

Crosstalk is published monthly by the  
GLOUCESTER COUNTY AMATEUR RADIO CLUB

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CLUB NETS

6 M AREC  
10 M Rag Chew  
Novice

50.9----Sundays, 8 PM Local Time  
28.8----Friday, 9:30 PM Local Time  
21.115--Monday, 8:30 PM Local Time

MARCH MEETING: WEDNESDAY MARCH 5th BEGINNING AT \* PM. PROGRAM:  
WA2USI TALKS ON 2 METER FM--See page 1 for details.

\*\*DEADLINE FOR SUBMISSIONS FOR THE APRIL ISSUE IS SUNDAY, MARCH 16, 1975.  
PLEASE MAIL ANY CONTRIBUTIONS TO: MARK WILSON, WB2OSQ,

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### MARCH PROGRAM

The March program will feature a new member of our VHF Committee, Chic Naylor, WA2USI. He will talk about the Barnsboro Repeater, soon to be on the air.

The repeater has been described in a previous issue of Crosstalk. Chic will tell what went into the making of the repeater, how it started and how it works. This will be an interesting program for those of you into FM or who aren't, but would like to know what goes on up there.

Also, W2LVW has some freebees for all attending members. This sounds like a good reason, coupled with the program, to get as many members out as possible. There will be something for everyone!

### PRESIDENT'S COMMENTS

You will note elsewhere the list of club committees for this year. There are still a few openings at this writing, so if any more of you wish to help out with the Committee of your choice, please let me know.

Particular gratitude goes to Harry, WA2SEA, for volunteering as our 1975 FD Chairman. This important post couldn't be in more capable hands. Also, our banquet Committee with Steve, W2TDS, at the helm and Shorty, W2SUA, manning the oars, is off to a roaring start. With Herb, K2HPV, joining this crew, there is little doubt that our "Blast" on May 10th will not be a roaring success. Also, I am especially pleased to see Bob, K2JRU, as our new Ass't. EC and to learn that Bob, WB2RVE, is making great strides to get a Club ham shack in operation. Rudy, WA2UWU, and Jim, WB2GJH, have joined with John to shore-up our Picnic, and Chic, WA2USI, will help keep us informed on VHF-repeater activity.

Regarding the recently announced proposed rule changes from the FCC, I have appointed a committee of four, namely, Shorty, W2SUA, Chairman; Steve, WA2AXJ; Ken, W2FBF; and Rich, WB2OCR, to recommend, by the March Board meeting, how we, as a club, should respond. Whether it be by questionnaire, individual letters, polls, show of hands, point by point votes, etc. This committee will guide our thinking. I strongly feel -- as recommended by the ARRL, that we must respond as a Club, in addition to any individual action.

Our program on MARS last month was especially good. Won't you come out this month and join the crew?

73 de WA2NPD

### NEW ADDRESS

Rich Netherby has moved from his Paulsboro QTH to Woodbury. Seems that he is just down the street from Ken, W2FBF. Wonder what he going to do with all of that RTTY equipment, etc. The new address is:

Rich Netherby,

No phone number is available at this date.

### UPGRADES

We are pleased to announce that Jim Buzby, WB2GJH, has made the big jump to General Class. His Novice license lapsed but he kept at it and completed the requirements for the new license.

Carmen Inverso, WA2TRS, has upgraded to Advanced Class. If you remember, Carmen obtained his General about a year ago with no Novice experience. Congratulations all around.

### GCARC COMMITTEES FOR 1975

Here is the Club "backbone" for 1975. The first named Ham is the Committee Chairman.

