

CRUSSTALK

Published By And For The

* GLOUCESTER COUNTY AMATEUR RADIO CLUB, W2MMD *

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1981

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Field Day:

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Crosstalk Staff

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Club Nets

2 meter RTTY net: Thursday, 8:00 PM, 147.54

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The Gloucester County Amateur Radio Club meets the first Wednesday of each month at the American Legion Hall in Franklinville. Meetings begin promptly at 8:00 PM. Please send any contributions for CRUSSTALK to Doug Gehring, WA2NPD,

President's Corner, de KE2M

The April General Club Meeting will be held on the 1st, at the American Legion Hall in Franklinville, with the usual 8:00 PM start.

The April meeting will provide an opportunity to discuss the legislative and operating difficulties challenging Amateur Radio in the in the 1980's. Our special invited guest is Mr. Emis Coleman, Engineer-In-Charge, Philadelphia Office of the FCC. This is a presentation well worth hearing.

Field Day: Wayne Wilson WA2LET is the chairperson for our 1981 effort. Wayne will be looking for those interested in volunteering as a Band chairperson. If you are interested, you will have the opportunity to sign up before the meeting and at the break. It's not too early to start planning for the Club's premier operating event.

Hamfest: Harry WB2GSF, along with his co-chairpersons, are hard at work, and again the volunteer list will be available for anyone not yet signed up for his or her "tour of duty." Our committee is to be congratulated for having successfully applied for official "ARRL approved Hamfest" status. Very well done!

Your 1981 dues should be paid up at this time. If not, please see John, KB2GL, and take care of this. Each of you are very important to us and we want to keep you as members.

Up-to-date membership lists are now being compiled and will be available at the meeting. If you have any changes in your name, address, call, or telephone number, please bring it to the attention of John, K2JF, our membership chairperson.

The April Board of Directors' Meeting will be held on the 15th at the home of John, K2JF,

73

Tom KE2M

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Contest Corner

Just a reminder to all you DX'ers, turn in your logs (DX contest) at the April meeting at the latest! Alternatively, mail your logs to ARRL and just give me your score sheet summary - either way is OK. But we need your score for mega-point totals and to see who wins the W2SUA trophy for 1981. By now, the WPX phone weekend will be history, but don't forget the CW portion coming up in May; then that will end the year's contesting until a new year begins next fall (except for FD, of course). May the best Op win!

Tnx, de K2HPV

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Membership Renewals

This year, several of you mailed your membership renewal dues to yours truly. I am glad to accommodate you, but it means I have to mail your dues on to our Treasurer, John, KB2GL. To save time, please always send your dues to the club treasurer for prompt accounting. Also, remember to renew your ARRL membership through the Club (again send to KB2GL)! The Club gets to keep a percentage of the renewal.

Tnx. de WA2NPD

Club Meeting Refreshments

Those delicious, scrumptious donuts and fresh-brewed PY-land coffee nectars don't just jump out of the Legion Post woodwork and find their way down our gullets to satisfy the cravings of our muscular contractions which occur in the vicinity of our belt buckles! No, this gourmet repast is methodically prepared by none other than Jim, N2AKI, and his co-workers with great reliability and dedication. Also, the after meeting clean-up, re-arrangement of furniture, etc. must be done. Next time, instead of simply plunking a quarter in the alms pot and making off with your feed, be sure to slap Jim on the back and say "thanks" for continuing to do a FB job. "The good do not lie interred in his bones," etc.

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Equipment Sale Successful

At the March meeting, a horde of equipment from WA2TQI was auctioned off -- all proceeds donated to the Club. Many tx to Bill Horlock. The Club's premier auctioneer Ray, WB2LNR, was in rare-silvery throated, oratorical form and his rhetorical barbs served to embellish the value of some otherwise suspiciously working-order-suspect gear. Nevertheless, an enjoyable time was had by all who chose to match prices until the last Clipperton Linear was sold.

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4 Sale Department

TS-820S with phone, 400 Hz filter; Yaseu
FL-2100B 5-band 1200 watt linear; Assorted microphones and Telex CM 1320 headphones, all in A-1 shape, prices reasonable. Contact Jeff, W2HRA;

Wanted: Manuals for Heath HW 202 and for ICO 710 grid dip meter. Will xerox copy and return, if necessary. Contact Walt, WB2OYQ,

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DX Notes of Interest

Heard Island. Word is out that P29JS has scrubbed the Heard Island expedition, but will try again in early 1982.

