



PCARA Update



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Repeat performance

At September's PCARA membership meeting a couple of topics came up, and I thought it would be a good idea to share them in this month's newsletter. The first item was revisiting a project that was tried once before, specifically an IRLP node. As you might recall, Malcolm, NM9J had set up an IRLP link for the 449.925 MHz repeater a few years ago. The node received very light usage and it was eventually taken offline. In this iteration the IRLP link would be placed on the 146.670 MHz repeater, which receives significantly more usage than the UHF machine. There have also been improvements in the IRLP hardware and software used to support the node, which should make it easier to maintain. Please let us know what you think.

The second item is a sorely needed upgrade to the 449.925 MHz repeater, specifically replacing the antenna. The repeater currently is using a Diamond dual band base antenna that has been repaired once before and has seen better days. At the September meeting it was moved, seconded, and unanimously approved that a new Stationmaster antenna should be purchased and installed for the 449.925 MHz machine, and that a special fund be established to fund the same. The estimate for a new Super Stationmaster antenna is in the \$1,000 range. If you are interested in helping, your voluntary donation can be sent to PCARA (UHF Antenna Fund) at PO Box 146, Crompond, NY 10517. Thank you.



Antennas at the repeater site. The Diamond dual-bander for 440 MHz is on the left-hand mast.

Just a note that the New York State QSO Party, <http://www.nyqp.org>, is on October 18, 2014 and we will discuss whether PCARA will sponsor a plaque at the October Meeting.

Our next regularly scheduled meeting is on Sunday



Bob N2CBH (left) and Henry KB2VJP (right) enjoy the sunshine at Candlewood ARA's Hamfest on September 14.

October 5, 2014 at 3:00 pm at Hudson Valley Hospital Center in Cortlandt Manor, NY. I look forward to seeing each of you there.

- 73 de Greg, KB2CQE

PCARA Officers

President:

Greg Appleyard, KB2CQE, kb2cq at arrl.net

Vice President:

Joe Calabrese, WA2MCR; wa2mcr at arrl.net

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Net night

Peekskill/Cortlandt Amateur Radio Association holds a weekly net on the 146.67 MHz W2NYW repeater on Thursdays at 8:00 p.m. Join net control Karl, N2KZ for news and neighborly information.

Adventures in DXing

- N2KZ

So Low

How low can you go and still be heard? It's fun to test the sensitivity limits of today's modern receivers. Is there anything that can't be heard? You'll shake your head in amazement when you log HiFer beacons. It is QRP DXing at its finest!

Where can you hear really, really weak signals? If you enjoy shortwave listening, Oklahoma shortwave guru Glenn Hauser can direct you to the most interesting things you will ever hear. Start your introduction to his comprehensive work at: <http://www.worldofradio.com>.

One of Glenn's recent newsletters mentioned reception of a flea-powered HiFer beacon from Wisconsin signing as G N K on 13.564 MHz. Through some miracle of the airwaves, I heard it on my first try! Talk about tiny signals! This one is claimed to be about just under five one-thousandths of a watt. How do you even measure that low?

Experimental HiFer beacons are allowed under FCC Part 15.225(a). You can find these legally un-

licensed stations between 13.553 and 13.567 MHz (just under our amateur 20 meter band) with a field strength of no more than 15,848 microvolts per meter at 30 meters. This equates to a powerful 4.8 milliwatts into a basic dipole antenna. Talk about a DX challenge!

Beacon G N K was constructed by an amateur radio operator named Dominic,

KC9GNK, based in Madison, Wisconsin. Using an efficient dipole antenna mounted in his attic, Dom's beacon churns out the letters G N K in very slow Morse code over and over again 24 hours a day. Many hams in our area have received G N K. You should give a try!

Learn all about beacon G N K at:

<http://kc9gnkbeacon.webs.com/gnkmedferbeacon.htm>. The Long Wave Club of America's web site is a wonderful

§ 15.225 Operation within the band 13.110-14.010 MHz.

(a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.

(b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

(c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

(d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

FCC Part 15 Rules for intentional radiators, as related to HiFer beacons.

source describing everything you might want to know about beacons outside the amateur radio bands.

