

FEEDBACK

The OFFICIAL Newsletter of the
Georgian Bay Amateur Radio Club Inc.

VE3OSR 146.940 -

May 1997

GBARC Meetings:

4th Tuesday of each month except July and August at the Owen Sound Yacht Club 7:30 P.M.

Breakfast Meetings:

2nd and last Saturday of each month at the ROCKFORD ESSO 9:00 A.M.

Information: Write to GBARC
Box 113, Owen Sound, N4K5P1

Minutes - Apr. 22/97 Meeting at The Georgian Yacht Club

Meeting was called to order at 7:30 p.m. Minutes were read by Nick VE3MWU, moved by Bill VE3HMZ and seconded by Henry VE3UWD.

Treasurer's Report - Book balance is \$1263.88. The bank balance is over \$2200 but there are some outstanding cheques for the repeater antenna and connectors. The audited statement will be in this issue of Feedback.

Old Business - The repeater licence will be licenced in Tom VE3NEM's name. Henry will be signing off and a letter will be sent to Industry Canada.

The new antenna for the VE3OSR repeater has arrived and is at Carl VE3BY's place. It is scheduled to be put up next weekend. It hasn't been decided whether the cabling will be replaced. The old antenna is a 2 bay 150-160 Mhz with a 1.7 or 1.8 SWR. On Saturday they will test the existing cable. The work is scheduled for 1:00 p.m. and the club will be advised on packet and over the repeater. The repeater is located at the back of Fulford's lumber yard on Hwy 6 & 10 south of Owen Sound.

The club meetings are now being held be at the Yacht Club. There was interest expressed in having a technical night once a month. A show of hands showed that 75% of those present were interested.

There were several new callsigns present; VE3ENS - Ian Sinclair from Kilsyth, his dad VA3WPJ - Jack Sinclair (same QTH), VA3HKF - Herb from north of Owen Sound and VE3HDH - Jerry from Flesherton.

Flea Market Update - A meeting of the committee was held last Sunday which cleaned up some of the small items; rules and regulations and donations from other clubs. It was decided that all vendors, volunteers and others all pay attendance. Only RAC gets a free table. The date was set for Saturday June 14th at Notre Dame School. Club members were asked to mention it on the nets, on other repeaters and to CBER friends. Anyone interested in a table should contact Tom VE3TSA. The club will be purchasing a GPS for a draw at the flea market.

Other Flea Markets - Ottawa Valley Mobile Radio Club will be holding their flea market in Stittsville on April 26/97. Dayton is scheduled for May 17, 18 and 19/97.

Repeaters - Linking will be taken care of when Carl VE3BY gets back from holidays. Bob VE3XOX thanked all those who helped him clean up his tower site last Saturday and get the tower re-erected. The club's portion of the link is already up and running; just Bob VE3XOX and Carl VE3BY's portion has to be done.

The group looking after the Emergency Red Cross Repeater want to link into the Owen Sound area and cover the shoreline. Bob VE3XOX will look into it.

The question was raised as to why we are not part of the VE3MTR repeater. We would need to be part of the link hub and would have to get permission from them. VE3PER in Port Elgin links through Walter's VE3RAN on 220. New members would benefit from it. It would allow DX on 2 meters before they got their 5

or 12 wpm. It would need a standardized controller in order to link in with the ULR system. Four or five people are interested in it. Bob VE3XOX will contact Terry at VE3PER and look into the equipment requirements. **CANWARN** - A CANWARN meeting will be held Thursday 7:00 p.m. at the BNPD Visitors Centre (near the big windmill, north of Tiverton). CANWARN is recognized by Environment Canada. They give a one night course in recognizing tornado formation situations. After taking that course Hams can call reports into Environment Canada and all amateurs go on standby. There is no cost for the training. We become the eyes and ears for Environment Canada. Only airline pilots and CANWARN trained amateurs are recognized by Environment Canada in this capacity.

