



QRZ NEWS

A MONTHLY PUBLICATION OF
SOUTHERN PENNSYLVANIA AMATEUR RADIO CLUB, INC
PO BOX 1033 - LANCASTER, PA 17608-1033

(Founded June 1960)

AN AFFILIATED SPECIAL SERVICE CLUB OF THE ARRL, INC.

"Public Service through Communication"

Website: www.K3IR.org

Email address: k3ir@arrl.net

Repeaters: 145.230 - 449.975 - Packet 145.030 - ATV 923.250, FN10se

May 2010

President's Message

Get Out There!

Since leaving my job at a youth camp near Quakertown I have been working part time at several area organizations. My area of expertise is the challenge course industry. You know, climbing a tree, standing on a cable, scaring yourself to death, then talking about the experience.

Last week I was contacted by a local camp who wanted me to lead SECOND GRADERS in a nature study program. I really enjoy using the challenge courses to teach teens and college kids life lessons but honestly second graders scare me to death. Well, I needed the money and besides I too need to step out in faith and conquer my fears so I accepted the challenge.

The first two days involved allowing the kids to scoop muck out of the pond bed and looking for creatures. The muck really is mucky! If you have never experienced a net full of rotting leaves you can't appreciate the sights and smells associated with this activity. So anyway, the activity required the kids to sift through this yucky mud, searching for nymphs, tadpoles, crayfish and other fresh water creatures.

I made some interesting observations during this activity. One is that generally the girls

were more willing to handle the really ugly things than the boys. The boys would handle the tadpoles and minnows but tended to be leery of the nymphs. The boys would brag to the other the boys what they had found while the girls would call one of the instructors over to get approval for their find.

One thing the boys and girls had in common was the excitement they displayed in being outdoors and being allowed to get dirty. In this technological age we live in I so often come in contact with kids who have no experience with the outside world. They are so into video games and TV that they rarely take time to notice all the flora and fauna around them. What a shame.

When I commented to one teacher about

Table of Contents

President's Message	Page 1
April Meeting Highlights	Page 2
Field Day 2010	Page 3
Recycle Program	Page 3
Coming Events	Page 3
WW2IND Memorial Operation	Page 4
Editor's Notes	Page 4
ARES/RACES Information	Page 5
SPARC Officers, Nets, Etc.	Page 5
QRZ News Publication	Page 6
HF Shortwave & Echolink	Page 6
Aircraft Scatter on 23cm	Page 10
Radio Operator Licensing 1912	Page 10
SPARC Site Horizon View West	Page 11

how much I enjoyed seeing the excitement in the children she told me of one young lady who came to her in tears when she heard that the day's activities included a hike. "But I can't hike" the girl sobbed. It wasn't that she had some physical limitation, it was just that at 8 years old she had never walked beyond the confines of her home and school, and was probably driven everywhere.

You are probably wondering where I am going with this and quite honestly so am I. Next month is ARRL Field Day. This is our opportunity to get out and get dirty. While we won't be scooping muck out of a pond we will be experiencing nature while enjoying our hobby. Field Day is defined as attempting to contact as many stations as possible under less than ideal operating conditions. To me nothing could be better than sitting under a tent operating on the Ham bands with the sounds of the wind, creatures, and maybe rain in the background.

Even if you can only stay for a few hours,
GET OUT THERE!

73s,
Harry Bauder, WA3FFK

**MINUTES OF THE APRIL 2010
MEETING OF THE
SOUTHERN PENNSYLVANIA
AMATEUR RADIO CLUB
(SPARC)**

April 28, 2010.

Meeting called to order at 7:00 PM by
President.
Round Robin introductions.

Those present were:
Dave Payne N3LOM
Harry Bauder WA3FFK
Ted Freedman K3KSA

George Gadbois W3FEY
Jon Rudy K3QF
Steve Haas KB8SJU
Dan Milligan KA3KHR
Jim Silvius KW3G
Paul Herr KD8WY
Gerry Wagner KB3JJZ
Mike Zelinski WB3CUC
Mark Vreeland KB3NCJ
Janice Vreeland KB3NCH
Mike Warner N3XPD
Brian Miller AB3HN

Dan Milligan commented on his recent visit to Lancaster General Hospital for heart surgery.

Mike Warner did a presentation on the 2006 3YOX DXpedition to Peter I island in Antarctica.

Minutes of the previous meeting were discussed. Dave Payne moved and Dan Milligan seconded for approval. Minutes were approved as distributed.

