

**CROSSTALK -- Official Publication of the
GLOUCESTER COUNTY AMATEUR RADIO CLUB, W2MMD
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Milt Goldman, K3WIL	Publisher	Jim Mollica, K2OWE	Circulation
Ed Sumek, W2GSN	Printer	Len Kravitz, KD2CR	Circulation

AREA NETS

GCARC RTTY NET:	Tuesday,	8:00 PM 147.78/18 Rptr
ARES NET:	Sunday,	8:00 PM 147.78/18 Rptr

Club Repeaters: 147.78/18, 223.06/224.66, 447.10/442.10

General Meetings: First Wednesday of each month at the V.F.W. Hall in Woodbury, NJ. Meetings begin at 8:00 pm sharp.

Contributions: CROSSTALK, Tony Starr,
Deadlines: Ten (10) days before each general meeting.

PRESIDENT'S MESSAGE -- MARCH 1986

Greetings Members,

I would like to thank all the members who showed up at the February meeting. It was especially nice to see some of the older members out and having a good time. I also enjoyed sharing a moment to celebrate Della Parker's birthday. I hope you enjoyed the meeting and the program.

Many thanks to all of you who signed up for the Hamfest. Ginny Martin, N2FJM, reports that we have enough participants to have a really nice Hamfest. It would be nice if a few more of you could sign up, just in case you're needed. Contact Ginny Martin or myself.

The American Cancer Society will hold their annual Bike-a-thon on Sunday, July 20th. It will start at the Betsy Ross Bridge and end at Smithville Inn. Our club has been asked to provide communications. This means we will be needing operators and equipment. If you can donate some time to this worthy cause, please contact me and indicate how much time you can donate and where you would like to be placed along the route.

Thank you,
Joe DiNovi, WA2GFK

MARCH PROGRAM

This month we have our own Doug Gehring, WA2NFD, presenting to us an informative program about the ARRL. Doug will be telling us all about what the League does for us and what it means to be an affiliated club. Over the years, Doug has handled quite a bit of official communications between GCARC and ARRL, so there isn't much that he doesn't know about the League. Because we are affiliated, we should take this opportunity to learn about these things which pertain to the ARRL. Doug will be able to answer your questions without hesitation. So come out to the March meeting and enjoy this program with your friends and rivals. See you there.

LAST CHANCE TO PAY DUES

Our new Treasurer, having flown south for the winter, has left the purse strings in the hands of Ed, KA2KMW. Ed is carefully maintaining the integrity of our pecuniary resources, but he knows that some of you had better pay him a visit at the meeting this month. There is a penalty if you pay your dues after March, so bring your checkbook to the meeting if you haven't paid yet.

FIELD DAY PLANS SHAPING UP!

Wow! What a great response we have had so far! We already have 10 band chairmen signed up! I am also happy to report that we have a food committee, to be managed by Ros, N2AKL, and Irma, N2FNF. We will be having at least one meeting to discuss the details; you will be notified by mail if your attendance is required. One of my concerns is that with such a large number of stations on the air, we may not have enough operators to staff them all properly. If any of you haven't volunteered to operate but would like to, just contact the band chairman of your choice and ask him if he needs any additional operators. We still need a band chairman for 20 cw, so if anyone is interested, give me a call.

Here is our list of band chairmen who have volunteered so far:

BAND:	MODE:	NAME and CALL:
80	CW	Dave Strout, W2YC
75	SSB	Tony Starr, WA2FZB
40	CW	Ken Newman, N2CQ
40	SSB	Wayne Wilson, WA2LET
20	SSB	Art Strong, KA2DOT
15	all	Steve Sosson, KR1M
10	all	Dan White, N2FKT
6	all	Ray Martin, WB2LNR
2	all	Joe DiNovi, WA2GFK
220 and 440		Ed Loveland, WA2PFC

So there you have it. A full slate of real die-hard Field Day enthusiasts. We would like to invite all of you to come out and operate with us. I will update again next month, so until then 73 and see you at the meeting.

