

June 2001

The HARC Spark

The Official Newsletter of the
Holmesburg Amateur Radio Club

P.O. Box 6253 Philadelphia, PA 19136

K3FI 146.685 Mhz Repeater WM3PEN

Web Site <http://www.harcnet.org>



Editor: WA3PZO

PREZ SAYS.....

"June is busting out all over." No I'm not going to sing that familiar song for you (or any other) but there is so much going on in amateur radio and with HARC that this newsletter is "busting" at the seams. First if you weren't at the May meeting to hear Vic, N3IO, talk about the Internet Radio Linking Protocol, you missed another ~~good~~ GREAT program. We had many first time visitors. I hope they will become regulars. This month is no different. HARC's own Rich Shivers, KB3FGJ, will be talking about Crystal Radios. Rich recently one a Crystal Radio contest. Field Day is coming up on June 23-24. HARC will be at Alverthorpe Park in Abington again. We'll be joined by members of the Delaware Valley OMIK group. Stop on by whether it's for the entire time or a few hours. We hope to see you there. Remember this is your event.

Late news coming in indicates work is beginning on an antenna bill in Pennsylvania. It's being crafted after the one in New York.

Take a look at KB3SM's article on Direction Finding. We're always looking for a guest article. Don't think you have to be a great writer. Write what you can and we'll make it sound good.

Finally take a look at the sample exam questions this month. With so many historic places in the area, you might want to take note of the answer to an Extra Class Question.

Until next month. 73s de WA3PZO

Governor Ridge proclaims June Amateur Radio Awareness Month in Pennsylvania

The volunteer efforts of over 25,000 Pennsylvania residents are being recognized this month for service to their community. According to Governor Tom Ridge, amateur radio operators provide "vital supplemental communications to their communities during natural disasters, local emergencies, and at public events since the earliest days of wireless radio."

Governor Ridge recognized amateur radio operators for promoting international goodwill, encouraging young people to pursue an education and career in a scientific, engineering or liberal arts field, and their work in expanding the state of the art in communications and electronics through experimentation.

Across the Commonwealth amateur radio operators are working with local emergency management agencies, the National Weather Service, and others to provide communications in times of need. Each year hundreds of community runs, walks, and parades are supported by the work of amateur radio operators. Their work and communication links help provide both safety and logistical support to the sponsoring organizations as well as thousands of participants.

Pennsylvania amateur radio operators provide communication links to many places here on earth as well as in space. Whether it is a missionary in Peru getting a message to his family, a medical doctor relaying information to Africa, or the oldest sailor attempting to sail around the world, Pennsylvania hams are there. Amateur Radio has become an integral part of the International Space Station and other U.S. Shuttle missions. These amateur radio operators, also known as hams, are able to talk to the astronauts. Many ham radio operators have had the opportunity to schedule a contact between local school students and the astronauts.

Other amateur radio operators have introduced the fascinating world of radio to youth at scout camps, in school, or other classroom settings. (cont. Page 3)

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JUNE-JULY ACTIVITIES

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
17 10 Meter Net 9a	18	19 Chaverim 9pm	20 CW Practice: 7:30 Members net: 8:00	21	22	23 FIELD DAY
24 FIELD DAY 10 Meter Net 9a	25	26 Chaverim 9pm	27 CW Practice: 7:30 Members net: 8:00	28 HARC MEETING 8pm	29	30
1 JULY Canada Day Contest 10 Meter Net 9a	2	3 Chaverim 9pm	4 CW Practice: 7:30 Members net: 8:00	5	6	7
8 10 Meter Net 9a	9	10 Chaverim 9pm	11 CW Practice: 7:30 Members net: 8:00	12	13	14 CQ WW VHF Contest
15 10 Meter Net 9a CQ WW VHF Contest	16	17 Chaverim 9pm	18 CW Practice: 7:30 Members net: 8:00	19	20	21 Six Club Six- Meter Sprint
22 10 Meter Net 9a Six Club Six- Meter Sprint	23	24 Chaverim 9pm	25 CW Practice: 7:30 Members net: 8:00	26	27	28 RSGB Islands- On-The-Air Contest