Program:	Rich Netherby, WB2OCR
Publicity:	Steve Asay, WA2AXJ, John Poulson, WA2FVH.
Awards:	Della Parker, W2AFZ
Code Class:	Mark Wilson, WB2OSQ, Bill Bachman, WA2VEE
Field Day:	Harry McCormick, WA2SEA
Membership:	Bill Bachman, WA2VEE
VHF:	Ray Metzger, WB2BZY, Chic Naylor, WA2USI
Contest:	Ken Newman, W2FBF, John Stull, WB2JZX, Bill Frambes, WB2FJE
DX;	Wayne Wood, W2SUA
Ham Shack;	Bob Spain, WB2RVE
House:	Bob Spain, WB2RVE, Chairman Mark Anthony, WN2WFZ, Refreshments Ernie Gigliobianco, WN2TWC, Drawings, tickets
AREC:	Harry McCormick, WA2SEA, EC, Bob Meis, K2JRU, A. EC.
Crosstalk:	Mark Wilson, WB2OSQ, Editor
Tech. Advisory:	Bill Frambes, WB2FJE, Rich Netherby, WB2OCR, Bob Doak, WA2AIH
Historian:	Della Parker, W2AFZ
Club Picnic:	John Kull, WB2GKH, Jim Buzby, WB2GJH, Rudy Jalbert, WA2UWU (all are Co-Chairmen).
Banquet:.	Steve Blasko, W2TDS, Wayne Wood, W2SUA; Herb Schuler, K2HPV
Bicentennial Celebration:	Rose Ellen Bills, WA2FGS, Jack White, WA2MEM, Doug Gehring, WA2NPD
Ass't. to Atlantic Div. Dir.:	Wayne Wood, W2SUA

### CLUB JACKETS

Last chance to order a Club Jacket. There have now been 12 orders placed. Those who have ordered are waiting for the jackets, so any further orders better get in fast! It might be another two years before you can get one. Contact: Rich Netherby,

GCARC BANQUET TO BE HELD AT TALL PINES

- When: Saturday, May 10, 1975
- Where: Tall Pines Inn, Woodbury-Glassboro Road., Sewell, N.J.
- Dress: Sunday do-to-meetin' clothes (No Levi's, flannel shirts or streaking)
- Menu: New Orleans Golden Fried Butterfly Shrimp, \$8.00 or  
Prime Rib of Beef, \$10.00.  
Meal includes main dish, vegetables, non-alcoholic beverage, dessert.  
Price stated includes all tax, tips, etc. No additional payment  
necessary. Booze available for additional cash.
- Who: Open to all GCARC members, their families and close friends.
- Tables: A limited number of tables set for 4, 6, or 8 persons are available,  
so if you're planned to have a group, you wish to be together with,  
make your reservations early.
- Prizes: Door prizes are being contributed by Milt Goldman, K3WIL, and Jim  
Peck, W2LVW, who own Radio Shack stores in Brooklawn and Mantua,  
respectively, and Gammatronics in Westville.
- Tickets: 100 tickets are available on a first come first serve basis, so be  
sure to make your plans early. No tickets will be available until  
the March 5th club meeting. You can get tickets as long as they  
last after the March meeting from members of the Banquet Committee:  
Steve Blasko, W2TDS, Herb Schuler, K2HPV,  
Wayne Wood, W2SUA, Bill Conrad, WB2FIF,

There will be a guest speaker, and lots of fun besides. More details  
will be available at upcoming meetings and in future issues of Crosstalk.

Bill Conrad, WB2FIF

HAM INTERVIEW

By Gurdon Cooper, W2PAX

Our president, Douglas G. Gehring, WA2PND, was born in the Underwood  
Hospital in Woodbury, on Mar. 13, 1932. He grew up in Wenonah, and was  
educated there and in Woodbury High School. He received a B.S. from Buck-  
nell University and an M.S. in chemistry from the University of Delaware.

Doug served two years with the U.S. Army on Formosa. He joined the  
DuPont Co. at its Eastern Laboratory in Gibbstown, where he worked until it  
closed. From there he went to the DuPont Experimental Station in Wilming-  
ton, Del., then to the Organic Chemical Department's Jackson Laboratory in  
Deepwater, where he now works as a research chemist.

Doug presently serves as Scoutmaster of Boy Scout Troop 31, and is on  
the SNJ Boy Scout council executive committee. He is an Elder in the Pres-  
byterian Church, and a Boro Councilman. Doug has earned approximately 20

HAM INTERVIEW (Cont'd.)

international master points at bridge, and played the violin with the now defunct Woodbury Symphony Orchestra.