Tony Starr, WA2FZB

HAMFEST 1986

The Hamfest Committee core met recently and has released to Crosstalk a preliminary report. They have confirmed that the 'fest will be held on August 24, 1986, and for the first time ever, it will be held at the 4-H Fairgrounds on Rt. 77 in Mullica Hill. The all-new event will likely have the flavor of a country fair in such picturesque rural surroundings. We will provide you all with more details as they become available. If you have volunteered to help out, you will be assigned to one of the sub-committees if you have not specified what you would like to do. Let's make this one our best 'fest yet!

Info tnx N2FJM.

GET WELL SOON!
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We would like to wish a speedy recovery to the following friends:

Ed Sumek, W2GSN, now at home after a recent hospital stay.

Ed Stetser, K2JJC, also recently home from the hospital.

Jack Zaruba, K2ZA, who is in the hospital as of this writing.

Tnx K2PQD

LES BELLES
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Another YL is accepted for GCARC membership. With Myrt, N2AKC joining the club, it looks like ten YL members, if I am in error, let me know.

Myrtle Farnsworth, N2AKC and her DM, Glenn, K2EHM, are among our newest members. Myrt has been licensed since 1958 and is Amateur Extra Class. Just a few moments are spent as a Housewife but, she is part-time manager of her son's store, THE STORK'S NEST in Medford Lakes, and she is also a Past Matron of Order of Eastern Star and has recently been appointed Grand Representative of Ohio on a two year term. Myrt is a co-sponsor along with Jan, WB2JCE and myself for the forth coming Mini-YL Spring Fling in Hershey, PA in spring 1987. Myrt has lots of tickets for sale at \$1.00 each for a convention drawing on a "Dahlia pattern blue shades, Lancaster County, Amish Made Quilt." And, Myrt is also helping me with the SAYLARC, Second Area YL spring luncheon, more details next month on this. Her brother is W2DX. She is a member of YLRL, SAYLARC, Buckeye Belles, PJYL and AWARE Radio Clubs, taking an active part in all their nets. She enjoys walking, bike riding, playing the organ and having picnics. I'm so glad Myrt decided to join GCARC and am sure you will enjoy her. She has always been a regular attendee at our Hamfests as well as the Dayton Hamventions. Myrt is an official ARRL Vec Examiner and has served in this capacity many times with me.

I know Myrt will be ready to sign the Hamfest sheet and Ginny, N2FJM will have a job for her.

Myrt and I have attended many radio events and functions together.

73 Rose Ellen, N2RE

CONTEST CORNER

The following is a tabulation of the results of our efforts in the January VHF Sweepstakes:

CALL	SCORE
K2JF	2720
WA2PFC	2010
N2FJM	1469
KB2GW	1001
WA2ZST	870
WB2DXB	206
TOTAL	8277

Thanks to all for their efforts. Thanks also to those who came on to give much needed points to those in the contest--it was nice to know that so many cared and made their contribution to the club effort too. If I missed someone who did take part, please send me a copy of your summary sheet.

This year the W2SUA Trophy will be awarded based only on the phone portion of the ARRL INTERNATIONAL DX CONTEST, March 1 & 2. Next year's selection will be made well in advance. I was unaware until after the February meeting of the details of that award. I ask again--if there is something I'm missing--please let me know. I still don't have, at this writing, any of the records, including the previous megapoint award standings. When I get the records, I will make that update my first order of business.

If anyone took part in the International DX contests, please make sure that I have copies of your summary sheets, and, if you want me to copy them, please get them to me at least a WEEK before the deadline.

March is an important month for contests--so don't forget the CQ WPX SSB CONTEST as usual forms available from me at any time.

Let me ask that any of our new members who made a stab at contesting turn in their efforts--like Ginny did. As someone said, "try it--you might like it!". On VHF the spring sprints are coming up--they are short and give you a taste of contesting in an evening. You might even win something--I did--much to my surprise. I'll continue trying to have forms available for many non-club-participation contests also.