New Business - Both "The Canadian Amateur" and "QST" magazines have had recent reports on LEO's and other spectrum re-allocation issues. Ken VA3KMS suggested that the club write a letter to Industry Canada about our concerns with this spectrum grab. The LEO's are looking for part of the 2 metre band and the 2 metre, 220 and 440 bands are already being eyed by others. It was moved by Jack VE3DTS and seconded by John VA3JRF that a letter be drawn up and signed at the next club meeting then sent to RAC, Industry Canada and the ARRL.

Field Day - The club will be holding Field Day at John VA3JRF's QTH again this year. Suggestions were brought forth for trying different modes or challenging another club for points to raise some added interest. It was decided to stick to the pot-luck dinner format for food. Someone questioned whether we should be serious about Field Day or treat it as a club outing, whether we wanted to set up a schedule and who would cover the early a.m. hours. Another individual suggested we plan on building some antennas as a side activity.

Nominations for Executive Positions - Tom VE3NEM and Gary VE3IOD have been making phone calls all month to find club members willing to stand for the 97-98 club executive. They reported the following volunteers:

- President - no volunteers
- Vice-President - Gary VE3IOD
- Treasurer - Jim VA3CJM
- Secretary - Kim VE3DXE
- Technical Director - Carl VE3BY
- Bulletin Editor - John VA3JRF
- ARES Co-ordinator - Steve VE3XKM
- Examiner - Nick VE3MWU
- Radio Course Co-ordinator - no volunteers
- Photographer - no volunteers
- Auditor - Dave VE3DXO
- 2 metre Net Co-ordinator - Ian VE3ENS

Motion to adjourn - by Tom VE3TSA.

50-50 draw was won by Okke VE3TWI.

CANWARN spotters wanted From: VE3RHJ Date: 04-05-97 Time: 14:47:16

Yesterday in Parry Sound, the CANWARN representatives told me that they want to train more CANWARN spotters in our area. It seems that the Owen Sound - Durham - Mount Forest area is a big "hole" in their coverage of Southern Ontario. CANWARN is a network of radio amateurs who work with Environment Canada to give warning of tornadoes and severe weather. If you've seen the movie "Twister," you know that no amount of radar and satellites can replace a trained observer! To become a CANWARN spotter you must attend a 4-hour training session. The only ham gear you need is a 2m FM rig. If you are interested in taking CANWARN training, let me know...if there is enough interest, we may be able to arrange a training session in Owen Sound. If you are ALREADY a trained CANWARN spotter in this area, please send your name, phone, call sign, and location to Scott Keddie, VE3IPE, via Internet at Scott.Keddie@ec.gc.ca. If you don't have Internet, send me the info and I'll relay it. 73, Brad VE3RHJ

Before Spark

Sure that long-distance wireless communication was just around the corner, early researchers telegraphed through water, air and earth by various means that sometimes tantalizingly resembled radio.

By Gil McElroy, VE1PKD
1037 Lucknow St, Apt 12
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Canada

In spring 1992, while reading the local newspaper, I stumbled upon a short Associated Press report describing a pop singer's efforts to have his grandfather officially acknowledged as the true inventor of radio. The report stated that, in 1892, Nathan B. Stubblefield of Murray, Kentucky, had apparently publicly demonstrated an invention he called "wireless telephony."

Nathan B. *who?*

Knowing little of radio's origins beyond what I'd learned of Marconi's work, I decided to do a little investigating.

The idea of "wireless" communication could be argued to date back to at least the sixteenth century, when it was believed that a "sympathy" existed between needles touched by the same magnet, and that deflection of one would cause a corresponding deflection of the other.

But it wasn't until the nineteenth century that serious experimentation and investigation began. The notion of using an earth or water return to complete electrical circuits had been experimentally verified in mid-18th-century Germany, but it wasn't until 1811 that the next crucial step took place. At that time, the German scientist S. T. Sommering replaced wires with water and succeeded in transmitting telegraphically across basins in his laboratory.

