

North Shore Radio Club

March, 1990.

O F O N T A R I O . . .

President	Richard Button, VE3RJB
Secretary	Andy Kalnins, VE3LCZ
Treasurer	Mike Sherba, VE3DKW
Prog. Director	Greg Schatzann, VE3GJS
Past/Vice Pres.	Ray Zambonelli, VE3OUB
Registrar	K. Wyard-Scott, VE3GDF
Spec. Events,	Ralph Day, VE3CRK

Get Well Cards	Colin Bell, VE3CEU
2mtr Net Control	Roy Miller, VE3AAF
List n' Labels	Paul Dale, VE3LHZ
Inst. Coord.	Rick Gibson, VE3ASH
Auditor	Harry Westwood, VE3QG
Editors	Edwin Taylor, VE3FRM
	Barbara Ann Taylor

Club Station, VE3NSR.
 Club Repeater, VE3OSH, 147.72/147.12 mc.
 Club Repeater, VE3NAA, 448mc in, 443mc out.
 2 mtr net - 7:30pm - VE3OSH - Thursdays,
 Code Practice - 8:30pm - courtesy of 3ATI.
 10mtr net - 28.2mc - Sundays - 9:00am to
 10:00am on CW, then continues on SSB.

Club meets in the Green Room of the Arts Resource Centre in Oshawa, Centre St. S., behind city hall. Starts at 8:00pm sharp. Congenial speakers, Good Luck Draw, real fun evenings. Field Day activities, Corn Roasts, Sermons on the mount, Dinner Meets, A real great bunch! Every month, 2nd Monday.

The Weather.

This months snooze letter is devoted to the instruments and charts used to measure the affects of weather, present and past.

Thanks to the efforts of several members, we can present you a compendium of data which you should find very interesting. I am sure we will get the usual influx of enthusiastic mail from exuberant members. We will then print more on this fascinating subject and include articles etc, that may arrive at my desk.

Note the 1948 letter head. It was submitted by VE3AEQ. We intend to reprint a membership list as it appeared back then.



3FRM

PROLOGUE

Well here's the old snooze letter again! I hope you paid your dues as this will be last bulletin to non-members. You will note the fancy letter head at the top of page one. It is the original letter head used by the club in 1948. I will be publishing a 1948 membership list sent in by Glen Flintoff. It is sure to bring about some nostalgic memories for many members. Don't forget the Pickering Flea Market on April 7th. It's at the same High School on Pickering's Church Street. The club needs more helping hands for this event. Please notify any of the club executive of your willingness to help.

It was good to hear 3NTI on the air again from his home QTH after a stint in the OGH. I received a letter from Bill a while back. He enclosed an article from one of the clubs down south which we will run later on. Paul 3LHZ has had little response to his request for listings of operating capabilities from the membership. Once was a time when every ham was proud to list his gear for duty. How 'bout it guys n' gals. If you know of any ailing members, please notify Colin Bell, VE3CEU.

This months snooze letter is on a theme of the weather. Something every Ham loves to talk about. Even with todays technology , accurate weather fore-
one can really understand it.

Walter Wright 3DYE, dropped off a bunch of goodies for me to peruse. Walter is a member of CANWARN. This is a government sponsored society of weather watchers. It solicits the use of amateur radio and hundreds of eyes, ears and wet fingers across the province. On joining CANWARN you will receive quite a portfolio of useful information. If at the right time of year, a very beautiful calender is included. This calender is chuck full of interesting errata on weather, worldwide. A weather Hot Line telephone number is circulated for members to report tornadoes, etc. A very worthwhile organization. If you wish to join, write to: Mr. C.B. Adamson, Chief, Forecast Operations; Ontario Weather Centre; P.O. Box 159; Toronto AMF; Ontario, L5P 1B1.

If you enjoy this months production, I will run some more later in the year. Weather is such a splendid topic, I am sure my mail box will be stuffed with hints n' kinks from enthusiastic members wanting to share their knowledge of the subject.