*Dates to Note: June 23-24 Field Day June 28 HARC Meeting - Crystal Radios
July 29 - HARC Picnic*

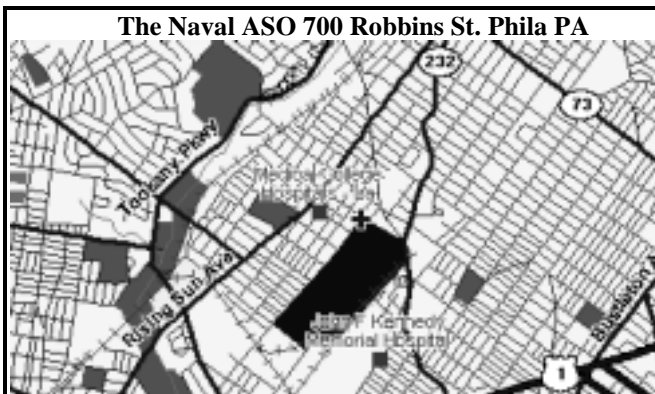
H.A.R.C. Board Of Directors 2001
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H.A.R.C. Maintains a Web Page @ www.harcnet.org
 All members Online can be emailed via theircallsign
 @harcnet.org. Articles, pictures etc. submitted for the
 newsletter should be in standard ASCII or MS Word,
 .jpg or .gif formats and E-mailed to the Editor no later
 than the 2nd Saturday to be included in the next edition!
 WA3PZO@Harcnet.org.

H.A.R.C. Nets meet on 146.685 weekly
 The Chaverim Net: Tuesday @ 9:00 PM
 CW Practice: Wednesday @ 7:30 PM
 Members net: Wednesday @ 8:00 PM you can listen to
 the Amateur Newsline & ARRL audio reports.
 SSB Net on 28.450 +- mhz Sundays @ 9:00 AM

H.A.R.C. Monthly Meetings - The Board of Directors
 meets on the 2nd Tues. @ 8:00 PM. General meetings
 are held the last Thurs. @ 8:00 PM.

+ Marks the boundary of the buildings, the actual
 entrance is located where Rt. 232 Intersects. Stop at the
 guardhouse and ask if you're not sure where to go...



H.A.R.C maintains the 146.685 repeater located @
 Univ. of PA., Phila PA with inputs in Abington, N.E.
 Phila, and Cherry Hill, NJ; More Club Information &
 Member Applications can be had by contacting any of
 the Directors via E-mail. Info@harcnet.org, the web
 page <http://www.harcnet.org> or writing to HARC PO
 Box 6253, Philadelphia, PA 19136.



**HARC is an
ARRL Special Service Club.**

Locally the Holmesburg Amateur Radio Club will have an amateur radio station set up to test emergency communications skills at Alverthorpe Park in Jenkintown on Saturday, June 23 and Sunday, June 24. All are invited to stop by. For further information on amateur radio, write to HARC, PO Box 6253, Philadelphia, PA 19136 or email WM3PEN@Harcnet.org.



Governor's Office

PROCLAMATION

AMATEUR RADIO AWARENESS MONTH
June 2001

WHEREAS, More than 25,000 citizens of the Commonwealth have been licensed by the Federal Communications Commission as Amateur Radio operators. These dedicated volunteers, also known as Hams, have been providing vital supplemental communications to their communities during times of natural disasters, in local emergencies and at public events since the earliest days of wireless radio; and

WHEREAS, these Hams work without compensation in the best interests of our Commonwealth as well as the world; and

WHEREAS, Hams are on the alert for any local or global emergency. They practice their communications skills during American Radio Relay League, Inc.'s Field Day exercise along with other ARRL sanctioned events during the month of June; and

WHEREAS, Amateur Radio promotes international goodwill, encourages young people to pursue an education and careers in scientific, engineering or liberal arts fields and expands the state of the art in communications and electronics through experimentation.