Nigeria. G3PQA/5NØ has a good signal on 1801 KHZ daily from 2200 until 2245Z. 5NØDOG will be leaving Nigeria on 15 March and hopes to be at the Dayton Hamvention.

Iraq. Y11BGD shows up in the company of ILAGC on Tuesdays or Thursdays at 1900Z on 14290 KHZ.

Campbell Island. ZL3AFH/C will tied up by his work schedule until 21 March when he will be able to devote many future hours to satisfying the demand for Campbell Island.

Comoros. DG8AM is still meeting his schedule with KØVVV on Tuesday afternoons on 21285 KHZ. This will be a 7 day/week operation.

Burundi. 9U5JM appears at 1700 on Saturdays for a list which is taken at 1600Z on 21280 KHZ.

Heard and worked. SULAL on 14227 at 0300Z. FRØFLO on 3789 at 0300Z. VQ9EL on 3795 at 0300Z. 9M2RN on 28670 at 0000Z Sundays.

South Georgia. Phil, VP8SU, is a daily visitor to 14250 KHZ at 1900Z.
QSLs to G3RCA.

Taiwan. BV2A frequents 14025 KHZ after 1300Z. QSLs should be sent to
101, Taipei, Taiwan.

Mariana Islands. KG6RT, Byrd, can be found on 3503 KHZ after 1230Z.
QSLs to W6IAE.

Vatican. Vatican station, HV3SJ, has been quite active lately. Check
28595 KHZ at 1300Z.

East Malaysia. 9M W is looking for East Coast U.S. and Canadian QSOs on
14045 KHZ at 1100Z and 21000 KHZ at 0000Z daily. QSLs should be sent via
G4DXC.

Philippines. DULEFZ shows up daily on 21290 KHZ at 1330Z.

Seychelles. S79MC advises to send all QSLs via his manager, AK3F, for a
prompt reply. AK3F has the S79MC logs from 1 January 1979 and normally saves
the logs for 18 months or less.

Sudan. DK3NZ/ST2 likes 7005 KHZ after 2230Z.

Chagos. VQ9EL. Check 3795 KHZ around 0200Z

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Items of Interest Department
by K2JF

The FCC will issue a Notice of Proposed Rulemaking (NPRM) in April on
a 900 MHz Personal Radio Operators band (CB). This is to find out: 1) Does the
public really want a 900 Mhz CB service? 2) What will be the price range of the
equipment? 3) What other service wants the band?

(General Electric's RFI Light Bulb. The FCC has granted GE authority
to make and sell its "Electronic Halarc Light Bulb." The bulb is similar in
appearance to an ordinary bulb and fits a standard base. It uses one-third the
electric power required by a standard light bulb and lasts six times as long.
The bulb generates light by using a RF oscillator to strike an arc in a tube
containing metal halide vapor. All reports of RFI caused by the bulb must be
sent to the FCC by General Electric. It will be interesting to see what effect
it has on sensitive amateur radio equipment. Maybe we will call the FCC and
complain about HI (Ham Interference).

We get copies of all the FCC actions on various rule makings and some
of them are very interesting...even corny! One recent rule making had to do with
a dairy farmer that wanted to keep track of his herd by wiring each cow with a
transmitter. (Radio active milk?). On February 18, the Clairol Company (of
color hair fame) was refused a waiver of the Part 18 Rules. They wanted to
market an Ultrasonic Denture Cleaner that, according to the FCC, returns any RF
voltage to the electric power lines. Clairol is stuck with 50,000 of these
devices. (Don't clean your teeth during prime time TV please).

Non Jammable Tactical 2-way Radio called the Jaguar-V has been in-
vented and is being marketed by British Racal Electronics Ltd. The transceiver
uses a frequency-hopping technique (one of the methods of Spread Spectrum
operations that some of us who are members of AMRAD have applied for a special
research license). Both the receiver and transmitter are synchronized to a code
selected by the operator. The hop rate is fast enough to defeat any known
jamming technique. (Also non interference to existing forms of
communications).

Items of Interest Dept. (Continued)

The ARRL has commented to the FCC about the proposed new LOW-POWER TV Broadcasting and Translators. The league reminded the Commission that "both FCC and ARRL investigation shows that 90% of the problems experienced by TVI can be cured at the TV receiver." The ARRL asked that the Commission examine television set design if the expected proliferation of LOW-POWER television stations comes about. (We don't have enough TVI problems?)

