front of any equipment** and ahead of potential storms. **Unplug all gear from the AC mains.** Better still, disconnect every time you shut down. Don't just shut off the power bar—all the grounds are still connected to the AC line. You do not want your equipment ground to be the conduit for a **ground surge**.

Unplugging from the mains protects you from ground surges arriving through the AC grounds and antenna surges being propagated through-out your house via your electrical wiring.

Lightning hits several miles away can cause major surges on the AC ground side. Unless you are physically unplugged from the AC side the current and voltages from the surge travel through your equipment to your antenna ground!! - and vice versa!!!

**Surge grounding** your antenna will hopefully divert energy away from your valuable gear. The induced electromagnetic fields will be minimized by keeping high voltage and currents out of the shack. The idea is to isolate your equipment from potential current flow. **It can't flow if it has nowhere to go.**

What to do!!

It is a must that you provide separate multiple ground rods (at least 3) connected by #6 or better copper directly to your antenna base. A separate wire should be used from each ground rod to base—do not daisy chain. Eight foot or longer copper or copper plated rods are recommended. You can use half-inch copper pipe if you have soft soil. These rods should **not** be connected directly to AC grounds. All ground cables must be securely clamped with copper, copper plated or stainless hardware.

A ground buss across the back of your radio bench made from a copper buss bar or copper water pipe should also be connected to your surge ground using at least #6 copper using the shortest route. Connect chassis ground here to help keep RF ground potentials to a minimum. The ARRL handbook is a great reference.

## AC grounding

Three wire AC outlets are a must!! The third wire is grounded to the AC ground rods installed when your service was put in place. Do not connect AC grounds directly to your surge grounds. The third wire is there to protect you from any potential floating charge that may occur during operation of your equipment. A couple of belts from a floating ground (if you survive it) will convince most hams to be diligent about good **AC grounding**. Remember the tickles you received from your old AC/DC AM radio's chassis ground if the AC plug was the wrong way?

## RF grounding

RF communications depends on the potential difference between ground and your antenna — the greater the potential difference, the better the signal. Vertical antennas need a ground counter poise to radiate efficiently.

Ideally, the vertical element (usually a quarter wave) relies on the ground to act as the second half of the dipole and reflect (not absorb) your signal. The problem is that generally, the earth under your antenna is a best, a poor ground and does not reflect your signal well. To overcome the problem copper radials are usually installed at the base of the antenna to improve antenna efficiency. Poor **RF grounds** can reduce antenna radiation efficiency by up to 80% by simply absorbing your signal. The ARRL handbook deals extensively with vertical and radial installation.

Horizontal radiators (dipoles, beams, long wires, slopers, etc) are also affected by ground absorption. Most amateurs ignore this aspect of antenna installation as it is usually not a major factor in radiation efficiency. However, you will be surprised at the improvement in signal and noise levels by using bare copper ground wires immediately around and extending out from the tower. Even running a ground wire around the edge of your property will improve performance. You can just lay it on the surface, or dig it in a half inch. You want the wire to reflect your signal before the earth absorbs it, so don't dig it in deep!

**RF grounds** should be tied to your surge ground, but **NOT to AC ground**. Improved RF grounding improves radiation efficiency.

## Electrostatic grounding

This is probably the area given the least attention by amateurs. Those of you using long wires would be surprised at the **electrostatic voltage** buildup on dry windy days. Air friction along the antenna wire will cause a substantial electrostatic charge. I have personally seen arcs of one half inch drawn when the antenna wire is brought near ground.

Not only does this present you with a nasty shock, but potentially could cause an input capacitor to arc and damage your rig.

A half watt 100K ohm carbon resistor between ground and cable center conductor will bleed the charge to ground.

The above is potentially shocking information for some of you.. For those who are well grounded, enjoy the hobby.

## Correspondence

Following in the vein of the previous article, Rich VE3DCC sent the following e-mail and a video website which demonstrates very graphically the power of a lightning strike.

