

# telstar



THE MONTHLY NEWSLETTER OF STARS (SOUTH TOWNS AMATEUR RADIO SOCIETY)

ISSUE 174 MARCH, 1996

## Good Luck Hugh & Kay!

Recent changes in ARRL officers involved our friends Hugh Turnbull W3ABC and Kay Craigie

WT3P who have been respectively the Atlantic Division Director and Atlantic Division Vice Director. Hugh and

Kay are familiar to many Western New York hams from their appearances at various hamfests such as Rochester, Lancaster, Batavia, and Buffalo. STARS club officers have communicated with both Hugh and Kay the last three years at the ARRL Affiliated Club meetings held in connection with the Rochester Hamfest. Hugh and Kay have also been receiving our club newsletter to help them stay

current with the activities in our area.

Recently Hugh was elevated to the position of a Vice President of the ARRL. The March issue of QST reported that Hugh has been licensed since 1932. He was a professional engineer for the FCC and later worked for the Voice of America and for NASA. He is now retired. He was elected Atlantic Division Vice Director in 1980 and became Atlantic Division Director in 1982 upon the death of Jesse Bieberman W3KT.

With Hugh's elevation to Vice President, Kay automatically acceded to the Directorship for our Division. It is important to remember that Kay will now hold the vote for our Division in ARRL

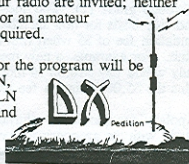
## March Meeting

The March club meeting will begin at 7:00 PM on Thursday, March 7 at the Hamburg Youth Center (Prospect Ave. at Hawkins Ave.) All interested in amateur radio are invited; neither club membership nor an amateur radio license are required.

Featured speaker for the program will be Jim Cornell KF2LN, Sysop for the KF2LN DX Packetcluster and also the current President of

ARATS. Jim will tell us about the new and improved DX Packetcluster, which is used by hams to help spot good DX opportunities. Jim will tell you about various features of the system and answer your questions.

We look forward to seeing you at the March meeting!



matters. If you support or oppose various issues being considered by the ARRL you should communicate your ideas to Kay at 5 Faggs Manor Lane, Paoli, PA 1931, or by e-mail at wt3p@arrl.org.

Western Pennsylvania Section Manager Bernie Fuller N3EFN has been appointed to Kay's former position as Atlantic Division Vice Director.

We wish all three well in their new positions! We appreciate all the time and efforts that they put in to advance amateur radio for all of the rest of us.

# ★ STARS ★

## STARS & ARRL Memberships

Membership in STARS is open to anyone with an interest in amateur radio; an amateur radio license is not required. Membership applications may be obtained by sending a SASE to Judy Levan N2TEZ, 120 University Blvd., Depew, NY 14043, from the newsletter editor or from board members.

Annual dues are payable on January 1 and are \$21 for a single membership, \$27 for family memberships and \$8 for a student membership (through grade 12). The dues are pro-rated on a monthly basis for new members plus there is an initiation fee of \$5 when first applying to the club. For example, a new member joining in July would pay \$10.50 (6 months X \$1.75/mth) plus the \$5.00 initiation fee for a total of \$15.50.

Applications should be returned to Judy N2TEZ along with the appropriate dues. The applications will be reviewed and voted on by the Board of Directors at their business meeting. The applications are then voted on by the general membership at the next regular club meeting.

Members should send their ARRL renewal memberships to Jack Cullum, Jr. KBZESM, 6871 Webster Rd., Orchard Park, NY 14127 along with a check made out to STARS. No extra cost to you and STARS benefits!



## Club Nets

STARS club nets are open to all to exchange information on local amateur radio activities.

STARS HF net meets at 10 AM local time on Saturdays on 3.925 Mhz +/- QRM. Net control is usually Guz WB2EZU.

STARS VHF net meets at 7 PM on Wednesdays on STARS club repeater WB2ELW 147.09.69 (output/input). Net control is Tony KB2OUT.

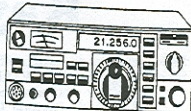
STARS Swap Net meets at 7 PM on Tuesdays on STARS WB2ELW 147.09 repeater. Net control is Marc N2UBT.

## Wednesday Night Net

My hat goes off to Anne W1ZG and Leo KB2TIV for a job well done on the special net on Wed. Feb. 7th. answering questions on the NTS (NATIONAL TRAFFIC SYSTEM) and Western District Net. You can check in on these nets in several ways.