The Encyclopedia of the future will be on a SINGLE 2-sided 12" disk. RCA has just received a patent for the disk which can hold 100 BILLION bits of information. Recording and reading of information is done by a laser.

Computer Semantics - Micro/Mini/Mainframe; Soft/Firm/Hard-;
A microcomputer is a small computer in which the CPU (central processing unit) is an integrated circuit deposited on a silicon chip. A minicomputer is simply larger, usually more powerful (can do more programs) and costlier than a microcomputer, but not as costly or as large as a mainframe (A Big Baby can do everything but get you a date for Saturday night--Come to think of it, it can do that too). Software is a general term for computer programs and sometimes its documentation. Firmware is a program that is permanently wired into a computer. Hardware is the physical computer itself and its various peripherals (printers/drives/modems/terminals/CRTs., etc.) Another new Buzzword we are hearing is "Telematics" - a coined word meaning the result of the marriage of telecommunications (the telephone for instance) with the computer.

It is now forecasted by the Commerce Department that "... By 1985, 70% of the nation's work force will have to know how to interact with computers." "More than a million computers (TODAY) are churning out 220 billion pages of information every working day." Looks like computers are taking over. I feel kind of sorry for you younger people who will have to work with those "monsters"; glad I'm retiring in '82.

(Ed. Note: We'll let you retire from RCA John, but not from the X-TALK Reporter Staff).

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Antenna Gain by K2JF

Antenna power gain is expressed in DECIBEL (dB) units and is referenced against a standard comparison antenna such as a dipole. The comparison antenna most often used in the antenna industry is the ISOTROPIC RADIATOR and the gain is abbreviated dB_i (decibels above isotropic).

The Isotropic Radiator is assigned a power gain of unity (one), or zero decibels. Although the Isotropic Radiator is only theoretical and empirical in nature, an approximation would be a very short portion of a full-size dipole (perhaps 1/100 wavelength) with constant current and 100% efficiency. Another common standard is the DIPOLE which has a gain of 2.1 dB above the Isotropic Radiator. Therefore, when comparing antenna gain, make certain you know what reference antenna, dB_i or dB_d (dipole) the manufacturer is using. Attached you will see a Truth Table of Antenna Gain. Let us see, for example, how much power gain you might expect if you buy a 3-element Yagi. The power gain is:

Dipole	= 2.1dB center section (driven element)
Reflector	= 3.0 dB
Director	= 5.0 dB
Total	= 10.1

Propagation Forecast for April 1981

From what I am hearing the ARRL DX PHONE contest was a big success. I am hearing scores like: "worked 1200 stations," plus "lots of multipliers." Scores in the millions of points. I sure hope you all enjoyed the CQ WW Phone contest. There was a chance to pick a few choice DX areas. See where VP1QA from Belize was doing FB.

Long range prospects: The lull in solar activity appears to be coming to an end. There has been a steady increase in the intensity of geomagnetic disturbances as the earth approaches its maximum exposure to the sun's southern hemisphere active zones. Since the sun's most active flare regions are located in the northern hemisphere, the earth will not get the full blast of particle streams from these until next fall. During the months of April and May there will be a rise in the number of sporadic-E VHF openings. These accompany the general increase in meteor shower activity that occur in April, May and June.

The present trend of the present solar cycle indicates that the solar flux will continue and average above 150 (sunspot number of 100) until 1983. The next minimum will occur in mid 1987.

At the end of the Propagation Forecast is a survey as to the wishes of the readers for a continuance of this column. Those very few who are DXers in our midst generally get copious data on propagation from various sources such as: DX bulletins, QST, QRZ, CQ, 73, and WWV and in general do not need this information. The time I put into this column is considerable. At least 2 to 3 hours a week, plus the typing, and the running off of 200 copies of the report after working hours, on the Xerox machine. There is also a considerable amount of hidden expense (Betty costs \$25.00 an hour) and it usually takes her about 2 hours to run the data through the computer and compile it in such a manner that it is usable by me for the "Ham" bands, plus the Xerox expense. If there are enough of you who want this column to continue we will be glad to continue the forecast, if not this will be the last column. (K2JF).

OK HERE GOES ALL TIMES FITMAN TIME

For the Time Geography area use the report as given in the March issue. Expect the 10 meter band will open about 30 to 45 minutes earlier and last about an hour later.

6 As previously said Sporadic-E openings will occur throughout the month of April. We also should see some very good F-2 openings when we have disturbed conditions.