Doug was first licensed in 1959 and he joined the GCARC in 1960. He has found time to acquire his Extra Class License. Doug is now serving his second stint as President of our club, and was V.P. twice. He has also been recording secretary. Doug is a long time director, and served for several years as editor of Crosstalk.

Doug is active in AREC, was a member of the RACES net when it was active, and is a life member of the ARRL. He holds a Club certificate with a 70 member endorsement, WAS, WAC, DXCC, and a code proficiency certificate with a 30 WPM sticker.

Doug resides in Wenonah, with his wife and two children. His equipment consists of a Hammarlund HQ-170, Heath-10, home brew linear, and a Heath Sixer. The antenna farm includes 5 elements on 6M, but his favorites are 20M & 15M, CW and SSB.

Doug's record of service and dedication to the betterment of our club should be an inspiration to all of us.

NOVICE NET

By Steve Asay, WA2AXJ

The purpose of a Novice Net is to teach Novices, and anyone else who wants to learn, about informal net procedures. There is occasionally some training and sometimes I will send out written information. We have even passed some traffic on the net!

While this is the main "purpose" of the net, it is usually just a ray chew net and a guaranteed QSO for anyone on frequency. I think the GCARC Novice Net does a very good job, except for one small problem: We no longer have any novices checking in.

For the past several months now the Novice Net has been operating on 21.115 Mhz. The net is called every Monday night at 8:30 PM EST. The call is "CQ NN CQ NN de WA2AXJ. . . K." This is a call for all to check in. After the first stations checking in, I usually call again and repeat the procedure until no further stations are heard.

If I don't acknowledge you the first time you call, try again. If you can't make it at 8:30, just break in any time.

Fifteen meters is an easy band to get on. If you are having trouble with 15 meters, give me a call and I will try to help. If I can't, I will refer you to a member of our Tech. Advisory Committee.

Hope to see you next Monday night on the Novice Net (this goes for you upper class guys too).

DX

The ARRL Board of Directors recently unanimously adopted a request by the DX Advisory Comm. to make available a DXCC certificate endorsed for CW only contacts in the same fashion as the phone only DXCC Award. The starting date for contacts to qualify for this award was Jan. 1, 1975. Further rules to be announced.

Also adopted was a motion that an award cumulative list of holders of 5-band DXCC shall be published in QST.

The Board also established a special U.S. bicentennial WAS award available for the year 1976 only. This will be in the form of a special certificate.

Point your beam south--check everything you hear--there appears to be potential activity from the So. Sandwich, So. Georgia. So. Orkney and So. Shetland Islands. These are So. American boys on scientific expeditions for their countries. XQ9BIJ from Chile was operating from So. Shetland the other night and he sure made a lot of 20 meter SSB hams happy. These are rarely activated countries and it may be some time before they are around again. Antaratica -- PB8YC is regularly heard on 20 SSB working all takers. He is based a few miles from the magnetic pole. Formosa -- BV1A 14025 & 14040 CW -- BV2B 14218 & 14250 SSB -- there is only one operator licensed at present -- others are expected later.

Big kicks of hams radio -- working an old friend while he visits a foreign country -- I recently worked one of our club members -- Doctor "Charlie" Greene, W2EPI, while vacationing in Mexico. In this instance he was visting XE1FFF.

De Shorty, W2SUA

CONTEST CORNER

Results for the 1975 VHF Sweepstakes are in. WB2BZY, Ray, took first place setting a new club record of 6660 points. Good job! Ray chose a VHF Operating Manual as his prize. The scores follows:

WB2BZY	222 QSO	5 sections	6660 points
WA2SEA	66 QSO	3 sections	1716 points
W2FBF	32 QSO	2 sections	768 points

There are still two more weekends for the DX Contest. Phone --March 1 & 2; CW--March 15 & 16. The W2SUA Trophy is still up for grabs.

CODE CLASS

This year's code class is drawing to a close. Three of the students have passed the code test and one of these has passed the written test. About three more students still have to take the code test. It shouldn't be too long before they do.

It will take about six weeks for the FCC to process the applications and issue call letters. Calls of the students will be announced in a future issue of Crosstalk.