- 1) 2 meter voice ... 145.310 down 600 ... daily 11 AM, 6:30 PM and 9:30 PM
- 2) CW ... HF ... 3.677 ... Daily ... 10 AM 7 PM and 10 PM .... nominal speed is 20 WPM
- 3) CW ... HF ... 3.590 ... Empire slow speed net ... 6 PM ... nominal speed is 10 WPM but they will go slower or faster for you.

For more information you can call or drop them a line on packet (BBSVW)



On March 13th at 7 PM on the special net I will have Kash WB2RAJ with me to answer your questions on DXing. Get your questions ready and check in on the net that evening.

I am still looking for ideas on special net (topics) speakers. If you would like to volunteer to help out or know of someone who might, drop me a line on BBSVW or call me at home (992-2011) weekdays between 5 and 8 PM or weekends from 9 AM till 10 PM.

Thank You  
Tony B. Jr. KB2OUT  
Net Control

## Get Well Soon!

We regret to inform you that STARS Director Vern Siegel AA2AC suffered a heart attack on February 24 while teaching a General/Advanced course in Lancaster.

Cards can be sent to Vern at his home address at 5120 Brookfield Lane, Clarence NY 14031.

Vern is well known in the area for teaching many courses and for giving VE exams

## STARS GOSSIP COLUMN

Well, the February meeting was a nice one and hope that March will be as interesting. The mini-flea market is still on until spring, so take advantage of it and pick up some of the goodies.

Hope all of you will take advantage of the classes that Vern will have in the upcoming weeks. Get in touch with Vern AA2AC for time and place at 634-5276. This is a good time, brush up on your theory and code and upgrade from a "T" to a "G". Talking about classes, maybe we can get some of the members who are acquainted with computers to give us uneducated PC owners a few tips and make it interesting for the members. Remember STARS is a learning club, so please take advantage of the offer.

Our Nike Base will get some more action now that the club room will be open on Saturday and Monday. Get the latest info from our repeater so you don't miss out on it.

It has been rumored that the East Coast Amateur

Radio is now open afternoons. If someone has more info, please get in touch with me with the latest news and type of products on sale. We all wish you luck. (Editor's Note: East Coast Amateur Radio is, in fact, now open on Monday through Friday from 1 PM to 9 PM and on Saturdays from 10 AM to 5 PM. They are selling a nice variety of amateur radio gear and a large collection of CDs. Check them out.)

By the way in the March 1996 QST, page 9 is a very informative article "Do We Really Want Our Microwave Bands?" (Editor's Note: the article was written by ARRL Executive Vice President David Sumner K1ZZ. Last Saturday we worked David from the Nike Base during the ARRL International DX contest. He was portable from Slovenia!)

Hope everyone took advantage of the good band conditions!

Happy Hamming Guz WB2EZU

### SAG Hamfest

The Snowbelt Amateur Group will be sponsoring the SAG Hamfest on March 9, 1996 at Bliss High School. To reach Bliss High School, go east from Arcade on Rt. 39. Turn north on Rt. 362 and then east on Main Street. Talk-in will be on 145.17 (-600).



Doors open at 8 AM for the general public and 6:30 AM for vendors. Tables will be held until 8 AM for vendors with pre-registration.

Admission is \$4.00 and tables are \$5.00. Tailgating is welcome. There will be a test bench and refreshments available.

For more information or to pre-register, contact Dave Dreier at (716) 492-2306 or send a check/money order to: Snowbelt Amateur Group, 259 Main Street, Arcade, NY 14009.

### Nike Base HF Station

Besides our regular 1 to 3 PM hours on every Saturday to open the Nike Base club station, we also are trying out every other Monday evening from 7 to 9 PM. The next few dates will be March 11, March 25 and April 8. Everyone is invited to come out to do a little operating, browse through the library or just do some rag chewing.

Our club station was open to guests during the Nike Base Sno-fest. It was extremely cold that week-end, but a few hardy soles came out to see us. Thanks to Fred AA2VZ, Leo KB2TTY, Shane WB2EZU, Terry KM4XZ, Mike N2YDL, Cheryl KB2REF and all the other members that came out to help.

Think that the bands are dead because of the sun spot cycle? During the recent ARRL International DX Contest, from the Nike Base we worked countries in South America, Africa, Europe, Asia, the Pacific Ocean and the Caribbean. If they are out there, we can work them!

# Repeater Corner

I'd like to explore a topic from W2WVC's excellent presentation at the February meeting—how to compare antennas using the decibel (dB). First a brief review, then some real-life examples.