THEREFORE, I, Tom Ridge, Governor of the Commonwealth of Pennsylvania, do hereby proclaim the month of June 2001, as AMATEUR RADIO AWARENESS MONTH in Pennsylvania.

GIVEN under my hand and the Seal of the Governor, at the City of Harrisburg, this twenty-fourth day of May in the year of our Lord two thousand and one, and of the Commonwealth the two hundred and twenty-fifth.

Tom Ridge
TOM RIDGE
Governor



MAKE YOUR PLANS NOW!
JUNE 23 - 24
AVELTHORPE PARK
JENKINTOWN
CQ FD DE K3FI!
NEW CALL ! NEW FRIENDS!

FIELD DAY - JUNE 23 & 24

Field Day promises to be bigger and better than ever this year as HARC will be joined by members of the Delaware Valley OMIK (Oh-Mike) Club.

Also for the first time HARC will have it's new call **K3FI** - on the air. **K3FI** replaces KB3BTF. **K3FI** was obtained with the work of KB3SM and K3CJ. HARC still holds **WM3PEN**.

Field Day is an annual operating event, designed to test operating capabilities of radio amateurs under simulated emergency conditions. The event has a number of objectives, particularly for our club. In addition to making as many contacts during the Field Day period as possible, it will provide an opportunity for members to experience HF operating conditions, and to publicize the value of amateur radio to local government officials and media. This year, it takes place on the weekend of June 22-24, 2001. If done right, it should also be FUN!

LOCATION will be the same as last year. Alverthorpe Park, Jenkintown Rd., Jenkintown. From Rt. 73 (Township Line Rd) take Jenkintown Rd to about Fisher Rd. A gated entrance to the park will be on the right. Give a call on .685 and someone will unlock the gate. Parking will be on the left as you enter the park. If you are unloading you can drive to the site.



POWER We'll have a generator supplied by WB3DBC. It will be located away from operating sites, to minimize noise.

STATIONS We anticipate having two or three HF stations available for simultaneous transmitting.

SETUP TIME AND OPERATING TIME

Field Day operation actually starts at 2 pm local time on Saturday, June 23. We anticipate setting up before that time. Once the operating activity starts on Saturday, it's a 24-hour operating marathon until 2 pm on Sunday!

Scuttlebutt from NJ2BB Battleship New Jersey

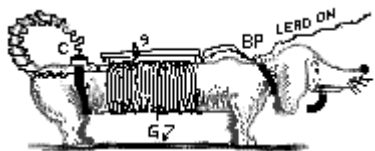
A very special day was May 26th for the Battleship New Jersey. It was the first time for the call of NJ2BB to be on the air from the Battleship New Jersey. This also commemorated the 58th anniversary of the commissioning of the Battleship New Jersey. The first person to make a call on HF was Bob Westcott, W2MAS, who was a member of the first crew onboard BB62 and also a radioman. The call was a very emotional time for all. His family was gathered around as well as members of BNJARS. The Philadelphia Inquirer and the Camden Courier-Post as well as his family and members of the radio station took many photos.

Another call, made simultaneously on 2 meters, was to Joe Duffin, W2ORA, another Battleship radio Officer serving in WWII. He is the BNJARS NJ2BB license trustee.

The BNJARS members that have been working on board the ship since February made the special event station possible. They have spent many hours working on tracing cables and logging them into a database. At the same time, work has been going on to repair the ship's public address system and other communications systems. I did not think that we would be this far along to operate an amateur station, but the works of industrious amateurs made this all happen.

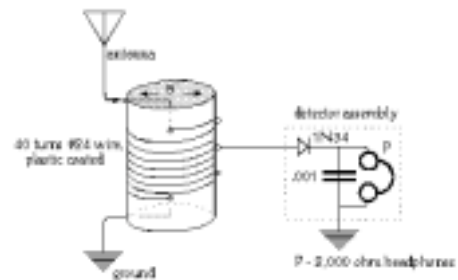
An interesting e-mail that we have received was from a ham in Massachusetts that had never transmitted before. His uncle was an officer on board the "Big J" and was a mentor to him. He worked on the station and made his first and nervous contact with the NJ2BB station. That has got to be great thrill for him.