### **THIS IS THE ANSWER WHY FISHERMEN DON'T FISH WITH LIGHTNING IN THE AREA!!!**

**Talk about POWERFUL..... this will give you a “healthy” new respect for lightning!! Golfers.. TAKE NOTE!**

### **THIS IS WHY YOU CAN'T TELL WHERE LIGHTNING WILL STRIKE. NOT ALWAYS THE HIGHEST POINT.**

The power of lightning is an awesome thing.

This camera was in the right place to capture this amazing lightning strike and its full range.

The lightning hit the rock on the left bank of the river first and bounced to the water.

Watch to the end and see how long it takes for the stream to stop roiling and to return to normal.

**To find the website, Google Youtube  
Then do a Youtube search for “lightning hits water”**

#### **Rod Pears in Eliot Lake wrote:**

Anyone down that way looking for an Icom ID 51a plus 2, I have one surplus to my needs, used it twice but that was 6 months ago it has wall charger and mobile charger, it is just too far away from here to any DSTAR.. 73

Rod VA3RP

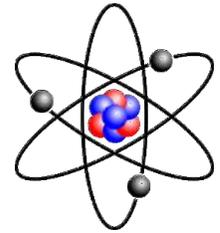
**If anyone is interested, contact the editor at [bobve3ixx@gmail.com](mailto:bobve3ixx@gmail.com)**



**ELMIRA RADIO CLUB VE3ERC**

**PRESENTS:**

**HAM TECH**



**Seminars to advance and stimulate innovation  
in the amateur radio community.**

**SEPTEMBER 21, 2019 9 am TIL 4 pm**  
**AT THE ROYAL CANADIAN LEGION HALL**  
**ELMIRA, ONTARIO**

**FEATURED SPEAKERS INCLUDE:**

**Tony Lelieveld VE3DWI on Cables/Connectors**

**Nick Waterman VE3NNW on Spread Spectrum**

**Ted Rypma VE3TRQ "Using fldigi, flarq, flmsg, for  
guaranteed message delivery"**

**Dan Colquhoun VA3SQD Scanners**

**PLUS ADDITIONAL SPEAKERS PENDING CONFIRMATION**

**\$30.00 INCLUDING (light) LUNCH**

**REGISTER EARLY! ONLY 50 SEATS AVAILABLE.**

**To Register: e-mail [fimonteith@primus.ca](mailto:fimonteith@primus.ca)**

**Then Send a cheque payable to "Elmira Radio Club Inc VE3ERC"**

**To: VE3ERC Tech Seminar**

**c/o Frank Montieth VA3FJM**

**31 Dinison Cres., Kitchener, ON N2E 2W3**

**519-749-2364**

**(Include full name, call sign, e-mail address, telephone number and city)**

# VE3ERC Elmira Radio Club Inc.

*Minutes from June 26, 2019*

## 1. Call to Order & Welcome

The meeting was open at 7:30 pm by our Club president Brian VA3DXK

**2. Roll Call:** VE3DXQ Tom, VA3GWM Gord, VE3DCC Rich, VE3DWI Tony, VA3QB Bill, VE3ML Wes, VE3CXU Doug, VA3FJM Frank, VE3JMU JIM, VA3TET Al, VA3PDC Paul, VE3RVH Reg, VA3DXK Brian, VE3YBM Brian, VE3DCC Rich, Kirk VA3KXS, VA3SQD Dan, VE3JLC Jim, VA3JBO Johan, VE3AUS Al, VA3DZZ Al.

**3. Adopt Agenda :** Brian VA3DXK showed the Agenda on the flat screen tv and Agenda was accepted.

**4. Secretary's Report:** Tom VE3DXQ said he made a spread sheet for ERC assets and inventory of Equipment which he said he would pass around at the meeting for members to see if they had equipment is says they have. Also Tom said he would pass the roster of club members to see if information was correct. Tom asked for a motion to have last months minutes accepted seconded by VA3JBO Johan. Minutes were accepted. Tom asked if the spreadsheet could be uploaded to Yahoo Group or the ERC website. Bill VA3QB said it would be better to load it as PDF and email the secretary if there is a change and he can identify the newest one by date name of the file.