The decibel is a relative measurement, not an absolute quantity like the watt, volt, ohm, etc. You can only use the decibel for comparisons, so you must know what you are comparing.

When we give an antenna's gain in decibels, we're stating a comparison. We mean it radiates x dB more power in a specific direction than a standard, or reference antenna whose radiation pattern and gain everyone knows well. The usual standard antennas are an isotropic radiator or a half-wave dipole.

We use dBi for gain compared, or referenced, to an isotropic radiator, an imaginary antenna that produces a uniform sphere of radiation. We use dBd for gain referenced to a half-wave dipole, which has a doughnut shaped radiation pattern.



A vertical half-wave dipole antenna has an omnidirectional radiation pattern in the horizontal plane. At zero degree elevation it has 2.2 dBi gain compared to an isotropic radiator. It has 0 dBd gain, that is, it has no gain compared to itself.

To compare gains of different antennas, you must use the same dB reference, either dBi or dBd. Otherwise, you're comparing apples to oranges. To convert, use  $dBi = dBd + 2.2$  or  $dBd = dBi - 2.2$ . If you see an antenna gain with plain dB instead of dBi or dBd, you're clueless about the reference used, unless the writer defines plain dB to mean dBi or dBd.

The norm in commercial communications, where hard-nosed professionals know what's going on, is to use a dBd reference. In the amateur radio world that isn't the case. This leads to many misconceptions about antenna performance. On VHF/UHF verticals, most ham manufacturers use a dBi reference to give a bigger gain number, and more antenna sales.

Comet clearly labels all their antenna gains with dBi. Diamond, in the AES catalog, now calls their gains dBd. But their numbers come closest to what dBi should be for those antennas, as you'll see.

Hustler also labels their antennas with dBd in the AES catalog. They too, look like they're really dBi. Cushcraft verticals carry plain dB ratings, which they define as dBi.

The table below will show that even using dBi, all these ham antennas have exaggerated gains.

Gain confusion is also common in antenna construction projects. A lot of bad information circulates via ham magazines or on the air. You can be sure that manufacturers know exactly what they're doing when they present questionable information. You can't say the same about all amateur radio operators.

The good news is that you can check on gain claims. Using antenna engineering principles, you can calculate the maximum gain for any colinear antenna. (A colinear antenna has radiating elements placed end-to-end.)

Colinear antenna gain is proportional to length. The longer the total radiating length of the antenna, including spacing between elements, the greater the gain.

The laws of physics limit the maximum gain possible from any radiating length. This limit applies regardless of the type of elements (1/4 wave, 1/2 wave, 5/8 wave) making up the radiating length.

Note that radiating length is not the specification length of the antenna. The specification length includes a non-radiating mounting section. Radiating length is measured from radials up to the tip of the antenna. For enclosed antennas we assume that the radiating element inside extends to the tip.

I use a handy program from Austin Antennas to calculate the maximum gain of colinear antennas in dBi and dBd. All you need to know is the frequency and the radiating length.

Listed below are results for some typical base station antennas on 2 meters. We get similar results on 70 cm for the dual-band models, and for mobile antennas. Even with miscellaneous errors, gain claims should be within 0.5 dBi or dBd of the max gains.

Antenna	Radiating Length ft	Gain Claimed	Max Gain Calculated dBi dBd
Celw PD200	19.0	5.8 dBd	8.0 5.8
Sinc SRL249	18.2	5.3 dBd	7.8 5.6
Hust HD6	17.5	6.0 dBd	7.7 5.5
Hust G7	14.3	7.0 dBd	6.8 4.6
Hust G6-270R	7.0	6.0 dBd	4.6 2.5
Diam X700	23.0	9.3 dBd	8.8 6.6
Diam X510	16.0	8.3 dBd	7.3 5.1
Diam X300	9.2	6.5 dBd	5.3 3.1
Diam X50	4.6	4.5 dBd	3.4 1.2
Comt GPX2010	22.3	9.5 dBi	8.7 6.5
Comt GP9	16.7	8.5 dBi	7.5 5.3
Comt GP6	9.2	6.5 dBi	5.3 3.1
Comt GP3	4.9	4.5 dBi	3.6 1.4
Cush ARX270	15.5	9.0 dB	7.1 4.9
Cush ARX2B	14.0	7.0 dB	6.7 4.5
Cush ARX2	8.8	5.5 dB	5.2 3.0
Cush AR270B	6.7	5.5 dB	4.5 2.3
Cush AR2	3.4	3.8 dB	2.3 0.1

Celw=Celwave, Sinc=Sinclair, Hust=Hustler, Comt=Comet, Diam=Diamond, Cush=Cushcraft

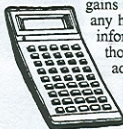
The Celwave and Sinclair are commercial antennas widely used on amateur repeaters. Their claimed dBd gains agree with the calculated maximums. Hustler's HD6 is an attempt to break into the commercial market. Its claimed dBd gain is high, but in the right ballpark.