WORLD RADIO NEWS, ANYONE?

If anyone is interested in receiving World Radio News, now is the time to subscribe. The annual cost of the monthly newspaper is \$5.00. The GCARC gets \$1.00 of this. It sure is a beneficial way to receive an interesting publication. See Rose Ellen, WA2FGS, for details.

PROPOSAL: THAT THE CLUB STATION  
BE RE-ACTIVATED

By Bob Spain, WB2RVE

At the February Club meeting, I was drafted as a committee of one to look into the possibility of re-activating the club station.

I personally feel that this would be an asset to the club, as a potential enticement of new hams (without rigs) to club membership. Also, the airing of the Club Call between Field Day's might make our existence known to other hams in the area.

As with any venture, there also are risks and problems. One of these is unauthorized entry/operation and theft.

In accordance with FCC regulations 97.81 and 97.127, the equipment would have to be secured in such a manner that would prohibit operation and/or tampering of the equipment by unauthorized persons--i.e.--intruders and non-hams.

The old kitchen could be used as a hamshack, if the doorway to the main area were blocked and an operating position established by the old door.

A suitable system for control of the keys to the room is under development, as is use of the equipment. Two good locks for the hall door to the kitchen would have to be procured, and a suitable no admittance sign placed on the door.

In the line of equipment, I am prepared to place my National HCX-3 SSB transceiver on semi-permanent loan to the club station, along with a Turner 254C microphone. Jim Peck, W2LVW, has offered to donate necessary coax for the station.

With the police out of the building, problems of QRM and intermodulation with the police formerly experienced should be minimal.

There is adequate room on the roof for antennas. Several years ago our 6-meter beam was on the roof.

Unless some charitable club member contributes a HF beam or vertical, our antennas would probably be 40 and 20 meter dipoles, a 2 meter ground plane, and a six-meter beam.

For the VHF operator, we have the old CD radio which could be dual channeled for 146.52 Mhz simplex, permitting technician ray-chews and talk-in of new hams not familiar with the club room's location.

SWAP SHOP

- FOR SALE: Model 14 RTTY typing reperfs. Like new condition--\$35 each.  
Contact Phil Catona W2JAV
- FOR SALE: 1 dual trace Heath HF oscilloscope \$350 or trade for SSB trans-  
ceiver. Contact Gurdon Cooper, W2PAX
- FOR SALE: HA750 6 meter rig with AC power supply and Halo antenna. Contact  
Bill Frambes, WB2FJE, after 6 PM.
- WANTED: A.C. power supply for HCX-3. Contact Vic Dudley  
after 6 PM.

Anyone with anything to buy, sell or trade should contact Mark Wilson  
to place an ad.

LES BELLES

DOES YOUR CHILD NEED GLASSES?

This is an important question to keep in mind if you are a parent. If your child develops a need for corrective lenses, you'll find it necessary to consider helping a child to accept wearing glasses and remember, that fashion and other factors are important to a child. Your child may feel "different" from the others or think he/she suffers some terrible handicap.

Most unfortunately, until very recently, child who had to wear prescription lenses were often the brunt of cruel jokes from their young friends because styles were usually limited to anything other than attractive ones.

Today, eye glasses have frames both for boys and girls made to appear to all age groups. Probably the least opposition will come from the teen lens wearer because for them the glasses have become fashionable and they can choose from a wide range of styles. Many are wearing contact lens.

Girls and also boys have been turned away from that important "prom" or other "date" because of being one who wears glasses. The school athletic program was another "off limits" place for the wearer of glasses. As we get older we notice that the majority of people wear glasses at some time or other and we learn to see this fact from a different "eye".

For the ham operator there is a new type of "cans" that do not have to be pressed against the frame of your glasses and this is most important to the CW operator.

Our sight is one of the most important of our senses and our children should have every opportunity to see as well and as clearly as he or she possibly can forever. We, as parents, should make every effort we can to avoid the feeling of rejection from wearing glasses.