The special event station was on the air for 6 hours and made over 550 contacts which included 36 states, 18 countries, 142 counties and 9 zones. Sorry if we did not work you this time. There is still antennas to install and other work to make the station what we would like it to be and we will be looking to working all of you in the future. Joseph Cramer, N2XYZ



June Meeting Features XTAL Radios
HARCs June meeting will feature our own Rich Shivers, KB3FGJ. Rich will be speaking about crystal radios.

One organization dedicated to the building and experimenting with radio electronics in the **Xtal Set Society**, founded in 1991. Their newsletters are packed full of projects and information about Crystal Radios, mostly dealing with design and electronics issues. Each issue contains lead articles--and often, a building project--a "tidbits" section including hard to find information, membership correspondence, and a list of vendors or references. Here's a Quaker Oats box AM Crystal Radio. Come out to the June 28th HARC Meeting. <http://www.midnightscience.com/> (photos XTAL Society)



What does the Shuttle and a horse share?

The U.S. standard Railroad gauge, that is, the distance between the rails, is 4 feet 8.5 inches. Now that's a particularly odd number. Why was that gauge used?

Because that's the way they built them in England, and, English expats built the U.S. railroads. The first rail lines were built by the same people that built the pre-railroad tramways, and that's the gauge they used. The people who built the tramways used the same jigs and tools used for building wagons, which used that wheel spacing. So, why did the wagons have that particular odd spacing?

The old, long distance roads in England had wheel ruts formed by Roman war chariots. The standard specification for an Imperial Roman war chariot used that spacing. The Roman war chariots were made just wide enough to accommodate the back end of two war-horses.

So, a major design feature of what is arguably the world's most advanced transportation system, was determined over two thousand years ago by the width of two horse's behinds! (APCNews)

RF Exposure

Need to estimate the RF exposure of your station? You might try this calculator offered by University Of Texas.

<http://n5xu.ae.utexas.edu/rfsafety/>

FOX HUNTING (RDF Radio Direction Finding)

Article by: KB3SM

It is that time of the year when many HAMS find out door activity desirable and fun, Field Day is one MAJOR universal attractions. Another one of these activities is FOX HUNTING... it is nothing more than having a hidden transmitter / operator sending intermittent signals out for the purpose of being tracked and found. There have been many articles on the subject see April 2001 QST page 35 for a recent one, including a kit being offered. There is also a short article in May CQ 2001 about FOX Hunting (in S.E. MASS.!) There are commercial products available as well I won't plug any particular one they are expensive and work, as they say you get what you pay for (sometimes)! A SNIFFER as some are called, is being offered in the April QST article as a club project. It will work well for what it is designed for. However as you read the article this little black box has a limited range of UP TO 1000 yards. Great for up close and personal, but what do you do further out? That's what we will be offering here. As we all know there comes a time when situations desiring directional finding abilities would be very useful, and also the game of FOX Hunting is a fun activity and helpful in sharpening your skills in tracking hidden signals. As of this article KB3EBG and myself have built 2 proto-types for a long range DOPPLER RDF. The design and schematic provided by Bill Miller (K1IBR), a good friend of mine! He emailed the diagram to me and we took it from there! Bill (K1IBR) is the current club President / Editor / Tech Committee ect.. for a club I am a member of (SEMARA) in South Eastern Mass (W1AEC). Bill has used this design successfully and won many FOX Hunts with it... The design is a doppler phase detector it can be used for long range finding as well as close up. As mentioned before there are 2 proto-types completed, however they have not been field tested yet. Preliminary testing shows they are working. Now we need to learn how to use them in the field and triangulation methods as well. The RDF was shown briefly at the last club meeting but the demo inside of a metal structured building caused many reflections less than optimum conditions for sure. Several people showed interest and we are hoping to gain more in the club for our own FOX Hunts. The project is fairly easy for the average Ham. I would say if you take your time and pay attention to details you can manage this project in an evening once you have acquired the parts. Most parts can be had from the online Radio Shack catalog, Mouser Electronics or Digikey. The RDF uses a meter that points to your target. If it is to your left you turn your car left to center the meter. Actual reading sweeps about 160 degrees, if your target is in your rear it will swing in the opposite direction turning left the meter will point right. The meter we used was obtained at www.surplussales.com listed in QST as Surplus Sales Nebraska. This proved to be the most costly part of the unit at \$15.00. There is a discount for 3 or more. If you have a good supply of parts as many Hams do you have a head start. Our Proto-types were built on perfboard, however there could be a printed circuit board available soon. A complete diagram and parts list is for the