The rest are ham antennas. Hustler and Diamond claim "dBd" gains, but they're obviously mislabeled. Their claimed gain numbers should be marked dBi. With dBi, their claimed gains are more believable, but still too high. Comet correctly uses the dBi notation, but all their claimed gains are too high. Cushcraft defines plain dB as dBi and also claims gains that are too high.

Manufacturers say their gain claims are backed

by measurements on test ranges. It's true, they test their products. But they haven't discovered any new laws of physics. They want to be competitive however, so when one company starts misstating their results to improve sales, others do it to keep up.

This confusing and misleading advertising by antenna manufacturers is why QST bans ads with antenna gains. Check the QST ads—all numerical gains are deleted. You won't see any ham magazine publish the information I've presented here though. They want to keep those ad dollars flowing.



Manufacturers know that many people will buy their antennas because of exaggerated claims that sound too good to be true. I'm not saying don't buy these antennas, just make sure you know what you're getting. Be an informed ham consumer, and comparison shop with a big grain of salt.

73's, Paul, WA2IHW

## March of Dimes Walkathon

The March of Dimes will be holding their annual Walkathon on April 27 and 28.

On Saturday walks will be held in Lockport and Springville.

On Sunday, walks will be held in Buffalo, Williamsville, S. Buffalo, Hamburg, N. Tonawanda and Niagara Falls.



Volunteers will be needed to provide communications at rest stops and on buses and supply wagons.

STARS member Jim Moxon N2OSL is coordinating the amateur radio volunteers. For more information or to volunteer, call Jim at 685-3067. Or you can call Tony KB2OUT at 992-2011 or Terry KM4XZ at 656-0865.

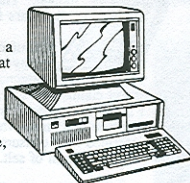
# "PACKET RACKET"

an introduction to packet radio, part 15

We will wrap up the series in this month's issue, with a discussion of the new high speed Local Area Network (LAN) that joins the various servers here in WNY.

With the recent addition of IPBUFF to the network, we now have at least one of every type of service linked together at relatively high speed (9600 baud or faster)!

The LAN is setup on a diode matrix ring, that is a diode board linking tnc's serial ports together, to allow them to directly communicate, independent of any computer.



This is critical if the network is going to continue to function when a computer "goes down", due to lockups, or power failures.

A user can come into the network on any user port, and by checking a nodes list he/she can travel the network (akin to "surfing the net" on internet), to gain access to regional or distant servers/nodes.

As I type this article, I am staring at the LAN, which is composed of six tncs. Three of these are user ports, and three are "backbone" forwarding ports.

A backbone is simply a group of nodes that link regions/services together over radio. (There are wireline nodes of course, but we will limit our discussion to packet.)

On 145.710 Mhz. The "main" user port for BBSVW, you can connect to BBSVW at 1200 baud, or "gateway" out to the LAN. The gateway is accessed by the G command, as discussed elsewhere. This tnc is actually a G8BPQ "switch", which is a computer run switch that functions as a standard node would. This is the one exception to the LAN, in that it is not independent of the computer, so if the computer goes down, so does this port!

On 446.825 Mhz, you can connect to BBSVW at 9600 baud, or connect to the node directly (KE2VW-11. alias #DXLKNK). From the node, you can directly connect to any of the user nodes (ie BLISS, CCAFMA, LKWD, STARS, etc), or regional servers (ie DXBFLO, IPBFLO, etc).

On 144.470 Mhz you can connect to BBSVW at 9600 baud, or connect to the node directly (KE2VW-15. alias 96USER). From the node you can directly connect to the other services listed above. You can also check your deviation, at 9600 baud, by typing: MH!

Each of the major servers will have their own forms of user help files on-line, so remember to use the ubiquitous "?" command!

I have enjoyed committing my thoughts to writing, to help to answer some of the more common questions asked of me in this series on packet radio.