Treasurer's report was presented and approved after a motion by Gerry Wagner and second by Jim Silvius to accept pending year-end audit.

First reading of proposed changes to the bylaws followed. Proposed changes were:

Article III Section A shall be revised to read "The regular monthly meeting of the organization shall be held on the day, and at a time and location determined by the board of directors."

Article III Section B shall be revised to read "A notice of each meeting will be given on the SPARC, Inc. weekly net held on the assigned repeater frequency(s)."

Article III Section E shall be revised to read “The board of Directors of the organization shall meet once per month at a time and date to be determined by the Board.” The Board of Directors meeting is open to all members, however non board members may not vote on motions before the Board.

Article III Section F, line 2 shall be revised to read “Reading of significant actions taken at previous membership meeting.”

Article III section F, line 3 shall be revised to read “Discussion of significant actions of the Board of Directors and recommendations to be approved by the general membership”

A discussion followed concerning the installation of a 2 meter antenna on Gerry’s house.

Meeting was adjourned on Motion by Dave Payne and second by Dan Milligan.

Respectfully Submitted,

Harry Bauder, President

A Day in the Field

The following Field Day needs will be discussed at the March club meeting. If you can help anywhere, but cannot attend the meeting, please contact Jon directly.

A. Logistics; food, awnings/tents, outhouse supplies

B. Equipment/Antennas; power, radios, antennas, masts, cables/connectors, logging computers and interfaces

C. Operations; operator schedule, modes, satellite tracking schedule

D. Publicity; photographic documentation,

writer for the newsletter, contact media, provide greeting/explanations for newcomers

Jon Rudy – [K3QF](#)
SPARC Field Day Coordinator

Recycle Program

Recycling is not restricted to club members. Help SPARC and help a green initiative. Aluminum cans are easy to collect and they bring a good price. Recycled paper prices are up a little.

Recycling is an important part of the income required to keep the club operational. All recycling revenue is now being applied directly to the SPARC site mortgage.

Please take recyclables to Dave Payne’s mini recycling center at 1373 Malleable Rd, Columbia or to a SPARC club meeting.

The SPARC super heavy duty pickup truck previously used for transporting recycled paper is now for sale. If you know anyone who might be interested, contact Dave Payne, [N3LOM](#).

Coming Events

Tuesday 25 May 2010 7:PM SPARC membership meeting at the Rapho Twp.

Municipal Building, 971 N. Colebrook Rd., Rapho Twp.

Chris Patterson, W3CMP, will present a report on his 2009 6m DXpedition to 8R1DB. This is a very timely topic as the 6m Es season will be in full swing. Come and get operating tips from an expert.

Everyone interested in Amateur Radio is invited.

June 12-14UTC ARRL June VHF QSO Party

Tuesday 22 June 2010 7:PM SPARC membership meeting at the Rapho Twp. Municipal Building, 971 N. Colebrook Rd., Rapho Twp.

Jon Rudy will finalize Field Day plans for the weekend. Everyone interested in Field Day is invited to attend.

Tuesday, 22 June 2010 Peach Bottom drill. Contact Chris Bunting, K1CWB, for details.

Saturday/Sunday, 26-27 June 2010 ARRL Field Day

See Jon Rudy's Field Day column for details

Tuesday, 6 July 2010 1100UTC Earth at aphelion, 94,508,351 miles from the Sun. Approximate peak of the Summer Es season.

Saturday/Sunday, 24-25 July 2010 MS BIKE – Lancaster contact Dick, WA3USG wa3usg@verizon.net for details.

Monday-Sunday 20-26 September 2010 Wide Vigilance III drill. No details available at this time. Expect the early part to be table top exercises with any Amateur participation probably on Saturday.

See the November 2008 QRZ News for a report on Wide Vigilance II.

http://www.k3ir.org/QRZ_News/QRZ_News_November_2008.pdf

Sat Sept 25Mid-Atlantic States VHF Conference****

CALL FOR SPEAKERS, PAPERS, ABSTRACTS, send to: pdrexler<at>hotmail.com

NEW LOCATION: Quality Inn Conference Center--969 Bethlehem Pike--Montgomeryville, PA One Day Conference for experts and beginners alike hosted by the Mt Airy VHF RC Club.

Full info at: <http://packratvhf.com/> web-based registration open soon. One price \$70 early-bird includes CD, light breakfast, lunch, snack & buffet dinner.