Sommering eventually concluded that his experiments had no practical application. But others would not be similarly deterred. Among them was Samuel Morse, inventor of the telegraph. After a ship's anchor ruined a public demonstration of telegraphic transmission by cutting through a submerged cable, Morse began experimenting with ways of eliminating the cable and transmitting through the water itself.

He succeeded on December 16, 1842. Along one bank of a canal in Washington, DC, Morse had laid a long wire, connected to a battery and key, parallel to the water. On the far bank he placed a receiving apparatus, similarly arranged. Both ends of each wire were attached to large copper plates submerged in the water of the canal opposite one another. Although he communicated across only a short distance with this initial arrangement, Morse later succeeded in transmitting nearly a mile across a river.

James Lindsay, a Scot, independently discovered this same method of transmission by conduction through water. Using a system almost identical to Morse's, Lindsay, a talented inventor whose interests ranged to linguistics and astronomy, succeeded in transmitting across the river Tay—a distance of about 3/4 mile—in 1854. Though his ideas for establishing similar systems for use in communicating with continental Europe and the United States had the support of the likes of Michael Faraday, Lindsay's work never passed beyond the experimental stage. In 1860, after staging another successful demonstration across the Tay, he ceased public work on his system. Lindsay died two years later, firmly convinced of the soundness and merit of his ideas.

Others would carry on working with the ideas of conductive communication, including the Reverend Henry Heighton. Heighton developed a system once again similar to Morse's, and, like Lindsay, felt that the Atlantic Ocean could be bridged with a large enough system (though he acknowledged that laying a cable would probably be cheaper and simpler). Indeed, one of Heighton's systems found practical

use, as a similar method was developed by Sir William O'Shaughnessy for use in communicating across some of India's larger rivers when telegraphy was introduced there.

Telegraphy Without Conductors

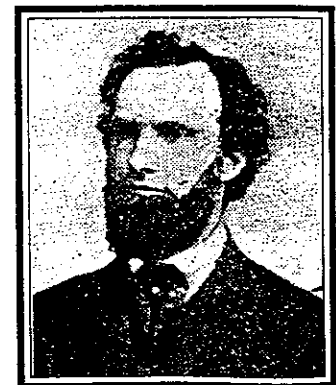
The experiments I've mentioned so far replaced the conductivity of metal with that of water, so they can be considered "wireless" only to a point. Experimenters on the trail of what we now call radio sought to do away with intervening conductors altogether.

An article in February 1979 *QST* profiled Dr. Mahlon Loomis and his ingenious method of wireless communication that functioned independently of any artificial power source. A dentist, Loomis first publicly demonstrated his invention at the close of the Civil War in 1865. From two mountaintops 14 miles apart in Virginia, Loomis flew two kites connected to ground, one equipped with a galvanometer (an early device for detecting small electrical currents), the other with a means of breaking the circuit. By making and breaking the earth contact of one kite, Loomis was successful in deflecting the galvanometer attached to the other.

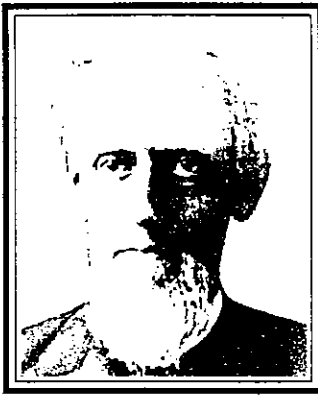
In his patent, granted in 1872, Loomis stated that his system drew upon "atmo-



Samuel F. B. Morse



Mahlon Loomis



Amos Dolbear

spheric electricity," and was meant

to disturb the electrical equilibrium, and thus obtain a current of electricity, or shocks or pulsations, which traverse or disturb the positive electrical body of the atmosphere between the two given points by connecting it to the negative electrical body of the earth below.¹

Loomis seems to have come close to the fundamental idea of system resonance, for he noted that his antennas had to be flown at equal heights for his system to function. His transmitting and receiving antennas would therefore have been tuned to the same frequency, low as it may have been.