**5. Treasurer's Report:** Paul VA3PDC made a presentation of this month's report showing dues collected, service charges and balance. Paul made a motion to have the treasurer's report accepted seconded by Ted VE3TRQ. Carried. Bill VA3QB asked if anyone knew who had ERC Gmail account that is registered with Yahoo. Tom VE3DXQ said he does not have it. Paul VA3PDC said he or Judd VE3WXU may have it. Paul VA3PDC said he will find out who has it. Barry VE3ISX net manager said he would like to know if he could get the \$100.00 support payment from our club sooner rather than later. Paul VA3PDC said he could send a check or email transfer payment. He will look into it tomorrow. Doug VE3DXU said he would like to get an up to date club roster. Brian said he would have an up to date roster sent out in September.

**6. President's Report:** Brian VA3DXK said we will be sending money to Barry VE3ISX. The clubs constitution and bylaws were updated and will put up on the Web site. (ve3erc.ca).

## 7. Committee Reports:

Safety Officer (Tom VE3DXQ). Nothing new to report.

Field Day- Bill VA3QB said he participated in the Guelph Field Day he said they got 594 contacts for about 1800 points. There were five stations running. 80M, 40M, 40M CW, 20M. 10M, 6M on digital modes. They had good food and a good time.

Frank VA3FJM attended the KWARC field day in Breithaupt Park. He said he had his trailer there, and a Honda generator. There was also another generator there. There were people doing CW, digital modes, Frank said there were for new hams there and one was just happy to get his radio up and running. One ham actually reached Hawaii. The Elmira club did not have our field day as no one was willing to take up the lead on it. Al VA3TET said that next year we will have to have someone take up the task.

Discussion followed and it was suggested we strike up a committee in September regarding Field day.

Alma Repeater- Bill VA3QB said the tower is now up and is 32ft in height. This is shorter than planned. Paul VA3PDC, Tony VE3DWI, Wes VE3ML, Ken VE3KCY used 7/8 heliax cable. Tony VE3DWI worked on the repeaters. Bill VA3QB said they will be doing range testing. The frequency will be 147.225 and tone will be 131.8.

Point Clark Lighthouse weekend-Al VA3TET said he has contacted the people at the Point Clark Lighthouse and they know we are coming. Al said he would like to get up there early and see if the G5RV can be strung from the lighthouse to a near-by neighbour's house. VE3AUS Al said

he knows people near-by and will talk to them. Discussion followed on the various antenna set ups there. On the Saturday there will be a lunch (burgers, onions, and mushrooms) . The fee is not determined as yet. Frank VA3FJM will have his Trailer there again this year. Brian VA3DXK said it would be good to have a schedule of who is working what bands at what time so there is no conflict with frequencies. He also mentioned that the park is very pleased with our clean up after the event.

Ham Tech Sept 21- Frank VE3FJM passed a list around for members present to sign if they wish to attend the Ham Tech event. He said once he has the ticketing ready he will be calling those who signed the list. Rich VE3DCC said it would be great if as many as possible from our club support the event either by attending or helping out.

Frank said presenters are as follows: Ted Rypma VE3TRQ – digital amateur radio, Gordon Hayward VE3EOS VLF, Tony Lelieveld VE3DWI cables, Paul Birke VE3PVB TBA, Dan VA3SQD scanners, Nick Waterman VE3NNW Spread Spectrum. This list may be shortened due to time constraints.

Location is Elmira Legion Hall 11 First Ave Elmira On N3B 2Z5

Time September 21, 2019 9:00 am to 4:00 pm. Lunch will be provided by the ladies of the legion.

Frank said he will look after coffee. He also asked Rich VE3DCC to contact Rob Hammond regarding door prizes. Ted VE3TRQ will provide projection equipment.