February Meeting-Thirty people attended. Farney 3BHQ, gave a talk on trouble-shooting with a voltmeter. Gary Cubitt 3LNF, of Community Services, gave a talk on how Amateur Radio can help in emergencies. Richard Button 3RJB, President, will be organizing an emergency group within the club. There was lots of goodies raffled off with many of the membership taking home a prize.

Next Meeting: Vic 3LNK, who has oft time been mentioned in dispatches from ARRL headquarters (QST), will be giving a talk on the use of Grid Squares. This is an improved method of locating ones QTH on the map. The meeting is March 12, 8:00 PM, the Green Room of the Art Resource Centre, Oshawa. Barbara and I will be basking in the sun down south, so I won't be there.

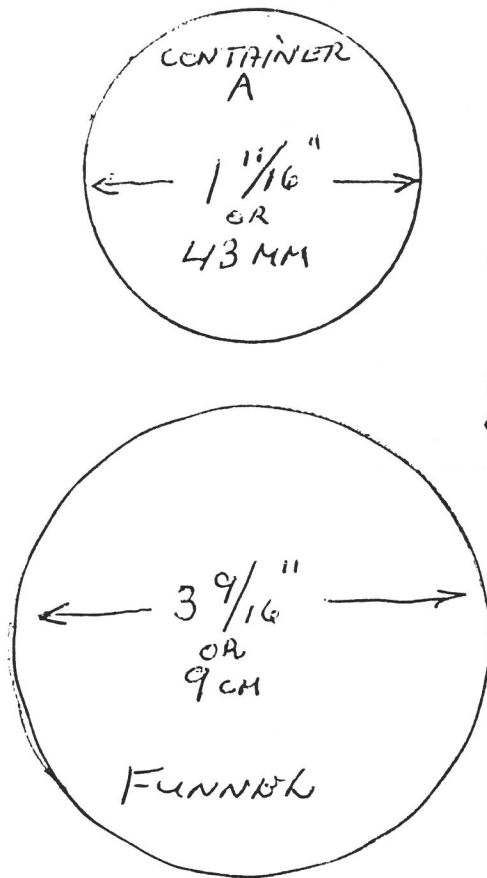
Next Snooze Letter: Will be a potpourri of intelligencia which will include an article by Harry 3QG, on the new repeater controller. Greg Schatzann 3GJS, will write about the upcoming field day organization.

Club List: a new club list will be published in the May edition. Please be on that list. If you haven't done so, please pay your dues now.

Pickering Flea Market, April 7th, we need HELP, HELP, HELP, HELP, HELP, HELP.

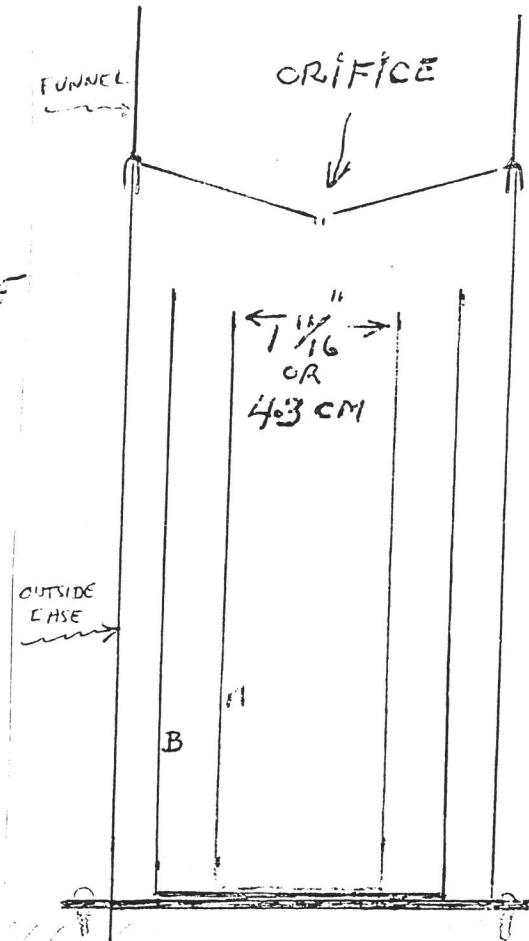
"How To Build A Rain Gauge"

Submitted by Roy Miller, VE3AAF.