Nothing came of Loomis's efforts to develop commercial applications for his invention. His appeal to the government for funding was unsuccessful. It is worth noting, though, that Loomis's 1865 demonstration was repeated in 1909 at the London Telegraph Training College. In the midst of a hailstorm, successful communication was made over a distance of three miles.

The invention of the telephone and its introduction into widespread use added a new twist to efforts toward wireless communication. Alexander Graham Bell had used this invention in his experiments in conductive communication. In 1878 he successfully transmitted across the Potomac River using the telephone as a detector in place of the galvanometer. By rapidly making and breaking the circuit, Bell induced a **musical tone in his receiver.**

Induction Communication

But it was the telephone's commercial application that ironically gave impetus to wireless experimentation. It had been noticed that transmissions along one set of wires could be plainly received in nearby parallel sets of wires. Though the phenomenon had first been detected in the early years of telegraphy, the increasingly common use of the telephone—a far more sensitive receiving instrument than a telegraph

sounder—made it into a real problem. QRM was born!

Joseph Henry had discovered the underlying principle in 1832, and Michael Faraday had independently done the same thing at about the same time. James Clerk Maxwell finally gave it a name: *induction*. The suggestion that communication by induction might be possible dates back to 1845. It was then that John Wilkins, a superintendent of British railway telegraph lines, proposed a method of communicating between England and France.

But Wilkins' ideas remained theoretical, and it was an American, John Trowbridge, who would claim the honors of first successfully communicating via electromagnetic induction in experiments he carried out in 1891. Trowbridge's work involved ship-to-shore communication, and practical difficulties—the enormous size of the wire coils required to communicate even short distances, for one—led him to conclude:

It is hardly probable that any electric method could be devised in which air or the ether of space could advantageously replace a metallic conductor for signaling over considerable distances.²

Though Canadian-born Reginald Aubrey Fessenden is commonly credited with the first wireless transmission of the human voice (on December 11, 1906), an American, A. E. Dolbear, could offer a challenge. Appearing in March of 1882 before the Society of Telegraphy Engineers and Electricians in London, England, Dolbear demonstrated his invention, the "electrostatic telephone," transmitting the sound of his assistant's voice from one room to another. Indeed, Dolbear could also claim to have made the first true broadcast, for on the same occasion, and as further evidence of the abilities of his invention, Dolbear employed a cornet player to regale the listeners in the next room!

Though this demonstration of his system was limited in distance, Dolbear persisted with his efforts, finally claiming to have successfully transmitted a distance of 13 miles.

Dolbear also experimented with the idea of communicating with moving trains, a problem that had preoccupied many. But Thomas Edison would pick up the idea and run with it. By 1885 Edison had worked out a system of inductive communication with moving trains that rather cleverly put existing telegraph line located along railroad tracks to double duty. Edison patented his invention in 1891, but the system was a commercial failure and the few existing commercial installations quickly fell into disuse.

Edison had been aided this work by Willoughby Smith, a successful inventor in his own right. Smith had been long involved with the infant communications industry. He had, in fact, taken part in the



Sir William Preece

laying of the first transatlantic cable between Ireland and Newfoundland in 1865, and was also involved in the laying of the second cable a year later.

In 1893 Smith had proposed in a written paper a method of communicating inductively with moving trains, but after his later involvement with Edison's unsuccessful system, turned his attention toward communication by conduction through earth or water. In 1887 he patented a system similar to Alexander Graham Bell's, which he first successfully tested in 1882 and then permanently installed at a lighthouse off the coast of England, where underwater cables were persistently broken by wave action.