Tickets will be \$30.00 for the day and this includes lunch.

**8. Unfinished Business:** CAER Emergency Preparedness Open House May 30<sup>th</sup> (Bill VA3QB, Al VA3TET, Bruce VE3QB, Paul VA3PDC, Wes VE3ML and Reg VE3RVH. Reg gave a report on the event as follows: The event was held at the Elmira Arena. There were several displays such as Military, Emergency dog care, Police and Fire departments, VE3ERC with CW and monitor set up. and many more. Students and teachers came by from the Woolwich Area. He said about 150 students came by our table with many questions. Pamphlets on VE3ERC history and CW code sheets were given to teachers. AL especially was interactive with students on the CW set up and code sheet. There was a lunch provided Apples hotdogs, chips and water. The event concluded around 2:00 pm.

There was discussion about getting a keyer, transmitter and receiver for teacher and students to play with. Rich VE3DCC made a motion to have Al approach his contact to see if there is interest in this this was seconded by Wes VE3ML. All were in favour. Carried.

Central Ontario Hamfest- Reg VE3RVH – The Central Ontario Hamfest was held on June 2, 2019. Sponsored by the Kitchener Waterloo and Guelph Amateur Radio clubs. This was held at the Waterloo regional police association near Rosevale. Nick VE3NNW was registrar, and WesVE3ML was co-ordinator. Indoor vendors were in at 7:00 am. Tailgaters at 8:00 am and the public at 9:00 am. Tom VE3DXQ, Al VA3TET, Jim VE3JMU and Reg VE3RVH set up the G5RV in the back yard. Al did an hour on ONTARS. Reg said sales were good this year. Tony VE3DWI had his own table and Sales were good. Many thanks to all who volunteered.

Hats and T-shirts – Al VA3TET said he has not heard anything on this. Brian VA3DXK apologized as this had slipped his mind. Hats are free for new members and shirts cost approximately \$25.00. Brian suggested the he send out an email to members to see what they would like to order. The reply would have their name and phone number.

Feed Mill Meter Repeater- John VE3JXX gave Bill VA3QB a contact for the feedmill, when John showed up at the Guelph Field Day. Bill VA3QB said he will leave it to Brian VE3DXK to contact the feedmill. Bill VA3QB suggested that we make the VHF repeater the main repeater at the feedmill. He also suggested eventually moving the UHF somewhere in KW. Rich VE3DCC advised we still need to keep a repeater at the firehall as it has back up power in case of an emergency. Bill VA3QB made a motion that 147.390 becomes the primary repeater

at the feedmill. Johan VA3JBO seconded the motion. All were in favour Carried. VA3JBO Johan made a motion that we budget \$1, 500.00 dollars for Electrical work that will be needed for moving equipment at the feedmill. This was seconded by Kirk VA3KSX. All in favour carried.

**9. New Business:** Club Equipment and Asset inventory sheet.

This was already covered under secretaries report.

**10. Presentations/Speakers/Workshop:**

Brian VE3DXK said he tentatively has a meteorologist lined up for September, but has to firm up the date as yet.

**11. ANNOUNCEMENTS:**

**Point Clark Lighthouse Aug 16-18**

**Next meeting Sept. 25, 2019**

**October Silent Key memorial dinner**

12. VA3JBO Johan made a motion to adjourn the meeting seconded by Al VA3TET.

Meeting adjourned at 9:30 pm

## CORRESPONDENCE

**Bill Reid VA3QB sent the following e-mail. The Video is fascinating.**

This is a link to the youtube video from Scott Mooney VE3MTQ from the Guelph club who does large load escorts.

This is the video showing the transport of a half million pound or 250 ton transformer from Stratford to Bruce Nuclear Plant.