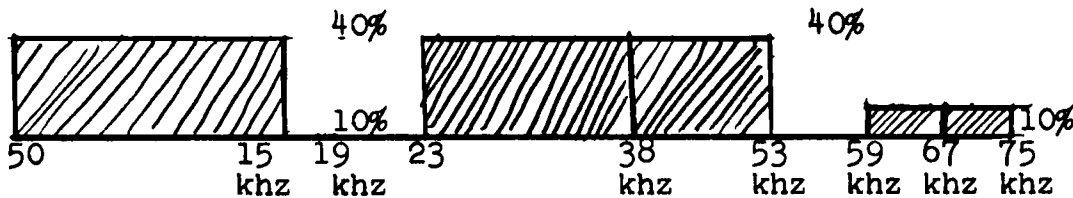
73's Rose Ellen, WA2FGS



THE MUSIC YOU DON'T HEAR by Bob Spain, WB2RVE

For several years, certain FM broadcast stations in the U.S. have been broadcasting background music, the music you hear in doctor's offices, lounges, etc. This signal cannot be heard on an ordinary FM receiver, only on one with an additional SCA (subsidiary communications authorization) detector.

Let's first look at an idealized swept view of the baseband information as it enters the modulator. It would look something like this:



The sideband information conveyed from 50 Hz to 15 KHz is the monaural (L+R) audio information.. It deviates the carrier a maximum of 40% when all other signal components are present. At 19 KHz on either side of the carrier, we have a "stereo pilot" subcarrier which is used to synchronize the stereo decoder in home stereo receivers. This pilot deviates the carrier a maximum of 10% of the full (+75 KHz) deviation.

The sideband information from 23 to 53 KHz is the stereo difference signal (L-R), which is used in home stereo receivers to create the difference between the left and right channels, or stereo separation. These sidebands are formed by amplitude modulation of a 38 KHz subcarrier, and the 38 KHz carrier is nulled out. The stereo sidebands deviate the carrier a maximum of 40% when all other components are present.

The last sideband information in the channel we encounter is the SCA, information between 59 and 75 KHz either side of the carrier. This is a frequency modulated subcarrier which can be used to convey music or messages.

This (SCA) is the transmission medium of background music. The SCA signal deviates the main carrier a maximum of 10%.

If you were to attach a FM discriminator tuned to 67 KHz to the detector in your FM radio and upon connecting an audio amplifier to this discriminator, you would hear background music (provided you were tuned to a station with an SCA).

The SCA is considered a "closed-circuit" type of broadcast by the FCC, and FM stations that operate this service are permitted to lease receivers (similar to those described above), to merchants in their community. If a merchant were to hook up such a receiver without paying the station a fee, he would be in violation of the secrecy of communications act, plus certain copyright laws. However, in accordance with this act, it is permissible to listen to this program in the privacy of your home with your own receiver, and not be liable to pay the fee.

Different stations broadcast different types of background music, and in Philadelphia there are several stations providing this service. It is also possible for a store chain to lease a stations SCA and broadcast messages to be heard in their stores. Examples of this are the promotional announcements often heard over supermarket sound systems, and some paging services. (store-

## MUSIC YOU DON'T HEAR (Cont'd)

Some stations, in turn, lease the tape-recorded music service from a program production company. Several program leasing services are in business, i.e., MUZAK, MUSICAST, and MUSICTONE.

Numerous SCA demodulation circuits are on the market, and construction of a simple demodulator can be done in an evening for under \$20. But remember--this isn't a public broadcast. SCA's in some areas have been used by foreign language schools for stay-at-home foreign language instruction, with the student's tuition covering the lease of the receiver and texts.

## SCUTTLEBUTT

Returns after some lay-off (no, we are not one of the 8.5% unemployed hams).

Heard that Bob, WA2AIH, gave up trying to work the DX contest. He was weared of responding to W's and K's that his QRP call was one of us and not some in-the-mud DX station. Try a spark xmtr next month, Bob!

Rose Ellen, WA2FGS, is preparing for a big trip (in May) to UA Land. Maybe we can fix her up with a rig and get her to transmit from Zone 19 (for all you WAZ enthusiasts).

John, WB2JZX, has ordered the XYL to buy wings--and--backs only this month (seems he has to pay his club dues this year--at last!)