Ten years earlier, Sir William Preece had successfully tested yet another similar system, and for much the same reason. A cable crossing the Solent, the body separating mainland England from the Isle of Wight, had broken. Before it could be repaired, Preece had successfully demonstrated his system of conductive transmission that employed submerged 6-foot square copper plates.

Preece continued his experiments, eventually working with inductive methods of communication. In 1898, at the request of the British government, Preece tested and permanently installed one such system across the Bristol Channel, a distance of just over three miles.

The first real commercial application of Preece's inductive system had been made three years before. The cable laid between the Isle of Mull and mainland England had broken, and for two weeks all commercial traffic was handled by Preece's system: a 1½-mile-long wire, laid along the English coastline, acting inductively upon an existing telegraph line on the island two miles distant.

Which brings us back to Nathan B. Stubblefield. The first *documented* demonstration of his "wireless telephone" occurred on January 1, 1902 (though Stubblefield claimed to have demonstrated it as early as 1892), in downtown Murray, Kentucky. His invention, patented in 1908, was another system of communicating inductively—similar to the system Edison

had patented the year before—for use with moving trains or from ship to shore.

Though Stubblefield's invention did not use tuned circuits, he seems to have recognized and acknowledged that as an implicit limitation, for he planned to invent a means of tuning the system so as to permit several communications to occur at the same time without interfering with one another. In this respect, he, too, succeeded in anticipating radio.

But Stubblefield's claim to have invented radio was backed by no less than the Kentucky Legislature. In 1944 it issued the following resolution:

Be it resolved by the General Assembly of the Commonwealth of Kentucky: That the General Assembly of the Commonwealth of Kentucky hereby publicly recognized Nathan B. Stubblefield...as the true inventor of radio, and it is that sentiment of the General Assembly that said Nathan B. Stubblefield is entitled to the highest honor and respect at the hands of the people of this Commonwealth and of this nation for his outstanding service.³

Stubblefield died in 1928, having years earlier abandoned the possibility of capitalizing on the commercial possibilities of his invention.

Spark Comes

Prior to the invention of spark-generated radio transmission, the commercial potential of any form of wireless communication had come to nothing, despite minor successes of isolated applications. Certainly, commercial telegraphy and transatlantic cable companies had closely followed any effort made to render them obsolete. But they had hardly been concerned about any real threat.

And so it was with spark. Transatlantic cable offices were in the habit of exchanging Christmas greetings, and in 1901, less than two weeks after Marconi's first successful east-west transatlantic transmission, the staff of the Sydney, Nova Scotia, cable station (ironically, located not far from Marconi's eventual installation at Glace Bay) sent the following tongue-in-cheek Christmas message to officers in Liverpool:

Best Christmas greetings from North
Sydney,
Hope you are sound in heart and
kidney,
Next year will find us quite unable,
To send exchanges o'er the cable:
Marconi will our finish see,

The cable co's have ceased to be;
No further need of automatics,
Retards, resistances and statics.
I'll then across the ether sea,
Waft Christmas greetings unto thee.

Came the reassuring British response:

Don't be alarmed, the cable co's,
Will not be dead as you suppose.

Marconi may have been deceived,
In what he firmly has believed.
But be it so, or be it not,
The cable routes won't be forgot;
His speed will never equal ours;
Where we take minutes, he'll want
hours.
Besides, his poor weak undulations,
Must be confined to their own stations;
This is for him to overcome,
Before we're sent to our long home.
Don't be alarmed my worthy friend,
Full many a year precedes our end.⁴

How wrong they were.

That Time of Year From: VE3IJD

Hello, it's that time of year again for the BITNET dues. The memberships run from May till May, cost \$25 and give you full access to the BBS and Nodes systems in and around the BBS. In turn, the money collected allows us to maintain a fairly good BBS with many **nodes connected**. Please send your membership for 1997 directly to me.

Gene McDonald

R. R. # 4

Tara, NOH2N0

To view the membership, go to the files area and it's located under BITNET.MEM.