Again, I have forms for CQ WPX contests in hand, and also remember to let me know if I miss any important ones in my listings.

DATE	CONTEST
March 1-2	ARRL INTERNATIONAL DX CONTEST--PHONE
8-9	QWCA Phone QSO Party
15-16	YL-ISSB QSO Party-CW
29-30	CQ WW WPX SSB CONTEST

April	14	144 MHz Sprint
	22	220 MHz Sprint
	30	432 MHz Sprint
May	8	1296 MHz Sprint
	17	50 MHz Sprint
	24-25	CQ WW WPX CONTEST
June	7-8	ARRL VHF QSO Party
	28-29	Field Day

(Txn to ARRL, QST, CQ & 73)

DE KB2GW

ATTENTION CLUB MEMBERS WITH 2 METER SSB RIGS: SWOT (Sidewinders on Two) is looking for new members For information check in Delaware Valley Net Wednesday nights at 9 PM on 144.250 or see KB2GW.

SWAP & SHOP

WANTED: DRAKE RV-75 VFO - KENWOOD HC-10 clock.

FOR SALE:

KENWOOD TS-130 XCVR 10-80+ WARC BANDS, \$400.00

COLLINS "S LINE" all round emblem--32S3 XMTR, 516F2 P/S, 75S3B RCVR, 312B3 SPKR, 4 FILTERS. All in excellent condition \$850.00

DRAKE TR5 (DIG. R/O) XCVR 10-160 mtrs + WARC bands NB & CW .FIL, DRAKE 7077 MIC, HEATH HD-1144 P/S (20 AMPS) \$515.00

ICOM 211 2 mtr all mode with mic \$295.00

DRAKE MN-75 ant tuner (300 WTS) wire or coax 1.8 TO 0 MHz--New factory sealed \$159.00

DRAKE AK-75 wire antenna 1.8 to 30 MHz (new) \$35.00

For above items, contact K3UKW, Tony Musero

FOR SALE:

DRAKE TR-4 with RV-4, AC & DC power supplies. Very good condition. Good novice rig with 200 watts out. Asking \$250.00 or make offer. See KB2GW.

A LITTLE DX NEWS

Aland Island	OHOXX	160 meters	
Burkina Faso	XT2BR	14,198	2100
Canary Is	EABBCJ	7,025-29	0230
Fernando de Noronha	PY7PO/PYO	20, 40, 80	DX slots
Fiji Is	3D2DM	3790-95	1000
Franz Josef Land	UV100	14,010	1900
Indonesia	YBQWR	3794	0330
Ivory Coast	TU2CH	21,047	1730
Kenya	5Z4DU	14,183	2100
Mali	TZ6FE	3789-97	0030
		14,200	1400
Mongolia	JT1BG	7090-95	1130
Oman	A4XJZ	3790	0300
Saudi Arabia	HZ1HZ	1832	0415
Tonga	A35WZ	14,180	1500
Tromelin Island	FR7AI/T	10-80 CW	DX slots
Willis Island	VK9ZG	3795	0945
		14,195	1330

There is plenty of RTTY DX on 20 meters around 14080-095 and it is on most of the time the band is open. Tnx K2JF

ARRL AWARDS CREDIT ON 18 AND 24 MHz

At the ARRL Board of Directors meeting (Minute 50), a motion was adopted that the ARRL award credit on the 18 and 24 MHz bands except for five-band awards (Note N2FJQ). The awards for DXCC and WAS are to be recognized for all Amateur Radio bands (other than 10 MHz). Note that according to Don Search, W3AZD, there is no date restriction on QSL's for contacts made on the 18 and 24 MHz bands. In other words, contacts dating back to when these bands first opened are valid for DXCC credit. Tnx QRZ DX/K2JF