Rumor has it that Bill, WB2FIF, is coming in S-9 on a neighbor's HiFi set. Any truth to this Bill?

And we have a thief in our midst! Preston, WA2TSZ, is looking for his manuals. (Claims some fellow ham won't return them?? (P.S. look over Glendora way, Pres!)),

WA2NPD has a new "crutch". Eagle eye John, WB2JZX, spotted some bad resistors and saved Doug from a fate worse than death--a bum xmtr during DX contest time.

A bit of nostalgia to report: Shorty has supplemented his blockbuster beam with an inverted vee on 160 M. Seems Shorty was chased off of 160 back in 1941 just after the Pearl Harbor attack began.

Congratulations to Wayne Welsh, WB2DBS, upon turning his YL into an XYL/. Good luck in the contest, Wayne!

Gadszooks! A traitor in our midst! CB signals have been heard emitting from the "Half-Hitch" QTH! What manner of ham is this who would stoop so low as to--etc.

A tremendous sig. was report (~2KV of DC) over along West Ave. in Pitman.

Heard that TVI has finally driven WB2OCR to contemplate moving from Paulsboro to Greenfield Villege. W2FBF finally will have some BCI to scuttle his contest successes.

## REQUIEM FOR RADIO ROW

Soundtronics Inc., located between 9th and 10th streets on Arch Street in Phila. will close its doors at the end of this year. Arch st. East, once famous for its surplus houses, has become just another city street.

REQUIEM (Cont'd.)

In recent years, Herbach and Rademan and also RESCO have moved to greener pastures. H & R is now located in N.E. Phila. and RESCO is in the Cherry Hill Mall Annex. The parts bargains are long gone, as RESCO is now primary involved in retail merchandising and H & R is carrying high priced used commercial equipment.

Upon talking to the proprietor of Soundtronics last month, I learned that he did not plan to move his operation, but only to sell out his stock. He estimated that 60% of his stock would have to be thrown out or otherwise disposed of. Most wholesale buyers are interested only in used recent commercial equipment that is operational.

The closing of Soundtronics marks the end of an era in Philadelphia.

PROPAGATION (Part 3)

by Steve Asay, WA2AXJ

It was noted previously that ionization of the ionosphere is primarily due to high speed particles, ultra-violet rays and soft x-rays emanating from the sun. These emissions occur mostly from solar disturbances such as flares and sunspots, the latter having a greater effect on ionization. A sunspot can be described as a surface manifestation of a small, whirlpool-like solar storm. The phenomenon of sunspots has been observed scientifically since the invention of the telescope in 1610.

For some time it has been known that the number of sunspots varied in accordance with a eleven year cycle. In the early part of this century it was discovered that the sun's intense magnetic fields were associated with the sunspot phenomena and that the magnetic polarity reversed itself every eleven years. Within this eleven year cycle the number of sunspots rises sharply to a maximum, usually about 4 to 6 years after the start of the cycle, and then slowly declines towards the end of the cycle.

In 1849 the Zurich Solar Observatory in Switzerland began publishing a daily list of sunspot numbers. These lists are compiled and converted into a monthly average sunspot number. Since the number of sunspots varies greatly over a short period of time, these monthly numbers fluctuate considerably. The monthly numbers are averaged over a 12 month interval resulting in a smoothed 12-month running mean number known as the Smoothed Sunspot Number (S.S.N.).

As shown in Fig. 1 the s.s.n. averaged close to 200 for many months during the late 1950's. This is the highest sunspot activity ever recorded. In a typical cycle the s.s.n. would be expected to reach a maximum of 100 to 150. During minimal activity there may be no sunspots observable for several days, and s.s.n. may reach a low of 5 to 25.