[https://www.youtube.com/watch?v=sHKm9TKT\\_C8&feature=youtu.be&fbclid=IwAR19J5v9ATwjNyQKF0KVBad6f5I\\_xqJBbA2zqE5DRbKCx9q5svGVJ753OBY](https://www.youtube.com/watch?v=sHKm9TKT_C8&feature=youtu.be&fbclid=IwAR19J5v9ATwjNyQKF0KVBad6f5I_xqJBbA2zqE5DRbKCx9q5svGVJ753OBY)

73

**Bill Reid VA3QB**

# IN MEMORY OF MARY RIDDLE

BY Al Macdonald VA3TET

## A few of my memories of Mary Riddle

I first met Mary when I volunteered to pick her up and bring her to a Wed. morning coffee meeting at Luther Village. It seemed like a simple task and it was on my way. Carefully following her directions, I found the snow plugged street. A plow arrived! By then Mary had pulled on her boots and coat, opened the door, and said "what took you so Long"? That was the first time we had Met!! Every time I picked her up after that, I was always greeted the same way and a big grin.

These trips to and from coffee where we got to know each other and she shared some childhood stories about Cobalt and Kirkland Lake. I think these tidbits will provide some insight to her unflappable nature.

Her father was a mining engineer in cobalt where they endured cold winters in a rock perched drafty old clap- board house heated by a wood fired cook stove.

Dad was offered a new job in Kirkland Lake. As was the custom of that time, dad went ahead to secure living quarters and get his job established. It was an especially hot dry summer, and news was almost non existent (no radio, phone, or newspaper).

It wasn't until a mine supply truck arrived that dad was informed that a forest fire destroyed cobalt and surrounding area two weeks before. He immediately informed the mine operations manager that he was leaving to find his family. – he was fired.

Upon arriving in Cobalt, all he could see was blackened destruction and the terrifying thoughts of his family's fate. He was advised to go the Red Cross. He found Mom and the Girls unscathed, worried and relieved with the reunion. The family hitched a ride back to their new home in Kirkland Lake and dad found a Job offer waiting.

Mary and her sister were enrolled in the local school, met new friends and a new best friend- a dog who greeted most strangers with suspicion, including the local minister!!—much to the amusement to the local kids, Mary, and sister.

Winter was a tough diet consisting of canned what ever they could get and bush meat. Her mom always reminded them to eat what is offered and be thankful -- and keep your elbows off the table!!

Spring was looked forward to. Warmer weather and the first fresh produce!! — fiddleheads leeks and rhubarb, and according to Mary, especially **rhubarb!** The secret was out!

Our rhubarb patch supplied a container filled with stewed rhubarb. When she opened the container, memories flooded back of Kirkland Lake and her childhood with her loving parents and sister. There were a few tears. Her blindness was advancing, but not her memory.

The last time I visited her she was totally blind and not able to walk on her own. I had a container of rhubarb for her. When the nurse suggested she could put the container in the fridge until she had lunch, Mary replied rather emphatically, this **is** my lunch!! Mary passed just three days later at 98 and 1/2 years.

these stories of her early experiences were, I'm sure, the foundation of who she was.

**Wednesday morning coffees will not be the same, and elbows on the table are not allowed!**

**I am pleased to have had Mary as a friend and I miss her.**

From QST October 1997– Reprinted with permission.

## Catch a Falling Star

**A beginner's guide to meteor-scatter communication—  
just in time for "stormy weather!"**

**By Kirk Kleinschmidt, NT0Z**

Newcomers to Amateur Radio usually have a few misconceptions about VHF propagation. The worst—which is often "propagated" by more experienced hams who should know better—suggests that VHF signals travel exclusively along line-of-sight paths and peter out after about 30 miles. That's far from true, but if your VHF operation is limited to 2-meter FM it's somehow practical, especially if you're using a hand-held radio and a rubber ducky antenna.

Once you cross the "30-mile barrier," however, there are many exciting and interesting ways to propagate your VHF signal hundreds or even thousands of kilometers. Articles in the ARRL Operating Manual and QST detail E- and F-layer skip, tropospheric ducting and transequatorial field-aligned irregularities, moon-bounce, auroral propagation and others.