Raffles and Door Prizes--Indoor selling and outdoor tailgating VHF gear testing--Friday Night Hospitality Room--FREE BEGINNERS SESSION (must register)

WW2IND USS INDIANAPOLIS MEMORIAL STATION OPERATIONS -- There are

up coming operating events from the WW2IND USS Indianapolis Memorial station. The first is Memorial Day, Monday, May 31st Noon to 9PM and the second is the Museum Ships Event, starting at 6PM on Friday, June 4th through 8 PM on Sunday June 6th. Check out the WW2IND site for information on parking and operating schedule:

<http://www.ussindyradio.org/splevnts-2010.htm>

Reprinted from RCA ARC News (W9RCA)

Editor's Notes

May 3rd was a good day for Es on 6m. The Florida and Bahamas beacons were copiable most of the day. About 8:30PM I was check in #60 for the Southwest Florida 6m net. Brian Miller, AB3HN, reported that the final count was 102 check ins. I was on the local nets after my check in.

According to NCS NJ2F, Naples, FL, the normal check in is about ten stations. The net meets Mondays on 50.200MHz at 7:00PM local time.

The Summer Es season peaks about July 6th so expect many more openings as the season progresses.

Please keep the articles coming for future newsletters. Your inputs are what makes the newsletter interesting.

73, George, W3FEY

ARES/RACES



As part of the SPARC commitment to emergency communications, the SPARC repeater system is maintained as available for linking with other area repeaters.

Lancaster County RACES VHF Net is held on the first Tuesday of the month at 2030 hours local time. Presently being held on the 145.310 MHz repeater.

The Lancaster County primary ARES/RACES repeater is on 145.310 MHz with minus offset and 118.8 PL.

Combined York County Amateur and ARES/RACES NET convenes at 8:30 PM (2030) Mondays on 146.97.

Pennsylvania RACES HF Nets are held at 3993.5 kHz LSB on all Sundays except holidays.

The statewide net is on the first Sunday of the month at 0800 hours local time.

The Central Area (including Lancaster County) net is at 08:30 local time.

SPARC Nets

Note the new time for the SPARC net.

SPARC holds nets on the 2nd, 3rd, 4th, and 5th Tuesday (every Tuesday except the first) at 2100 local time on 145.230 MHz minus offset and a PL of 118.8. The 449.975MHz repeater is linked to the 2m repeater for the net.

Club Officers

President Harry Bauder – [WA3FFK](#)
Vice-President: George Gadbois – [W3FEY](#)
Secretary - Dave Sarraf - [N3NDJ](#)
Treasurer - Ted Freedman - [K3KSA](#)
Repeater Trustee - Dave Payne - [N3LOM](#)
Past President - Mike Warner – [N3XPD](#)
Board of Directors - Jim Silvius – [KW3E](#)

Nearby Nets of Local Interest

York County Sponsored Nets:

Combined York County Amateur and ARES/RACES NET convenes at 8:30 PM (2030) Monday on 146.97.

Tuesday Nets (Note new schedule for Technical Net)

Elmer/DIGITAL NET -- Tuesday, 8 PM on the York 146.97 Repeater --

The first 15 minutes or so will be open to questions. DIGITAL Communications testing will continue after that.

Friday Digital Net

Friday evenings starting at 8 PM on the 146.610 (PL:131.8 Hz) EARS repeater on Ephrata Mountain.

This is an excellent Digital net called by Bob, AB3GF. Check in is by digital, BPSK125. It is an informal, well run net with plenty of Digital transmissions along with discussion by voice.

NTS-EPA

AA3RG and Echolink Traffic Net" (EAETN) meets every Thursday at 8:00pm on AA3RG-R 146.640(-) Tone 82.5 both Echo Link and 2m radio check ins welcome. No previous experience needed. Just perfect for new hams on 2m or EL on AA3RG-R CONFERENCE.

Please join in and let others know about it as well.

73 -Scott N3SW EPA STM

Delaware Co. Mobile Sixers Net Schedule

Sunday 2000 50.550 MHz USB

PACKRAT MONDAY NIGHT NETS TIME FREQUENCY NET CONTROL

7:30 PM 50.145 MHz K3EOD FM29II
8:00 PM 144.150 MHz N3ITT FN20kl
8:30 PM 222.125 MHz K3TUF FN10we
8:30 PM 224.58R MHz W3GXB FN20jm
9:00 PM 432.110 MHz WA3EHD FN20kd
9:30 PM 1296.100 MHz W2SJ FM29LW
10:00 PM 903.125 MHz W2SJ FM29LW

Visit the Mt Airy VHF Radio Club at: www.packratvhf.com or www.w3ccx.com

2M Northeast SSB Net Mon – Fri, 0700 check on 144.200MHz for possible DX openings. 0730 – 0830 net on 144.176MHz. This is a very long running net that runs from NJ up the coast to CT and beyond.