Their very complete list of all the HF mini-beacons on the air can be seen at:

<http://www.lwca.org/sitepage/part15/index.htm>. How small can you hear?



New Beginnings

A few days ago my heart didn't stop, but it was close! A corporate e-mail announced the 'reorganization' of my professional world. All broadcast engineers were being folded into the IT Department because there just didn't seem to be a need for broadcasters anymore. Am I truly obsolete? Nearly every piece of broadcast equipment is now based on a server or a stand-alone computer. I'll always mark this day as the official end of the concept of 'television.'

I should have seen the writing on the wall. Recruiting TV engineers has become increasingly difficult. (Soon, finding an individual appliance called a television will be difficult, too!) If you are a broadcaster worth your salt, you are already gainfully employed. Nearly everyone in broadcasting is over 50 years old. Just where does television and radio stand in society in the year 2014? It's akin to announcing to a clerk in an unemployment office that you are looking for work as a telegrapher. You are just so yesterday.

This was not a terrific day for improving self-esteem! Still, some questions remain. The world is now



"You are just so yesterday..." like this photo from 1956 where CBS Engineer John Radis inspects playback of the evening news from a giant Ampex videotape recorder at CBS Television City in Hollywood, CA.

so *anxious*. Listen to your audience: “I want to watch it now, when I want, like right now! I want to be able to scrub back and forth and find everything immediately!” I’m glad to say that I am still the kind of person that can make that happen for you!

Adapting to change offers challenges. Modern media may be immediate in some respects, but I find it deficient. I miss local broadcast news. We live in communities of dense population, yet there are so few places to discover local news and weather from any medium.

Gone forever is the ‘media event.’ Everyone now watches precisely what they want when they want it. With on-demand TV, playback is individually customized for each and every viewer. The entire world doesn’t watch Ed Sullivan every Sunday night. Thursday nights meant *Cheers* or *Friends* to tens of millions. Almost everything can now be seen on-line nearly immediately after its first play. Rewind your DVR and watch things, according to your schedule, days or weeks later. Only Super Bowl Sundays really hold the complete attention of our nation at the moment it occurs.



Ed Sullivan

The media pie has been sliced so thin! Thousands of channels spew out of servers all over the world. Add YouTube, Netflix, and the abyss of Apple TV and Roku choices. How can you focus? Adding difficulty is the inability to go to any one place to discover programming. No single site even comes close to being a central location for seekers of TV or radio shows. Where do you go?



Karl can still make it happen for you. This picture shows equipment for two HDTV networks, fitting into a single rack.

I just have to smile at one of television’s greatest new innovations: *TV Everywhere* or simply *TVE*. This is the new industry catch-phrase for television delivered by Wi-Fi so it can be viewed on smartphones and tablets wherever you go. Imagine watching television without being wired to a CATV cable or a wired Internet connection. *TV Everywhere* flying through the air. Where were they in 1948 when the first TV antennas came to local hardware and department stores? The nationwide conversion to digital in 2009 killed the use of portable TVs. Now the idea of portable has returned via Wi-Fi. Only one horrible catch... You have to be a cable subscriber to access it! (I guess you do still need wires!)

Programming is equally innovative. As a low-cost attempt to broaden their ever-shrinking over-the-air audiences, traditional legacy television stations have added additional virtual channels to their program streams filled with nothing but decades old shows. Remember *Charlie’s Angels*? *All in the Family*? *Bewitched*? *Fantasy Island*? How about John Wayne movie marathons? Jack Benny shows from 1957? No problem! A time machine runs daily behind today’s major TV stations if you know where to look.

NBC offers *Cozi TV* on channel 4-2. Fox screens 24 hours of *Movies!* on channel 5.2. The list goes on and on! ABC encourages you to *Live Well*. WWOR has *Bounce* and WPIX pours on nostalgia with *Antenna TV* and *This TV* movies. The latest trio rides piggy back on local Hispanic channels: non-stop cowboy movies on *Grit*, intrigue and mystery on *Escape* and truly ancient movies on *Get TV*. It’s all over-the-air and all free.