LICENSED AMATEUR RADIO MEMBERS UPDATE

As of December 1985, there are 415,856 Licensed Amateur Radio Amateurs. This does not include Club, Races, or other special application calls. FCC/Gettyburg/K2JF

COMPUTER TRIVIA

The first automatic computer, ENIAC (for Electronic Numerical Integrator and Computer) developed in the early 1940's (at the Moore School of Elec. Eng. Univ. Of Penna) contained 18,000 vacuum tubes, weighed 30 tons and occupied a room 30 by 50 feet. Locating and replacing defective tubes (6SN7's) was a problem as was cleaning out the moths that were attracted by the warmth and soft light, the term

"debugging", for fixing computer problems has stuck ever since! Tnx
W5YI/K2JF

ELECTRIVIA

Did you know that Alessandro Volta judged a battery by the flash he saw when he touched its wires to his eyelids!

Have you ever heard of a Leyden jar? Know what it does? I'll tell you one thing it is not for and that is for packing pickles.

Do you know what the number 3×10^8 meters/second means?

Tnx K2JF

Hugh A. Turnbull, W3ABC, the ARRL Atlantic Division director, will be at the SJRA meeting March 26, 1986 at 7:30 pm at the Pennsauken High School on Remington Avenue off of Route 73. All members of the GCARC are invited to attend. Tnx KA2QMP/K2JF

OLD BARNEY AMATEUR RADIO CLUB INVITATION

The Old Barney Amateur Radio Club is inviting members of GCARC to join them on a bus trip to the American Radio Relay League Headquarters in Newington, CT, on Saturday, April 5th. Cost is \$25.00 per person, which will include a snack on the bus. For further information see flyer at club meeting or call Bob Schenck,

NEW PERSONAL RADIO SERVICE PROPOSED

The FCC has dropped a bomb-shell on the personal radio community by issuing a Notice of Inquiry on January 30th proposing to do away with the General Mobile Radio Service. The General Radio Mobile Service Channels A thru H run from 462.550 to 467.725 MHz. Tnx W5YI/K2JF

NEW 160 METER BAND PLAN ADOPTED

New 160 meter band plan adopted: 1000-1840 kHz for CW/RTTY/narrow band and 1840-2000 kHz for CW/RTTY/wide band modes. 1830-1850 kHz for non-dx contacts. Tnx W5YI/K2JF

ARRL had "near record" membership growth in 1985—about 15,000 or

12% over 1984.

SIX METER NOVICE PETITION FILED

Another proposal for Novice enhancement has been filed with the FCC. Suggested are Novice voice privileges in the Six meter band. This one is signed by five amateurs and has the support of SMIRK, the San Antonio based Six Meter Internation Radio Klub. Two of the co-signers are WORSP, the QRP editor of CQ magazine and K5AMS, a SMIRK officer. Others are N4INU, KASULO, W8SJBP. The FCC assigned RM-5281 to proposal and circulated a Public Notice on its acceptance. Tnx W5YI/K2JF

HOW ABOUT CREDIT FOR WRITTEN EXAMS TOO?

Right now, if you pass a code test on your way to qualifying for a higher class of license, but you don't pass the "written", you're given credit for the code "pass" for up to a year--so next time you sit for the upgrade, you need only pass the written exam and you're in. FCC rules allow for this, but they don't allow credit for having passed a written exam unless it results in a new license or an upgrade. Robert Scupp, W8YYX, petitioned FCC to authorize that credit be given for written exam elements, just as it is for code. FCC has responded with a Notice of Proposed Rulemaking in PR Docket 86-63, proposing to do just that. Comments in this proceeding may be filed on or before April 30, 1986; reply comments are to be in FCC hands on or before May 31, 1986. A copy of the Notice of Proposed Rulemaking in PR Docket 86-63 may be hand from ARRL HQ for an SASE bearing 39 cents postage. Tnx ARRL/K2JF