QRZ News Publication

QRZ News is published monthly on the second Tuesday of each month, two weeks before the monthly meeting. Deadline for article submission is the second Monday of each month. If a large amount of editing is required, earlier submission is requested.

We operate on an exchange basis with other non-commercial publications. Articles printed in QRZ News may be reprinted in a not for profit publication provided proper credit is given. Reprinted articles require permission from the original source.

QRZ News is archived at http://www.k3ir.org/QRZ_News.html. Documents are in PDF format.

Dave Payne, N3LOM, recently found a paper copy of the first quarter 1999 issue of QRZ News. This is the oldest copy of QRZ News in the archive. The next oldest copies are from 2001.

H.F. SHORTWAVE &

ECHO LINK®

By James L. Ibaugh, AA3C

The High Frequency part of the radio spectrum, also called the shortwave band 3 to 30 MHz, is accessible via the Echo Link® system. I must qualify that fact with several rather important stipulations. One of the first and most closely monitored qualifications is the class of FCC license.

Not all of us ARO's have one of the top three class licenses that meet the requirements. Top classes to qualify are the General class, remnant Advanced licenses and the Extra class. Some of the Echo Link connected, remotely controlled, HF base transceivers are located in foreign countries who's Rules and Regulations are very different from ours. Since you might be controlling the transmitter in their country, you have to obey their R&R's in addition to ours. Some countries have provisions for foreign guest operators (even remotely located) under reciprocal license agreements between countries. Some portals require written call sign (photo copy of license) authentication and validation before allowing access to remote control of HF. Here is a limited

sample of high frequency gateway portals via Echo Link. NOTE: Not all HF portal link stations indicate that their link is an HF portal, *it is not required*.

**9H1BBS-L HF Gateway 14.34250 MHz
BUSY 18:05 145300**

**ZL1FZ-L HF Base 80M to 15M open
ON 07:55 496237**

**ZL2SEA-L Auck. HF 80M 3695 kHz(2)
ON 07:54 200195**

**DF0HHH-R HAMBURG 29.690 MHz
ON 20:07 76975**

**DJ3AA-R Remote HF Receiver
ON 21:09 63003**

**DK4XI-R INTERMAR HF-Remote
ON 20:06 90313**

**DL4CQ-R HF-V-UHF- REMOTE
ON 20:05 331989**

**HZ1ZH-R JEDDAH / HF- VHF -WX
ON 22:10 46664**

**N8AD-R HF GATEWAY Erie, Pa.
ON 14:19 54056**

**OA4AX-L HF 7.100 Maranga Lima
ON 08:51 252359**

**V51WG-R NARC-Windhoek2m + 80m
ON 21:13 359091**

***29MHZ-FM* Conference [4/30]
ON 02:28 2945**

It is known that there are a few countries without regulations governing ham radio repeaters or remote controlled radio link systems, but have laws that tightly control the use of the Internet and the World Wide Web. Best place to start is with our own **FCC A.R.S. Part 97**

R&R's. Down load a **FREE** copy in PDF format with this web link:

<http://www.gpo.gov/fdsys/pkg/CFR-2009-title47-vol5/pdf/CFR-2009-title47-vol5-part97.pdf> U.S. Gov. supplied free. If your browser can not display PDF pages, a **FREE** Adobe PDF Reader 9.3 will display and save a copy in text or

PDF form. Down load Reader 9.3 via this URL: <http://get.adobe.com/reader/> [First column on first page is Part96 ignore.]

Now with your own **FREE** copy of FCC Part 97 "in hand", I would like to draw your attention to only those sections applicable to the title subject.

[54 FR 39535, Sept. 27, 1989, as amended at 60FR 26001, May 16, 1995; 69 FR 24997, May 5, 2004] {Applicable parts quoted.}

§ 97.109 Station control. {It says in part:}

(a) Each amateur station must have at least one control point.

(b) When a station is being locally controlled, the control operator must be at the control point. Any station may be locally controlled.

(c) When a station is being remotely controlled, the control operator must be at the control point. Any station may be remotely controlled.

§ 97.213 Telecommand of an amateur station.