...Gene, 73

PROFIT & LOSS STATEMENT
1/ 1/96 Through 31/12/96

GBARC-All Accounts
4/ 5/97

Category Description	1/ 1/96- 31/12/96
INCOME/EXPENSE	
INCOME	
50-50	116.00
Interest Income	6.21
MEMBERSHIP	
Other Inc:	1,262.10
BIT NET MEMBERS	125.00
CLUB APPAREL	338.19
HOBBY MARKET	3,057.86
Other Inc - Other	404.31
Total Other Inc	3,925.36
RADIO COURSE	525.00
TOTAL INCOME	5,834.67
EXPENSES	
bank charges	47.40
CLUB APPAREL	424.79
COURSE ROOM-RADIO COURSE ROOM	100.00
CRSE STDY GUIDE	415.52
DONATIONS:	
FROM HOBBY MARK	816.48
DONATIONS - Other	20.00
TOTAL DONATIONS	836.48
DUES-CLUB MEMBERSHIPS(BIT NET)	50.00
EQUIPMENT-EQUIPMENT PURCHASE	880.74
FLEEC	1,688.37
INSURANCE-LIABILITY INS	405.00
LICENCES	72.00
Mailout	253.20
Office-Office Expenses:	
COURSE-COURSE OFFICE EXPENSES	89.32
Office-Office Expenses - Other	73.30
Total Office-Office Expenses	162.62
Rent Paid-Rent Paid \ MEETING ROOM	235.00
TROPHY	73.01
TOTAL EXPENSES	5,644.13
TOTAL INCOME/EXPENSE	190.54

NOTE DUE TO BIT NET AT YR END \$ 75

1997 Field Day Rules

1) Eligibility: Field Day is opened competitively to all amateurs in the ARRL/RAC Field Organization (plus Yukon and NWT). Foreign stations may be contacted for credit, but are not eligible to compete.

2) Object: To work as many stations as possible on any or all amateur bands (except 10, 18 AND 24-MHz bands) and, in doing so, to learn to operate in abnormal situations under less-than-optimum conditions. A premium is placed on skills and equipment developed to meet the challenge of emergency preparedness and to acquaint the public with the capabilities of Amateur Radio.

3) Dates: June 28-29, 1997.

4) Field Day Period: From 1800 UTC Saturday until 2100 UTC Sunday. Class A and Class B (see below) stations who do not begin setting up until 1800 UTC Saturday may operate the entire Field Day period of 27 hours. Others must begin their setup no earlier than 1800 UTC Friday, and may operate no more than 24 consecutive hours; ie, once on-the-air Field Day operation has started, it must end 24 hours from that point.

5) Entry Categories: Field Day entries are classified according to the maximum number of simultaneous transmitted signals, followed by the designation of the nature of the individual or group participation. Below 30 MHz, once a transmitter is used for a contact on a band, it must remain on that band for at least 15 minutes. During this 15-minute period, the transmitter is considered to be transmitting a signal, whether it is or not, for purpose of determining transmitter class. Switching devices prohibited.

(Class A) Club/nonclub portable: Club groups (or nonclub groups with three or more licensed amateurs) set up specifically for Field Day. Such stations must be located in places that are not regular station locations, and must use no facilities installed for permanent station use, nor any structures installed permanently for Field Day use. Stations must be operated under one call sign (except when the Novice/Technician position is used) and under the control of a single licensee or trustee for each entry. All equipment (including antennas) must lie within a circle whose diameter does not exceed 300 meters (1000 feet). All contacts must be made with transmitter(s) and receiver(s) operating independent of commercial mains. Entrants who, for one reason or another, operate a transmitter or receiver from commercial mains for one or more contacts will be listed separately at the end of their class.