No book/manual will answer all the questions. That's where teamwork, and Elmering come into play!

Enjoy the hobby by helping others with their attempts to learn the digital aspects of the hobby!

73, and keep those packets flying!

Greg, KE2VW, SysOp of the  
STARS KE2VW BBS  
c 1995-1996

## STARS Board of Directors

President	Greg Young	KE2VW
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Vice President	Tony Balas, Jr.	KB2OUT
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Director	Mike Wojcieszak	WA2HEV

## Amateur Radio Examinations

STARS will hold test sessions on March 16, and May 11, 1996. Location of the exams is being determined. Walk-ins should arrive by 9:00 AM and pre-registered candidates should arrive by 9:45. The tests start at 10 AM. For information on STARS test sessions, contact Norm Jones KD2KK at 824-1148.

Lancaster ARC will hold test sessions on Mar. 20, April 24, May 15, and June 12, 1996. For information on Lancaster ARC exams, call Chuck Koester WD2AIK at 937-3592.

ARATS will be holding test sessions on April 13, May 4, and June 8, 1996. For information on ARATS exams, call Vern Siegel AA2AC at 693-5977 (days) or 634-5276 (nights).

Most sessions except for STARS non-hamfest exams do not allow walk-ins, so call ahead and make a reservation.

## Commercial Radio Examinations

Examinations are being given monthly for the following commercial radio licenses: General Radiotelephone Operator License; Marine Radio Operator Permit; First, Second and Third Class Radio Telegraph Operator's Certificate; Global Maritime Distress and Safety System Operator's License; Global Maritime Distress and Safety System Maintainer's License; and a radar endorsement for the above licenses.



Exams are held at the Aurora Middle School, 148 Aurora Street, Lancaster. For information and registration contact Vern Siegel at 634-5276 and Chuck Koester 937-3592.

The exams are scheduled for March 13, April 17, May 8 and June 5, 1996.

## "RAINCOAT CHARLIE" TO PAY \$500 FINE

The Federal Communications Commission has denied a Petition for Reconsideration filed by William P. Irwin, K3CQR, of De Bary, Florida, who was fined \$500 for willful and repeated interference in the Amateur Radio service and with failure to properly identify himself on the air. The case stems from interference on 14,315 kHz that occurred "on a regular basis" from late 1992 until mid-1993, when FCC agents determined the interfering transmissions came from Irwin's home. During the interfering transmissions, Irwin identified himself as "Raincoat Charlie" (see QST, October 1993, p 83), and he admitted to FCC agents to using his ham gear to broadcast them.



The Vero Beach (Florida) Field Office originally fined Irwin \$2000, but later reduced the penalty to \$500 after Irwin, 53, claimed inability to pay. He then requested a review of the \$500 fine, which the FCC denied January 19, 1996. The FCC said Irwin could pay off the fine in installments.

Irwin also asked to inspect FCC records pertaining to his case. The commission says such materials "are not routinely available for public inspection" and that Irwin would have to file a Freedom of Information Act request to obtain the materials.

The ARRL Letter 2/2/96





# STARS



## Club Repeaters

The club repeater (WB2ELW/R) is located near Colden, NY (147.09/.69 output/input). Auto-patch privileges are available to club members.

The southern club repeater (KE2VW/R) is located in Perrysburg, NY (146.97/.37 output/input, with PL access of 151.4 Hz).

The club UHF repeater is located near Hamburg. (442.325 MHz w/ PL of 151.4 Hz.)

## Club Packet

The STARS KE2VW BBS is located in Colden, NY. On 145.71 MHz: C BBSVW. If that fails, on 145.61 MHz: C BBSVW. On 446.825 MHz, you can connect using 9600 baud directly to BBSVW.

Using a telephone modem you can reach the STARS KE2VW BBS by calling 537-9334.

## Club Meetings

Club meetings are normally held on the first Thursday of the month at the Hamburg Youth Center (Prospect and Hawkins Aves.) at 7:00 PM. Everyone is welcome; neither club membership nor an amateur radio license is required.

Board meetings are held on the fourth Thursday of the month at the Nike Base Club Station at 7:00 PM and are open to all club members.

## Club HF Stations

The club Nike Base HF Station (WB2ELW) is located on Lakeview Rd. 1.75 miles e. of Rte 20 next to the Hamburg Town Arena. The station is operated on most Saturdays between 1 and 3 PM local time and is a great DX station. All are welcome.

A second club HF station is located at the Hamburg Youth Center.

# STARS

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