asking and has been handed out at the past few meetings. The RDF unit requires 2 matching mobile antennas 1/4 wave or whatever, it is not very critical except for spacing. Our proto-types were built in bud boxes and setup to run off your cigar lighter in the car but can be configured to run off most any power source including a 9 volt battery or your HT using 2 CMOS devices it draws very little current. An estimated cost of our proto's was in the range of \$25.00 not including connectors a box, and misc. As mentioned there is a PC board being laid out and if there is enough interest from the members it will be available making the unit much easier to complete, but at a slightly higher cost to the project. I won't go further into detailed operation theory etc.. suffice to say it works, and to conserve newsletter space... more information can be had via kb3sm@harcnet.org diagram and parts list can be emailed to anyone... Good Hunting 73 KB3SM Bob



HAMFEST CALENDAR

July 15 - Mid-Atlantic ARC, Kimberton, PA

HARC GOES TO THE HAMFEST

HARC will have a table at the Mid-Atlantic ARC Hamfest on July 15 this year. We'll be promoting the Club as well as having some space for Club members goodies. Interested in helping out contact N3LXN or WA3PZO. The more people helping out, the less time anyone will have to spend at the table.

HARC SPONSORS NEW HAM CLASSES

HARC will be sponsoring new ham classes starting October 17. Classes will cover the Technician Class license. Coordinating efforts and teaching will be Frank, N3ZZN. Classes will be at the Oxford Circle Jewish Community Center. If you would like to help contact Frank at N3ZZN@aol.com.

REMEMBER THESE DATES

JUNE 23-24 FIELD DAY

JUNE 28 - HARC MEETING - XTAL RADIO

JULY 15 - MARC HAMFEST - Valley Forge

JULY 29 - HARC PICNIC - PENNYPACK PARK



Atlantic Division Director Bernie Fuller, N3EFN, presents Dennis Silage, K3DS, with the 2001 Atlantic Division Technical Achievement Award (photo via N3EFN)

Atlantic Division Award Winners Announced

The ARRL Atlantic Division Awards Committee has named Roy Heimel, AB4XS, 2001 Atlantic Division Ham of the Year. Dennis Silage, K3DS, received the 2001 Atlantic Division Technical Achievement Award. The committee members made their choices based upon ballots received. Heimel has served his club, the Headwaters ARC, in many capacities and has organized and taught amateur radio licensing courses. He has been associated with the Boy Scouts for over 22 years, and served as a Girl Scout leader. Silage, K3DS, is the technical chairman for the Delaware County ARA and the Mid-Atlantic ARC. He is a frequent speaker on technical subjects at amateur radio clubs (including HARC) through out the Philadelphia area--Bernie Fuller, N3EFN, ARRL Atlantic Division Director.

Local Ham Helps Sailor Get Around the World

NEWINGTON, CT. May 30, 2001--Ham-sailor David Clark, KB6TAM, has departed the Ascension Islands after a brief stop. Clark now is on the last leg of his quest to be the oldest person to sail solo around the world. Clark, who turned 77 on May 17, is hoping to make Fort Lauderdale by early July. He is keeping in touch with wife Lynda and others via phone patches and some e-mail, although he had Internet server problems for about a week. Fred Moore, W3ZU, of Trevoise has been running phone patches for Clark while Robert Reed, N6HGG, has also been keeping regular radio schedules with the sailor since he departed Ascension. Reed reported Moore has been able to make contact and maintain it with Clark when all others failed. Both expect to continue working Clark short- path, now that he is nearer his Florida target. Clark survived a disaster in February that sank his original sailboat, the *Mollie Milar*. His beloved canine companion Mickey was lost during the rescue efforts. Clark put out a distress call on ham radio that was relayed to maritime authorities. Corporate sponsors and helpful hams in South Africa and elsewhere got him back into blue water with another sailboat--which he named *Mickey* in honor of his lost companion. His ham gear aboard the original sailboat also was lost, but Clark reports has another rig in operation now. He has checked in on a couple