An amateur station on or within 50 km of the Earth's surface may be under telecommand where:

(a) There is a radio or wire-line control link between the control point and the station sufficient for the control operator to perform his/her duties. If radio, the control link must use an auxiliary station. A control link using a fiber optic cable or another telecommunication service is considered wireline.

{End of quote}

The above is the most applicable part; the wire-line in our case is the Internet coax/

fiber optic cable/microwave/-satellite/
under sea cable/telephone lines/smoke
sigs/ et al.

Since you have your own copy of Part 97 , I will not bore you with more FCC R&R quotations. There are other subsections that apply to a lesser degree, you may want to investigate.

Now, onto a case study. I have been on an HF portal in New Zealand, ZL2SEA-L and have permission to control not only the Rx/Tx but also transmitter frequency on the Icom IC-718 that Nigel uses on the portal.

ZL2SEA is Nigel Goldstone of Drury, Papakura, New Zealand; via QRZ data base. Nigel has executive control of the HF portal node system and can lock out any guest remote operator who does not abide by all applicable rules or ARO standards of behavior. This prime control eliminates the need for an Auxiliary Station and allows any node connection to operate the HF portal regardless of the band used by the guest remote operator. Contact data from AA3C's EL auto-log book file: "2010-03-25 16:09:07 to 16:26:41 Local ZL2SEA-L CONF Auckland, NZ HF 80m 3695 kH (1)".

Nigel has set in these frequencies listed below, into the EL system controller. Nigel says:

"Enter the 4 letter code into Text box or DTMF to change frequency." Blue tinted text is quote from Nigel's great web page: <http://www.qsl.net/zl2sea>

{ Start of quote from Nigel's web page.}

Changing the frequency of the of the HF Radio couldn't be simpler. As an example as shown – enter AA24 to change the frequency to 3695 kHz and click on send. In a short time you will receive a Text and Audio confirmation saying the new frequency is ready to use. That's it simply listen and call CQ if the frequency is clear. Enter the AA? = Help

AA1? = 160 M Text Commands

AA2? = 80 M Text Commands

AA3? = 40 M Text Commands

AA4? = 20 M Text Commands

Enter the 4 letter code into the Text box to change frequency: AA1? = 160 M text commands as listed

AA11 = 1850 kHz

AA12 = 1875 kHz

AA13 = 1895 kHz

AA14 = 1925 kHz

AA15 = 1945 kHz

Enter the 4 letter code into the Text box to change

frequency: AA2? = 80 M text commands as listed

AA21 = 3585 kHz

AA22 = 3610 kHz

AA23 = 3650 kHz

AA24 = 3695 kHz

AA25 = 3725 kHz

AA26 = 3755 kHz

AA27 = 3820 kHz

AA28 = 3850 kHz (AM)

AA29 = 3900 kHz

Enter the 4 letter code into the Text box to change

frequency: AA3? = 40 M text commands as listed

AA31 = 7060 kHz

AA32 = 7075 kHz

AA33 = 7095 kHz

AA34 = 7105 kHz

AA35 = 7125 kHz

AA36 = 7145 kHz

AA37 = 7165 kHz

AA38 = 7185 kHz

AA39 = 7195 kHz

Enter the 4 letter code into the Text box to change

frequency: AA4? = 20 M text commands as listed

AA41 = 14160 kHz

AA42 = 14165 kHz

AA43 = 14175 kHz

AA44 = 14185 kHz

AA45 = 14215 kHz

AA46 = 14265 kHz

AA47 = 14300 kHz

AA48 = 14315 kHz

AA49 = 14345 kHz

To force a frequency change if QRM put "#" at the end e.g **AA15#**

AA11# = 1850 kHz

AA24# = 3695 kHz

AA26# = 3755 kHz

AA?# = Help kHz Changing the frequency

when the frequency is busy you will need to use # character at the end of the command to force the change as an example **AA15#**.