These modes aren't always casual. That is, many require robust stations, high power and more than a little patience. Meteor-scatter work—bouncing radio signals off the ionized trails produced by meteors burning through the ionosphere—doesn't require an extraordinary station, but some patience is usually necessary unless you know exactly when conditions may be favorable!

That's precisely the case with the November Leonids meteor showers for the next few years. (Meteor showers are named for the constellations from which they seem to appear. Meteors produced during the recurring November 17 shower seem to "pour" from the constellation Leo.) As an added bonus, on one or more of those November days the short-duration, high-intensity Leonids have the potential to produce the best meteor-scatter propagation since November 1966 (and a spectacular light show if you're on the night side of the planet!)

The potential rain of meteors is so intense that, if the Leonids storm anywhere near 1966 levels, scientists are worried that satellites, space stations and spacecraft may be destroyed or damaged by meteoroid collisions! And even if every orbiting structure escapes unscathed, the combined effect of tens of thousands of meteors per hour burning through the ionosphere would provide a frenzy of VHF contacts in the 800 to 2000-km range. Six and 2 meters (SSB and C) would sound like a 20-meter pileup!



**Tom Hammond, D8BKM, works meteor scatter and other forms of VHF/UHF DX from his condo with just 150 watts. A tripod on eh roof supports 2 meter, 70 cm and 23 cm beam antennas. They're light enough for a small, inexpensive TV rotator to handle. See his article "Hooked on Meteors" in the May 1995 QST, p.74.**

## Meteor and Comets = Meteor Scatter = Radio Fun

Although the origin of meteors was once a mystery, scientists now know that meteor showers are produced when the Earth plows through the orbiting debris streams left by passing comets (known and otherwise). The debris, mostly dust and other small particles, burns up as it speeds through the atmosphere.

Although the Earth is continually running into "random debris" in its orbit of the Sun, meteor showers are recurring events, that is, the Earth encounters certain debris streams at about the same time each year. **Table 1** lists the major annual showers and their characteristics. There are dozens of minor showers that aren't listed.

**Table 1—Major Meteor Showers**

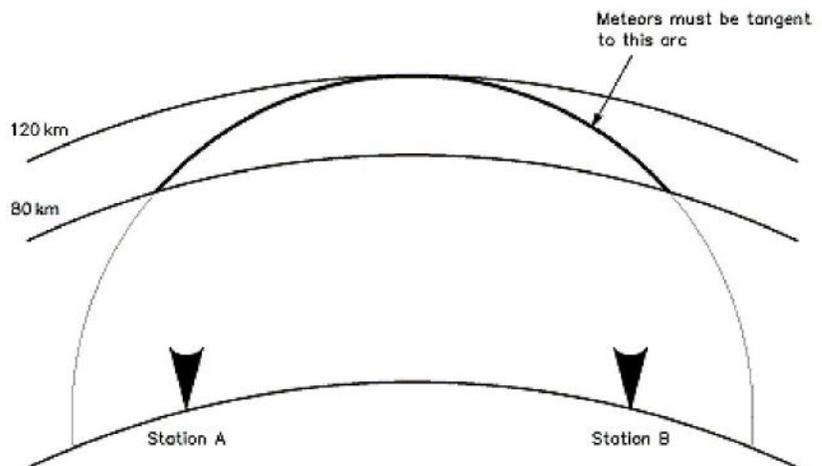
Name	Peak Date	Aprox. Rate (per hour)	Best Path	Local Time
Quadrantids	Jan. 3-4	40-150	NE to SW	1300-1500, 0500-0700
Eta Aquarids	May 4-5	10-40	NE to SW E to W	0500-1100
Arietids	June 7	60	N to S	0600-0700, 1300-1400
Perseids	Aug. 12	50-100	NE to SW	0100-0300, 0900-1100
Orionids	Oct. 22	10-70	NE to SW N to S	0100-0300 0700-0900
Geminids	Dec. 13-14	50-80	N to S	0500-0700, 2200-2400

Nighttime observers see falling stars whiz across the sky. To the human eye, meteors speed by in an instant and disappear. To radio signals, however, the "corridor" left by the bullet-like passing is a long reflective trail of ionized particles. In the most basic sense, Earth-bound stations that can "see" the ionized trail can communicate with each other by bouncing radio signals off the ionized corridor, which "scatters" them in many directions.