of 20-meter nets, and ham radio apparently continues to be his most reliable communication tool. The sailing ham is planning a stop in Barbados. Various ham sources in contact with Clark said his craft apparently continues to handle well with no major problems.

Bridging the Gap - Is technology relevant? Ask a wheelchair-bound ham operator (TIME 6/4/01)

From Bangalore, India SARITHA RAI reports on how ham radio makes a difference for VU2MKP. The article says in part. "Each morning, Kohli, a Swiss national who suffers from multiple sclerosis, which has left him paralyzed from the neck down, maneuvers his wheelchair using a chin-operated control to a table in the living room of his Bangalore bungalow. There, neatly laid out, are his laptop, transceivers and an assortment of amateur radio equipment. His physical movements may be limited, but by using his mouth to manipulate a set of three sticks to work his laptop, Kohli, an avid ham operator, can change the direction and height of the four massive antennas on his roof and communicate with the world."

Service helps city relay information Radio group aids during emergencies (05/17/2001). The Dallas Morning News reports while most people are dashing indoors to avoid a storm, the ham radio operators of the Rowlett Radio Amateur Civil Emergency Service are running out into the rain to look for signs of tornadoes. "There's a fine line between a storm spotter and a crazy person," said Bill Reynolds, RACES radio officer. "A crazy person will at least look at group, which stands ready to help with everything from storm spotting to communications for natural and manmade disasters. "If we have any kind of disaster in the town that overwhelms our communications resources, we have the RACES people to fall back on," fire Chief Larry Wright said. "It's just one more tool we use to protect the people."

"I'm not old enough to drive yet"

During a phone outage, volunteer radio operators sprung into action. The Star-Telegram (Texas) says when the telephone lines died Friday morning at Ben Fogt's house, he grabbed his tiny hand-held radio and asked police whether they needed his help. Sure, they said. Just drive to the fire station and get to work. "I'm not old enough to drive yet," the 15-year-old Richland High School sophomore replied. "If you guys need help, I need a ride." So police sent a patrol car to his North Richland Hills home, and Fogt, KD7IJW, joined about 30 amateur radio operators in a communication relay to help with problems created when a waterline break flooded a Southwestern Bell switching station in Watauga.

FCC EXAM ANSWERS:

1) General: A. [97.313c1] 2) Extra: C) [97.13a]

Police Radio Hacker Faces Felony Charge

Charges have been filed against a 31-year-old Burnsville ham radio operator police say broke onto police-only radio frequencies and repeatedly urged officers to shoot suspects at least 25 times before April 2000. Aaron Goldberg, 31, KB0TUJ, faces a felony charge that carries a maximum of five years in prison, the Saint Paul Pioneer Press reports.

Ham Indicted on Spy Charges

Veteran FBI counter-intelligence agent Robert Hanssen, K9QVL, has been indicted on charges of spying for Russia and causing grave injury to the security of the United States. Arrested last February by federal agents while reportedly delivering a package for pickup in a northern Virginia park, Hanssen was indicted on Wednesday May 16 of twenty-one counts of espionage. He is only the third FBI agent ever accused of spying for a foreign power. If convicted, Hanssen could get the death penalty. (Published news reports - arnewsline)