CONTAINER "B"
AND OUTSIDE
CASING CAN BE
ANY SIZE.

ANY HEIGHT
CAN BE USED.



You may not know that Roy is located about a mile to the West of me in a tiny hamlet known to few as Epsom Salts. Now, Roy is very meticulous with measurements and compass directions. Therefore my guesstimation of his location may be argumentative. Up on the hill of Epsom, Roy's view of the surrounding country side is awe inspiring and he can direct you to all points of the compass from his front step, to within a degree!

The little rain gauge described here is diametrically accurate and is in constant use at Roy's QTH. Container "A" is the amplifier with a 4 to 1 ratio. If 4mm of water is measured within the container, then 1mm of precipitation has occurred. Container "B" is an overflow container. If container "A" is full and measures, say 20mm before emptying and container "B" is poured into container "A" for an additional 4mm, you could then compute the total rainfall to be 6mm.

With the measurements and information given, any "Whiz Kid" with a sliderule could calculate the dimensions to build an instrument using readily available material. If tinsmithing is your hobby, then I need not tell you to use copper or brass for ease of soldering and freedom of rust. The orifice can be any comfortable size to work with. The funnel should have a skirt to deter exterior water leakage.

Place the instrument in an open area and check regularly for fallen leaves.

Western Union's Chicago office in 1914 occupied two entire building floors. The rooms measured 26 by 212 feet with positions for 880 Morse telegraphers. They handled 2,327,436 messages per month!

SHOWER WARNING

Looking for a good free show? Then try a meteor shower. These happen several times a year as the earth passes through concentrations of cosmic debris that enter and burn up in our atmosphere. The results are often spectacular. During the best meteor showers, a single observer can count as many as 50 meteors in an hour.

Viewing is best after midnight and when the moon is new or in its first quarter. It also helps to be away from the glow of city lights, and, of course, the fewer clouds there are the better.

The showers are named after the constellations they appear to radiate from. Thus, the Geminids are named after Gemini, the Taurids after Taurus, and so on. The best bet for 1990 is the Perseids. They are one of the larger and longer showers and will take place this year while the moon is in its first quarter.

MAJOR METEOR SHOWERS FOR 1990

Shower	Peak Date and Time	Moon	Single Observer Hourly Rate	Speed of Encounter	Normal Duration to 1/4 Strength Maximum	
Quadrantids	January 3	16h*	N.M.	40	41 km/s	1.1 days
Lyrids	April 22	13h	F.M.	15	48 km/s	2 days
Eta Aquarids	May 4	18h	N.M.	20	65 km/s	3 days
S. Delta Aquarids	July 28	21h	L.Q.	20	41 km/s	7 days
Perseids	August 12	12h	L.Q.	50	60 km/s	4.6 days
Orionids	October 21	16h	L.Q.	25	66 km/s	2 days
S. Taurids	November 2	17h	N.M.	15	28 km/s	<1 day
Leonids	November 17	22h	L.Q.	15	71 km/s	<1 day
Geminids	December 14	12h	F.M.	50	35 km/s	2.6 days
Ursids	December 22	18h	L.Q.	15	34 km/s	2 days

* All times are given in Universal Time. Subtract 3h 30m for Newfoundland Standard Time, 4h for Atlantic Standard Time, 5h for Eastern Standard Time, 6h for Central Standard Time, 7h for Mountain Standard Time and 8h for Pacific Standard Time.