BASIC ANTENNA THEORY: PART TWO

We left part one noting about James Maxwell and his theory. According to Maxwell, a magnetic field will be produced in empty space if there is a changing electric field. From this, Maxwell derived another startling conclusion. If a changing magnetic field produces an electric field, the electric field will itself be changing. This changing electric field will in turn produce a magnetic field. The latter will be changing and electromagnetic radiations will go through space. Electromagnetic waves occur as a consequence of these two effects. The two constantly varying fields are coupled together as they travel through space. Let us connect a pair of metal rods to a source of alternating emf. Such a source is an oscillator. For clarity we will imagine that there is only a single charge in each rod at any time.

While reading the following items, please refer to the illustration on page 10.

(a) When the oscillator is switched on, a positive charge in the upper rod begins to move upward and a negative charge in the lower rod begins to move downward. The electric lines of force around the charges are indicated by the lines and the magnetic lines of force due to the motion of the charges (they are concentric circles perpendicular to the paper) are indicated by crosses when their direction is into the paper and by dots when their direction is out of the paper.

(b) The charges have reached the limit of their motion and have stopped, so that they cease to produce a magnetic field. The outer magnetic lines of force do not disappear instantly because of the finite speed at which changes in electric and magnetic fields travel.

(c) The emf of the oscillator now begins to decrease, and the charges move toward each other. The result is a magnetic field in the opposite direction to the earlier field. The electric field is in the same direction as before.

(d) The emf has passed through 0 and begun to increase in the opposite sense. Consequently, there is a negative charge in the upper rod and positive one in the lower rod which begin to move apart. The electric field is, therefore, opposite in direction to the earlier field, but the magnetic field is in the same direction since magnetically a positive charge moving downward is equivalent to a negative charge moving upward.

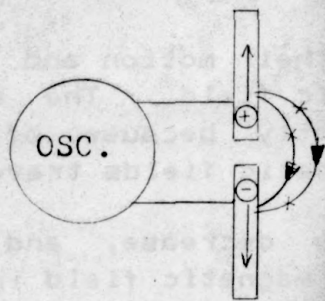
Owing to this sequence of changes in the fields, the outermost electric and magnetic lines of force respectively form into closed loops. These loops of force, which lie in perpendicular planes, are divorced from the oscillating charges that gave rise to them and continue moving outward, constituting an electromagnetic wave. As the charges continue oscillating back and forth, further associated loops of electric and magnetic lines of force are emitted, forming an expanding pattern of loops. From this it is important to remember three main properties of EM (electromagnetic waves).

1) The variations occur simultaneously in both fields so that the electric and magnetic fields have maxima and minima at the same times and in the same places.

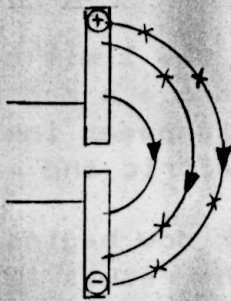
2) The directions of the electric and magnetic fields are perpendicular to each other and to the direction in which the waves are moving. Light waves are, therefore, transverse.

3) The speed of the waves depends only upon the electric and magnetic properties of the medium they travel in, and not upon the amplitudes of the field variations.

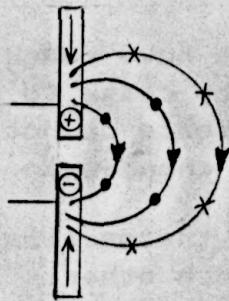
This last one is why we will later talk about dielectric constant or as sometimes called velocity factor in coaxial lines. The next section will begin to show how all this basic EM jazz begins to affect basic antenna design. Tnx K2JF



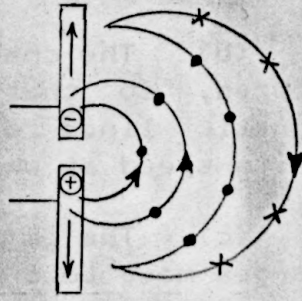
(a)



(b)



(c)



(d)