Ham Gets Top Award

Orbital Sciences Corporation's Dr. Antonio L. Elias, KA1LLM, Senior Vice President and General Manager of the company's Advanced Programs Group, was recently elected to the U.S. National Academy of Engineering. Dr. Elias was recognized by the prestigious research and advisory institution for "conception and execution of a new generation of Earth-orbit transportation systems." He joins a distinguished group of 74 U.S. members and eight foreign associates elected this year for making significant contributions to engineering theory and practice and for pioneering new technologies. Dr. Elias has worked for Orbital since 1987 in a number of key management and technical roles. He currently leads the company's advanced space vehicle technology efforts, including the development of reusable launch technologies for the National Aeronautics and Space Administration's (NASA's) X-34 rocketplane and the support of an initiative to develop a crew return vehicle (CRV), or emergency "lifeboat," for astronauts manning the International Space Station. Dr. Elias is perhaps best known for his leadership in the design, production and operation of Orbital's air-launched Pegasus rocket, the world's first privately developed space launch vehicle. (prnewswire)

FCC reiterates license renewal and modification basics:

The FCC took advantage of the Dayton Hamvention FCC forum to remind Amateur Service licensees that license renewal and modification now is done via the Universal Licensing System--or ULS. The ULS is accessible via the FCC ULS Web site. Bill Cross, W3TN, of the FCC's Wireless Telecommunications Bureau noted that Amateur Radio licenses may not be renewed any sooner than 90 days prior to license expiration. When *only* changing an address, he said, licensees should choose the "Administrative Update" (AU) option. When renewing *only*, he said, choose "Renewal Only" (RO). To change an address while renewing your license within the 90-

day window, select the "Renewal/Modification" option. An application requesting renewal that's outside the 90-day window will be dismissed, Cross said. Modifications no longer automatically result in a new ten-year license term. Call sign changes are not made unless requested by the licensee. Cross said amateur applicants who need assistance or who believe they have made an error on an application they've filed should contact the ULS Help Desk.

How's this for DX?

(NASA) On April 28, 2001, a weak radio signal reached Earth from beyond the orbit of Pluto. It was NASA's Pioneer 10 spacecraft, struggling to communicate with ground controllers, its message riding on a radio signal that registered just a billionth of a trillionth of a watt.



How do you listen to a transmission that couldn't make a lightbulb glow in a billion years? It's all in a day's work for NASA's extraordinary Deep Space Network (DSN).

Right: A 70-meter antenna at the Deep Space Network Goldstone complex in California (NASA photo)

The DSN is a global system for communicating with interplanetary spacecraft. The largest and most sensitive scientific telecommunications system in the world, it also performs radio and radar astronomy observations for the exploration of the solar system and the universe. "Communicating with missions in deep space is difficult," said Joseph Statman, Manager of the Deep Space Mission System Engineering Office at NASA's Jet Propulsion Laboratory (JPL). "It requires extremely large antennas, huge transmitters and very sensitive receivers." The DSN consists of three clusters of antennas spaced approximately 120 degrees apart around the world: at Goldstone, in California's Mojave Desert; near Madrid, Spain; and near Canberra, Australia. "The strategy here is, no matter where the spacecraft is, you're always in contact with it," explained Statman. Each complex is situated in semi-mountainous, bowl-shaped terrain to shield against radio frequency interference.

FCC EXAM QUESTIONS OF THE MONTH

(from the General and Extra exams)

1. What is the maximum transmitting power an amateur station may use on 10.140 MHz? (watts PEP Output)
A. 200 B. 1000 C. 1500 D. 2000
2. What must be done before an amateur station is placed within an officially designated wilderness area or wildlife preserve, or an area listed in the National Register of Historical Places?
A. A proposal must be submitted to the National Park Service
B. A letter of intent must be filed with the National Audubon Society
C. An Environmental Assessment must be submitted to the FCC
D. A form FSD-15 must be submitted to the Dept. of the Interior



HOLMESBURG AMATEUR RADIO CLUB

P.O. Box 6253 Philadelphia, PA 19136

"Serving the Community Through Ham Radio"

***SEE YOU AT FIELD DAY JUNE 23-24!
CLUB MEETING JUNE 28
CRYSTAL RADIOS!***

NEXT MEETING:

DATE: JUNE 28, 2001

TIME: 8:00 PM

LOCATION: NAVAL ASO (OXFORD AND MARTIN MILLS ROAD)

TOPIC: CRYSTAL RADIOS