## Frequencies, Physics and Geometry

Meteor-scatter contacts take place mostly on 10, 6 and 2 meters between stations 500 to 2300 km apart. Faster, larger meteors produce more intense, longer-lasting trails and better propagation paths. Slower, smaller particles produce little or no ionization/propagation.

For two stations to communicate via meteor scatter, a meteor(s) must pass through the ionosphere in a useful direction and at mutually visible elevation. The best directions are tangent to the straight-line path between the stations, the best elevations are 45 degrees or less (but still above the horizon!). See Fig. 1.



**Figure 1—To support effective meteor-scatter communications, incoming meteors must produce ionized trails that are tangent to the straight-line path between the two stations and at useful elevations (altitudes).**

The trail left by a typical meteor reflects radio waves from a few seconds to a few minutes, depending on the size and the speed of the meteor itself, the frequency of the radio signal, and several other factors. At 28 and 50 MHz, and active meteor can sustain propagation for 30 seconds to several minutes. At 2 meters, the same meteor burst will allow communication for only a few seconds to a minute. (At UHF, where some meteor-scatter contacts are completed, a typical meteor reflects radio energy for less than a second!)

Meteor-scatter signals suddenly appear out of a dead band, persist for a short time, then disappear! The effect can be quite eerie! During a meteor shower, when several overlapping ionized trails may be reflecting radio waves at any one time, communications are possible for several minutes to several hours.

Armed with this new knowledge, it is easy to see why meteor-scatter ops are so excited about a potential Leonids storm. During a typical (good) meteor shower, 60 to 80 meteors blaze across the sky each hour. During the November 1966 Leonids storm, scientists put the zenith hourly rate (ZHR) at 150,000 meteors per hour—pileup central! (ZHR is the number of meteors an observer could count in a one hour period under optimal viewing conditions.) See Table 2 for a list of expected Leonid peak times.

### **Table 2—Predicted Leonid Shower Peak Times**

Year	Centre of Predicted Peak Periods
1997	Nov 17, 1100 UTC
1998	Nov. 17, 1702 UTC
1999	Nov. 17, 2302 UTC
2000	Nov. 17, 0517 UTC
2001	Nov. 17, 1117 UTC
2002	Nov. 17, 1731 UTC
2003	Nov. 17, 2359 UTC

Note: These times assume that storms in the late 1990s will occur near the same solar longitude as the 1966 storm. The years 1998-2000 are most likely to show storm activity at some level, while 1997 and 2001-2003 are likely to show enhanced activity.

Table courtesy of Peter Brown, University of Western Ontario.

### **Setting up Your Station**

Although 2 meters is the workhorse band for many experienced meteor-scatter operators, the best bands for beginners are 10 and 6 meters. Station requirements are more modest and openings last longer and are more consistent.

Meteor-scatter contacts are made with dipole, vertical and even mobile antennas, especially on 10 and 6 meters, but some type of direction antenna is practical necessity. On 10 and 6 meters, 50 to 100 W and a three-element Yagi produce solid results. On 2 meters, where the action is a bit more frantic, 150 W and a 10-element beam should do nicely.

If your station puts out less power, start on 10 and 6 meters before trying your hand at higher frequencies. A higher-gain directional antenna may offset reduced power. Experiment!

In North America, most meteor-scatter work is done on SSB, although there is some activity on CW. IN Europe, high-speed CW contacts are the norm (200 to 300 wpm). Ops on each end use tape recorders or computers to transmit high-speed messages during the short meteor bursts.

### **TO BE CONINUED IN NEXT ISSUE**

**Ed. Note: Today the digital modes would be the norm for meteor-scatter.**