Any Class A group whose entry classification is two or more transmitters (non-Novice) may also use one Novice/Technician operating position (Novice bands only) without changing its basic entry classification. For Field Day purposes only, any Canadian Amateur HF licensee, who has been licensed for less than six months prior to Field Day, shall be considered a "Novice" to provide a means for Canadian Field Day Class A stations with two or more transmitters to participate with a "Novice/Technician" operating position. This "Canadian Novice station" is restricted to the US Novice sub-bands and power/mode restrictions. The Novice/Technician station (including antennas) should be set up and operated by Novice and Technician licensees and should use the call sign of one of the Novice/Technician operators.

1997 Field Day Rules

(Class A--Battery) Club/nonclub portable: Club groups (or non club groups with three or more licensed amateurs) set up specifically for Field Day and all contacts are made using an output power of 5 W or less and the power source is other than commercial mains or motor-driven generator (eg, batteries, solar cells, water-driven generators). Other provisions are the same as for class A.

(Class B) One- or two-person portable: Nonclub stations set up and operated by not more than two licensed amateurs will be placed in Class B. Other provisions are the same as for Class A. One- and two-person Class B entries will be listed separately in the results.

(Class B--Battery) One- or two-person portable: Nonclub stations set up and operated by not more than two licensed amateurs and all contacts are made using an output power of 5 W or less and the power source is other than commercial mains or motor-driven generator (eg, batteries, solar cells, water-driven generators). Other provisions are the same as for Class A. One- and two-person Class B--Battery entries will be listed separately in the results.

(Class C) Mobile: Stations in vehicles capable of operating while in motion and normally operated in this manner, including antenna. This includes maritime and aeronautical mobiles.

(Class D) Home stations: Stations operating from permanent or licensed station locations using commercial power. Class D stations may count contacts only with Class A, B, C and E Field Day groups for points.

(Class E) Home stations--emergency power: Same as Class D, but using emergency power for transmitters and receivers. Work stations in Class A, B, C, D and E.

6) Exchange: Stations in any ARRL/RAC Section will exchange their Field Day operating class and ARRL/RAC Section. For example, if your club group was planning to operate in the three-transmitter, Class A category from Missouri, you would send "3 A Missouri". Foreign stations send RS(T) and QTH.

7) Miscellaneous Rules:

A) Operators participating in Field Day may not, from any other station, contact for point credit the Field Day portable station of a group with which they participated.

B) A station used to contact one or more Field Day stations may not subsequently be used under any other call during the Field Day period. Family stations are exempted.

C) Each phone and each CW segment is considered as a separate band. All voice communication contacts are equivalent, and Packet/RTTY/ASCII/AMTOR is counted as CW. A station may be worked once on each band. Crossband contacts are not allowed. The use of more than one transmitter at the same time on a single band is prohibited, except that a Novice/Technician position may operate on any Novice band segment at any time. No repeater contacts.

8) Scoring: Scores are based on the number of valid contact points times the multiplier corresponding to the highest power used at any time during the Field Day period, plus bonus points. Phone contacts count one point each, and CW contacts count

1997 Field Day Rules

two points each. Power multipliers: If all contacts are made using an output power of 5 W or less and if a power source other than commercial mains or motor-driven generator is used (eg, batteries, solar cells, water-driven generators), multiply by 5. If any or all contacts are made using an output power of 150 W or less, multiply by 2. Multiply by 1 if any or all contacts are made using an output power more than 150 watts. Batteries may be charged while in use for Class C entries only. For other classes, batteries charged during the Field Day period must be charged from a power source independent of the commercial mains.

A) Bonus points: The following bonus points will be added to the score (after the multiplier is applied) to determine the final score. Only Class A and B stations are eligible for bonuses. Just check the box on the Field Day summary sheet to indicate that you qualify for the bonus, and attach the necessary proof.

1) 100% emergency power: 100 points per transmitter for 100% emergency power. All equipment and facilities at the Field Day site must be operated from a source independent of the commercial mains. Example: A club operating 3A, using 100% emergency power may claim 300 bonus points.