CROSS-CANADA WEATHER AWARDS FOR THE 1980s*

Hottest Place	Kincaid, Saskatchewan (43.5° on June 5, 1988)
Coldest Place	Ross River, Yukon (-58.5° on January 4 and 5, 1982)
Wettest Place	North Vancouver (Seymour Hatchery), B.C. (1162.8 mm for November 1983)
Snowiest Place	Stewart, B.C. (431.9 cm for January 1989)

* Based on data available in May 1989

ATLANTIC HURRICANE NAMES FOR 1990

The names of Atlantic hurricanes are provided by the World Meteorological Organization. Originally, all hurricanes were given women's names, but since 1979 the lists have incorporated men's names as well. Short distinctive names are preferred because they are less easily confused. Names are repeated every five years, although those associated with particularly infamous storms are retired.

Arthur	Horrtense	Omar
Bertha	Isidore	Paloma
Cesar	Josephine	Rene
Diana	Klaus	Sally
Edouard	Lili	Teddy
Fran	Marco	Vicky
Gustav	Nana	Wilfred

DID YOU KNOW?

September is generally the only month in which Hudson Bay is ice free.

According to radiometric data and Indian legends, Canada's most recent volcanic eruption occurred about 200 years ago near Terrace, B.C.

You can tell the temperature by how fast a rattlesnake rattles. The frequency of its rattle varies from 0 at just above the freezing point to 100 rattles per second at 37°C and increases by 2.7 rattles for every 1.0° increase in temperature. To calculate the temperature, count the number of rattles per second (you have to be fast), divide by 3, and increase your answer by 10%.

An analysis of 550 muskie catches revealed that the fish were caught

most frequently when winds were out of the south or west. Few catches were made when there was no wind or when skies were overcast or the weather bad.

At 650 m above the ground, wind speeds are generally double those at ground level.

On November 1, 1988, an American researcher found 2 snowflakes that were identical.

Moisture from sea fog is the sole source of water for living creatures in the coastal Namib desert of Namibia.

Roy Sullivan, an American park ranger, has been struck by lightning on 7 different occasions.

The rotary snowplough (forerunner of the modern snowblower) was invented in 1869 by a Toronto dentist.

Cupless anemometer has diode wind-sensor

by J. P. Scoseria
Montevideo, Uruguay

Working well as a differential thermometer, this simple circuit can also be used to find wind speed by detecting the difference in junction voltage between two forward-biased diodes. Here, one junction is heated to a fixed temperature, and the other's temperature-dependent junction potential is made to vary with the cooling effect of the wind. Being totally solid-state, the unit eliminates all mechanical difficulties. The unit can also function as a psychrometer, or humidity indicator, if the heated junction is wetted down instead.

Diode D_1 and a resistor are situated within the confines of a small one-of-a-kind aluminum enclosure built for this circuit. D_1 is heated by the power dissipated by the resistor. The enclosure maintains a constant temperature throughout, independent of environmental changes, as in an oven. Although the absolute temperature reached by the diode junction is of little importance in this circuit, it will be a direct function of the power supplied to the block, the area of the block available for heat transfer, and its heat transfer coefficient.

The same general considerations exist for the stream-temperature sensor, D_2 , which is placed in a similar

aluminum block to reduce temperature variations due to changes in wind speed (settling time ≈ 2 minutes). Here, however, the power supplied to the block is small, being about 1 milliwatt to activate D_2 , and heat variations reach the junction from the outside.

Generally, the output from the 741 op amp is $e_o = K(V_1 - V_2)$, where K is a constant and V_1 and V_2 are functions of the temperature associated respectively with the heated block sensor and the wind speed. The voltages across both D_1 and D_2 drop by 2.5 millivolt for each degree Celsius rise, and so $V_{d1} \approx 0.7 - 2.5(10^{-3})T_r$, and $V_{d2} \approx 0.7 - 2.5(10^{-3})T_w$, where temperature T_r corresponds to V_1 and T_w to V_2 . As a result, $e_o = K(-2.5)(10^{-3})(T_r - T_w)$, and so the output of the op amp will be proportional to the temperature difference. The current that flows through ammeter M will thus vary linearly with temperature.