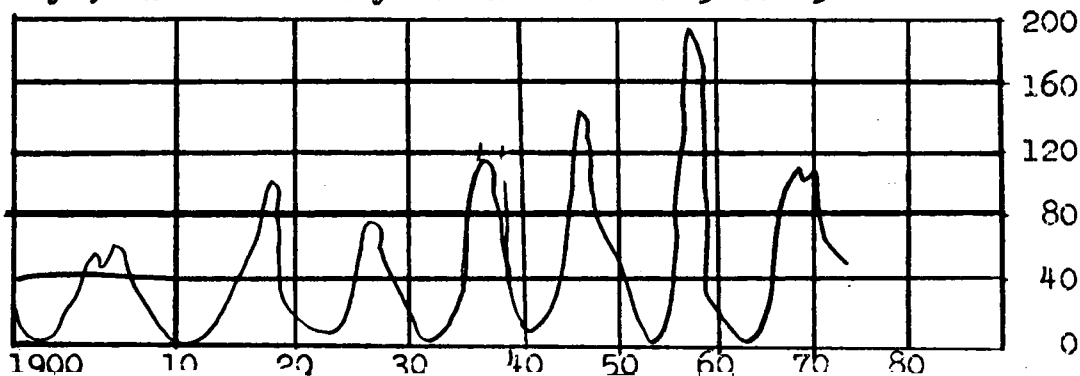


Fig. 1 Past sunspot cycles.

## PROPAGATION (Cont'd.)

The present cycle, which started in late 1964 is presently on the decline and not expected to end until mid-1976. Figure 2 shows that the maximum s.s.n. reached in this cycle was 111.

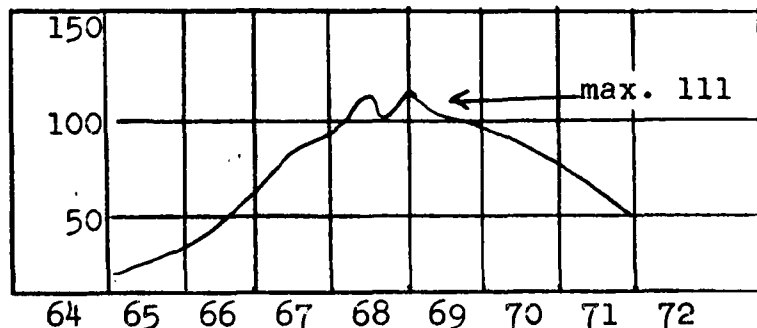


Fig. 2 Present sunspot cycle.

Sunspots are important through their effect on the ionization of the F layer which, during periods of high sunspot activity, can quadruple. Fundamentally, the association is simple. The greater the s.s.n., the greater the density of ionization and therefore the best possible conditions for long distance propagation. Low numbers indicate the reverse.

Due to fluctuations in the sun's activity radio propagation is subject to variations which range from slight increases in attenuation to an abrupt and total radio black out of the entire h.f. spectrum. This radical change, which can last for several days, is the result of an ionospheric disturbance. These sudden ionospheric disturbances can usually be associated with the occurrence of a solar flare. Solar flares resemble huge explosions which take place on the Sun's surface shooting out a long burst of fire. These flares emit an abnormally high amount of ultra/violet rays which cause the D layer to suddenly become extremely ionized and absorb radio waves rather than passing them. This chain of events is referred to as an ionospheric storm. Ionospheric storms render the higher frequencies (10, 15, and 20 meters) useless, while still permitting some long distance propagation on 40 and 80 meters.

One problem that all radio operators have in common is fading. While listening to a signal, it suddenly or gradually fades or just drops out completely. These are three basic types of fading. In interference or selective fading the time delay between the ground waves and sky waves causes them to arrive at the receiving antenna at different times and thus canceling or reinforcing each other. As they cancel each other, fading occurs. It is also possible for one or both of the waves to change in frequency and thus produce a gorbled or distorted effect. Near the limit of the skip distance Skip fading can occur. This type of fading is caused by a change in the angle of reflection and usually occurs at sunrise or sunset when the ionization density is changing.

LAST CHANCE FOR DUES ! ! ! !

The March meeting is the last chance to pay up dues the \$7.50 rate.

I \_\_\_\_\_ do hereby surrender \$9.00  
(7.50 before March) to the Gloucester County Amateur Radio Club in payment  
of my 1975 dues.

MAIL TO:

Rose Ellen Bills, WA2FGS