“This HF Link can be used to operate on 160m, 80m, 40m and 20m and is open for all licensed Radio Amateurs using the Echo Link system and who are licensed to use the selected frequencies for the type of license that you hold. It is important that you operate within the regulations and guidelines for your country so please check before using the system.” { end of quote }

Check Nigel's web page for updates:

<http://www.qsl.net/zl2sea> I must reiterate Nigel's instruction to check your FCC license class list of authorized frequencies (Part 97); that means General class and above with HF privileges, watch out for subband assignments. Since you will be controlling a transceiver in New Zealand, check their New Zealand R&R's at:

<http://www.nzart.org.nz/nz/visitors.html>

You will be operating HF from New Zealand, almost as if you were there, a visitor in the South Pacific. Your radio ID should indicate this situation. As stipulated in the NZART.ORG web site above: “The call sign must be the national call sign allocated by the other administration to that person, in conjunction with the prefix or suffix “ZL” which is to be separated from the national call sign by the character “/” (telegraphy), or use the word “stroke” (telephony).” Example: “CQ CQ from ZL2 stroke AA3C ZL2 stroke AA3C via ZL2SEA link, over.” Watch your level of modulation, your EL screen modulation level indicator should be mostly blue with **very little yellow on voice peaks**. You can practice modulating with EL's Echo Test Server accessible via Menu

Line > Station > Connect to Test Server. Don't forget to disconnect from server after you mastered the **all blue modulation**. If you are working through an EL connected repeater or radio link from your mobile or HT, identify, touch tone 9999 brings up the Echo Test Server. Others hear you as you hear your own echo. Disconnect with the # sign and identify. Think about it, working 20 meter SSB from the South Pacific on your 1 watt HT! What a super cyber virtual DXpedition that is and it is FREE! Visit Nigel's web page for more information. Follow instructions there to obtain authentication and access to Nigel's ZL2SEA-L

Nigel Goldstone at ZL2SEA-L site in



Drury, Papakura, New Zealand.

Visit Nigel's web page for a close up photo.

Please say hello to Nigel for me, 73's & Gud Luk .-. .-. . AA3C – Jim ...-.

AA3C@ARRL.NET AA3C@AMSAT.ORG
P.S. Thanks to N3JOW and N3CXY
for help with proofing this article.

AIRCRAFT SCATTER ON 23cm

Ray James, **GM4CXM** makes regular long DX contacts on **23cm** by means of aircraft scatter, often during activity contests. Ray now uses a combination of a virtual radar box, plus **SM0LCB**'s path locator for AS to help spot opportunities. From his observations using the virtual radar, he finds that aircraft positions in/out of Glasgow are between 90 seconds and 2 minutes ahead of what is shown online.

During a recent activity contest, Ray noted that the majority of traffic at the start of the contest was either taking a central or westerly track over England with the majority of eastern flights either descending or ascending so of little use for long range contacts. As the evening drew on just about all traffic of any great height straddled the west side of England. An end of contest attempt to work Sam **G4DDK** failed but they carried on for around 10 minutes as a high level cargo flight from **DL** to USA approached the coast and looked as if it would pass very close to their midpoint (near Harrogate), but it changed course just before reaching the midpoint!

With these new aids to communication, Ray says it never ceases to amaze him how "hit and miss" it used to be when making AS contacts.

73, Robin Lucas **G8APZ**

Excerpt reprinted from the March 2010 edition of Scatterpoint.

THE RADIO OPERATOR AND HAM LICENSE REQUIREMENTS OF 1912:

Reprinted from the May 2010 newsletter of the
QUANNAPOWITT RADIO ASSOCIATION

FOR THE RADIO OPERATOR:
"UNCLE SAM TO CERTIFY WIRELESS
OPERATORS

May 13, 1912

Washington, May, 13 -- To bring about greater efficiency of wireless operators on ocean going vessels the Department of Commerce and Labor will issue a certificate of skill in radio communications which are to be held at many of the U.S. Navy yards within a week or two. To secure a certificate an operator must qualify in the adjustment of apparatus, correction of faults, change from one wavelength to another; transmission and sound-reading at a speed of not less than 15 words a minute, American Morse and 12 words Continental."

FOR THE HAM:

One had to recognize the official KEEP OUT signal and distress call. Copy code at a speed of 5 words per minute.

Be knowledgeable of the International Radio-telegraphic Convention in force and Sections 3, 4, 5, and 7 of the Act of Congress of August 13, 1912; One also had to take a seven-question written exam covering:

1. How to make a diagram of the transmitting and receiving apparatus
2. How the transmitting apparatus is made and how it works
3. How the receiving apparatus is made and how it works
4. The International regulations for wireless communications and the U.S. wireless laws and regulations.

(Taken from The Book Of Wireless,
Frederick Collins, 1915)
That written exam was an essay-type test.
As the government examiners were fond of

saying back then, "What you fail to say, you
don't know." (via Jim Fisk, WIHL)



Looking West K3IR club site, 1715 Breneman Road, Rapho Twp. Lat. 40.16700, Long. 76.45480, 600' ASL, FN10se