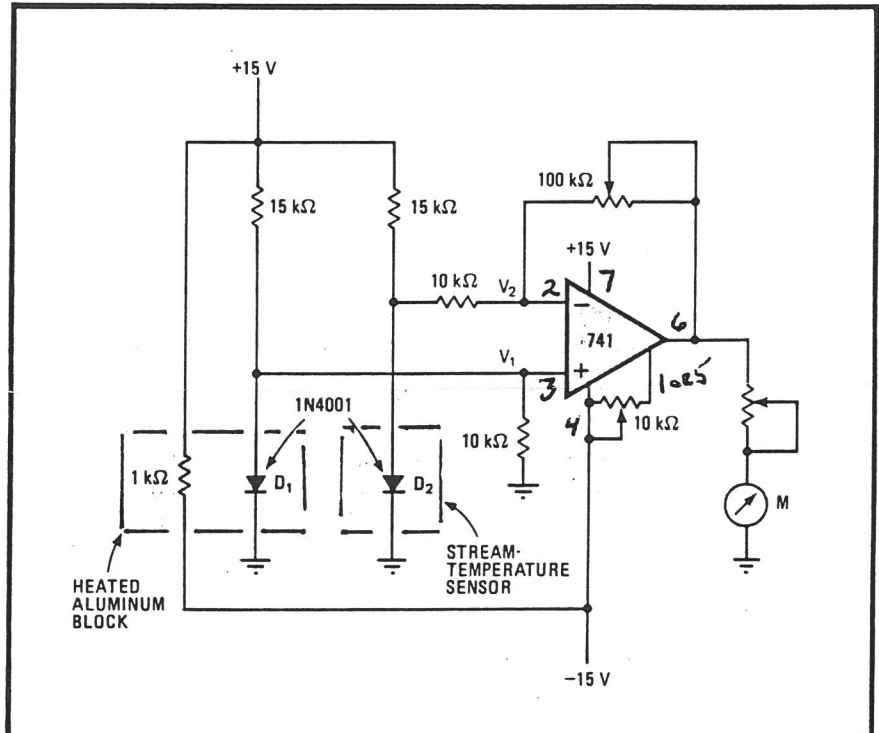
The relation between the wind's cooling factor and temperature is nonlinear, however, and because the initial zero-wind current in meter M is a function of the block temperature (and thus block size), and because the sensor temperature, and D_1 and D_2 are not driven from true constant-current sources, the calibration will not be uniform for any two units.

Although it would be ideal to have access to a wind tunnel for calibration, good results can be obtained with the aid of an automobile. Placing the sensor on the auto's antenna, with the meter set at maximum for zero wind speed, the unit can be calibrated satisfactorily on a windless day by noting M 's output as a function of the car's speed. \square

Ceaseless wind. Temperature difference between heat oven surrounding diode junction D_1 and stream sensor D_2 , whose junction temperature varies with wind speed, is reflected as a change in current at M . Unit can be satisfactorily calibrated with auto's speedometer on a calm day.



"A WINTER'S EVENING PROJECT."

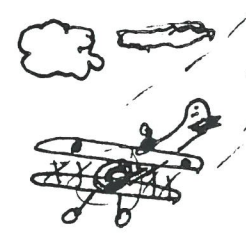
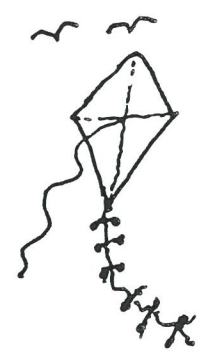


Here is truly a "Solid State" anemometer. Once the parts are collected, you could haywire it together over a weekend. Except for the aluminum blocks, the parts could be purchased from Radio Shack or Electro-Sonic. Observe the type of power supply required. Please let me know how you make out. VE3FRM

NAME OF WINDS

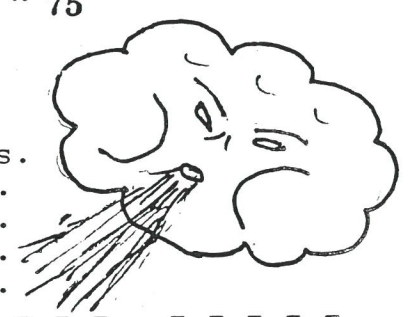
Beaufort's scale, used in preparation of all Weather Bureau wind forecasts and storm warnings.