2) Public relations:

A) 100 points for media publicity. Publicity must be obtained or a bona fide attempt to obtain publicity must be made. Evidence must be submitted in the form of a newspaper clipping, a memo from a BC/TV station stating that publicity was given or a copy of the material that was sent to the news media for publicity purposes.

B) 100 points for physically locating in a public place (eg shopping center, parks, etc) with significant access by the public. The intent here is for Amateur Radio to be on display to the public.

C) An additional 100 points can be earned by such display stations in public places actively conducting an information booth for the visiting public, and dispensing information handouts, maintaining visitor's log, etc, as an information/recruiting tool for Amateur Radio. Evidence submitted for both (B) and (C) may consist of copies of handouts, visitor's log, brief report on activities conducted, photos, etc.

3) Message origination: 100 points for origination of a message by the club president or other Field Day leader, addressed to the SM or SEC, stating the club name (or nonclub group), number of operators, field location and number of ARES members participating. The message must be transmitted during the Field Day period, and a fully serviced copy of it must be in standard ARRL message form or no credit will be given.

4) Message relay: 10 points for each message received and relayed during the Field Day period, up to a maximum of 100 points. Copies of each message, properly serviced, must be included with the Field Day report.

5) Satellite QSO: 100 points can be earned by completing at least one QSO via satellite during the Field Day period. The repeater provision of Rule 7C is waived for satellite QSOs. A satellite station (one) does not count as an additional transmitter. On the summary sheet, show satellite QSOs as a separate "band".

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6) Natural Power: Field Day groups making a minimum of five QSOs without using power from commercial mains or petroleum derivatives can earn 100 points. Intuitively, this means an "alternate" energy source of power such as solar, wind, methane or grain alcohol. This includes batteries charged by natural means (not dry cells). The natural-power station counts as an additional transmitter. If you do not wish to change your entry class, take one of your other transmitters off the air while making the natural-power QSOs. A separate list of natural-power QSOs should be enclosed with your entry.

7) WIAW message: A bonus of 100 points will be earned by copying a special ARRL Field Day bulletin sent over WIAW on its regularly announced frequencies just before and during Field Day. This message can be received directly from WIAW or by any relay method. An accurate copy of the received message should be included in your Field Day report.

8) Packet Radio: 100 points can be earned by completing at least one QSO on packet radio during the Field Day period. The repeater provision of Rule 7C is waived for packet radio QSOs. A packet station (one) does not count as an additional transmitter. On the summary sheet, show packet radio QSOs as a separate "band".

9) VHF/UHF: 100 points can be earned by completing at least ten QSOs (excluding packet contacts) on any band or combination of bands above 50 MHz (VHF/UHF bands) during the Field Day period. A VHF/UHF station (one) does not count as an additional transmitter. This station is not limited to making just ten QSOs. It may be operated for the entire Field Day period, and all contacts (excluding packet contacts) count for QSO points credit, including the first ten.

9) Reporting: Entries must be postmarked by July 29, 1997. No late entries can be accepted. A complete entry consists of an official ARRL summary sheet (or reasonable facsimile) and a list of stations worked on each band/mode during Field Day, plus bonus proof. The list of stations worked on each band or mode may take the form of official ARRL dupe sheets or an alphanumeric listing of call signs worked per band and mode. This list may be computer-generated. Incomplete or illegible entries will be classified as checklogs. A copy of Field Day logs should be kept by your Field Day group, but should not be sent in unless specifically requested later by ARRL.

10) Condition of Entry: Each entrant agrees to be bound by the provisions, as well as the intent, of this announcement, the regulations of his or her licensing authority and the decisions of the ARRL Awards Committee.

11) Disqualification: See the Contest Disqualification Criteria for complete details.

WIAW Field Day Schedule

In addition to the regular schedule detailed in April QST, extra CW bulletins will be run at 1400 UTC (10 AM EDT), and extra phone bulletins at 1500 UTC (11 AM EDT) both Saturday and Sunday mornings.