H.F. Openings 1, 4-5, 9, 14*, 17*, 21-25*

V.H.F. Openings 5, 9-10*, 17, 19, 28

*Extra Good days

_____ Use the Forecast often

_____ Use the Forecast sometimes

_____ Do not use the Forecast

Tear off at the above line and bring to the Club meeting, April 1, 1981 at the American Legion Hall at 2000.

Antenna Gain (Continued)

So what does this mean in improved signal strength? Suppose your rig puts out 150 watts into a 50 ohm load (antenna) and assume your new tribander, 3-element Yagi is perfectly matched. By substituting into the dB power equation:

$10.1 = 10 \log P_2/P_1$ we get:

$$10.1 = 10 \log P_2/150$$

$$1.01 = \log P_2 - \log 150$$

$$\log P_2 = 1.01 + 2.176$$

$$P_2 = 116 \text{ watts}$$

Note: here P_2 is the final power to be found.

You say what good does this do me? Nobody uses an Isotropic Radiator -- it doesn't exist in practicality! So, let's compare against a dipole -- which has 2.1 dB gain above the Isotropic Radiator:

Hence, the Yagi gain is now $10.1 - 2.1 = 8.0$ dB.

Substituting as above:

$$8.0 = 10 \log P_2/150$$

$$P_2 = 946 \text{ watts}$$

So instead of putting out 150 watts in all directions you now put out 946 watts in a given direction. Price worth it?

Let us cite a practical case for one of our more illustrious members Ray, WB2LNR, whose 5-element beam on 6 meters is up 70 feet (free space, for all practical purposes). Assuming Ray has it matched (and assuming his KW is fine tuned) over a dipole we have:

Reflector	- 3 dB
1st Director	- 5 dB
2nd Director	- 2 dB
3rd Director	- 1 dB
Total gain	- 11 dB!!

Plugging in the numbers as above, we find Ray runs about 12.6 KW out 6M. (TVI anyone?)

Antenna Type	Decibel Gain over Isotropic Radiator	Decibel Gain over Half-Wave Dipole Antenna
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Isotropic Radiator	0	-2.1
Ground Plane	+0.3	-1.8
Half-Wave Dipole	+2.1	0
5/8 Wave Antenna	+3.3	+1.2
Quad Loop Element	+4.1	+2.0
2 Element Yagi Beam	+7.1	+5.0
3 Element Yagi Beam	+10.1	+8.0
4 Element Yagi Beam	+12.1	+10.0
2 Element Quad Beam	+9.1	+7.0
3 Element Quad Beam	12.1	+10.0
4 Element Quad Beam	+14.1	+12.0

*This one is commonly known as the "Monster Beam." If you have ever seen one you will know why. Good luck on your beams and remember, when comparing one vendor to another in their antenna gain advertisements, make sure as to their reference.

Call Letter License Plates

by Josh, AE2L

To clarify questions concerning how to get NJ license plates with your call letters, the following may be of interest:

1. The applicant must be a holder of a current unexpired, unrevoked Amateur Radio License issued by the FCC.
2. Only one set of registration plates bearing the same Amateur Radio Call Letters may be issued for one vehicle for any one applicant.
3. The vehicle must be titled and registered in the name of the applicant who holds the Amateur Radio License by the FCC.
4. The fee for such license plates is \$10.00.
5. The applicant must furnish the Division of Motor Vehicles a photo copy of the FCC Amateur Radio License, current New Jersey registration certificate with the motor vehicle application.
6. Cannot be issued for commercially registered vehicles.
7. A second set of Amateur Radio Call Letter Plates may be issued, if less than 5 characters, and is registered in the same name as first vehicle.

So, that's the gist of it; simply fill out an application form, make a xerox (or other) copy of your ticket, copies of your current driver's license and registration, and together with ten bucks, mail all to the Division of Motor Vehicles, 25 South Montgomery St., Trenton, N.J. 08625. Usually, about 6-8 weeks later, your call letter plates will arrive in the mail.

If your ticket should ever lapse, you must notify the MV Division within 15 days. The MV will then issue you new regular plates and registration at (naturally) a fee. In fact, the Club will have application forms for all those interested at the April club meeting (for free too).

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"Eavesdropper" to Return!

Following a brief respite and vacation from the rigors of taking pen to parchment, the mysterious "eavesdropper" is expected to return with next month's issue of CROSSTALK. All of you who have anxiously awaited some word as to when this would resume can now rest easy. Unless, of course, you are the lucky one selected for public acclaim (or disclaim) as the case may be.