FORCE	DESIGNATION	MILES PER HOUR
0	Calm	From 0 to 3
1	Light Air	Over 3 to 8
2	Light breeze (or wind)	" 8 " 13
3	Gentle breeze (or wind)	" 13 " 18
4	Moderate breeze (or wind)	" 18 " 23
5	Fresh breeze (or wind)	" 23 " 28
6	Strong breeze (or wind)	" 28 " 34
7	Moderate gale	" 34 " 40
8	Fresh gale	" 40 " 48
9	Strong gale	" 48 " 56
10	Whole gale	" 56 " 65
11	Storm	" 65 " 75
12	Hurricane	" 75



WIND FORCES

Wind blowing at 20 miles per hour has a force of 1 1/4 lbs.
 Wind blowing at 35 miles per hour has a force of 6 lbs.
 Wind blowing at 50 miles per hour has a force of 13 lbs.
 Wind blowing at 75 miles per hour has a force of 28 lbs.
 Wind blowing at 90 miles per hour has a force of 40 lbs.



WIND CHILL TABLE

WIND MPH

	0	5	10	15	20	25	30	35	40
35	35	33	21	16	12	7	5	3	1
30	30	27	16	11	3	0	-2	-4	-4
25	25	21	9	1	-4	-7	-11	-13	-15
20	20	16	2	-6	-9	-15	-18	-20	-22
15	15	12	-2	-11	-17	-22	-26	-27	-29
10	10	7	-9	-18	-24	-29	-33	-35	-36
5	5	1	-15	-25	-32	-37	-41	-43	-45
0	0	-6	-22	-33	-40	-45	-49	-52	-54
-5	-5	-11	-27	-40	-46	-52	-56	-60	-62
-10	-10	-15	-31	-45	-52	-58	-63	-67	-69
-15	-15	-20	-38	-51	-60	-67	-70	-72	-76
-20	-20	-26	-45	-60	-68	-75	-78	-83	-87
-25	-25	-31	-52	-65	-76	-83	-87	-90	-94
-30	-30	-35	-58	-70	-81	-89	-94	-98	-101
-35	-35	-41	-64	-78	-88	-96	-101	-105	-107
-40	-40	-47	-70	-85	-96	-104	-109	-113	-116
-45	-45	-54	-77	-90	-103	-112	-117	-123	-128

WIND SPEEDS GREATER THAN 40 MPH HAVE LITTLE ADDITIONAL CHILLING EFFECT.

°F TEMPERATURE

A radar signal has been sent to probe beneath the smog that conceals the surface of Saturn's largest moon, Titan. The 360 kw signals were sent from NASA's 230 foot Goldstone Lake antenna in California. The faint signals took two and a half hours to return to the very large aperture radio telescope in New Mexico.

Construction is scheduled to begin in 1991 on a 330 foot steerable dish to replace the 300 foot dish that collapsed at Greenbank WVA. It should be operational by 1995 and will be the world's largest fully steerable radio telescope.

81,000 billion tonnes of rain, snow and hail fall on Canada, yearly.

40 million tonnes of snow is received by Montreal, yearly.

Percent chance of a white Christmas in, Victoria: 4%; St. Johns: 61%; Saskatoon: 100%

Number of times an oak tree is more likely to be hit by lightning than a beech tree: 60. Approximately 16% of all lightning bolts are positively charged.

Accuracy of long-range outlooks (2 weeks) by Environment Canada: 60%. By Groundhogs on February 2nd: 30%.