It is obvious that these channels are successful just by their proliferation. Whoever thought digital TV would produce such a dusty and old back story? This endless dearth of channels is a good thing for people like me. “Please keep building more and more channels! I need the work until I retire!” Quoting the beloved Monty Python: “I’m not dead yet!”

Be Smart

The sophistication of new media does not end with just endless programming choices. You should be aware of one technology that can precisely track your entertainment and purchasing preferences. When you turn up the volume, an extraordinary invasion occurs through a technology known as *watermarking*.

Buried in the audio content of broadcast audio is a myriad of identifying data ready to be tracked. With

the proper equipment, you can playback a live or recorded program and immediately determine exactly the originating network or channel, the moment of broadcast and a fortune of other information. Insiders can even tell what transmitting path was used! You can't hear it, but clever equipment can!

Watermarking data is incredibly robust. It can even be read over a telephone. Hold your iPhone up to your TV's speaker and the person on the other end may be reading everything about what you are listening to. Yikes. When quiet passages occur during your show, the watermarking is clever enough to mute itself to hide its presence.

Combine this with further data culled from your Internet and credit card actions and suddenly there are no secrets. Market analysis firms can provide mind-boggling detail about each and every citizen.

Looking to sell a new convenient fast dinner food to married Hispanic women between 24 and 40? Target marketing firms can provide the exact e-mail and house addresses of the precise people you want to reach. Part of this invasion of privacy relies on broadcast audio!

Smart cable and satellite TV receivers include similar hooks. Not only will they offer to seek further information with the press of a magic button, but complete customized local commercials can be played for people just like you! How did they know where my closest Chevy dealer is? They also know where your



Be Smart! Hold your iPhone up to your speaker and...

converter box is, who it belongs to and what channel it's on. There are no secrets!

I can only wonder if this tech-

nology will be incorporated into the amateur radio hobby. Can you imagine your transceiver automatically sending out your ID via watermarking? It would be incredibly easy to do. Big Brother really is watching!

I'm going to get my trenchcoat and see if I can hide until next month!

Until then, 73s and dit dit de N2KZ "The Old Goat".



Radio resources

PCARA Web Site

The PCARA web site <http://www.pcara.org> is maintained by Greg KB2CQE. Look here for information about club activities and links to other useful resources, including an archive of previous newsletters.

Yahoo Groups

PCARA has a Yahoo Groups site — the address is: [https://groups.yahoo.com/neo/groups/Peekskill_C](https://groups.yahoo.com/neo/groups/Peekskill_Cortlandt_Amateur_Radio_Assoc)



[ortlandt_Amateur_Radio_Assoc/info](https://groups.yahoo.com/neo/groups/Peekskill_Cortlandt_Amateur_Radio_Assoc/info). This is a restricted group, mainly used for distribution of important e-mail messages to PCARA members. You can request membership by visiting the site or sending an e-mail message to: Peekskill_Cortlandt_Amateur_Radio_Assoc-subscribe@yahoogroups.com.

Facebook page

PCARA has a page on Facebook, maintained by Karl N2KZ. You can visit the page without necessarily signing up for Facebook using the following link: <http://www.facebook.com/pages/Peekskill-Cortlandt-Amateur-Radio-Association/140173842695229>.

Training classes

There is a new feature on the ARRL web site that allows you to search for Amateur Radio training classes in your area, similar to the page for finding local ham-fests. Go to: <http://www.arrl.org/find-an-amateur-radio-lic-enseclass> and enter your zip-code.

UK podcast

Ray, W2CH draws our attention to the "ICQ Amateur/Ham Radio" ad-free podcast from the United Kingdom. It features father and son presenters, Martin M1MRB/W9ICQ and Colin M6BOY. You can pay a visit to their web site, <http://icqpodcast.com> or download the bi-weekly podcast on iTunes.

In the running

Greg, KB2CQE advises that PCARA has been requested to provide supplemental communications for the 34th annual "Harry Chapin Run Against Hunger" on Sunday October 19, 2014 in Croton-on-Hudson, NY. More information is available at: <http://www.runagainsthunger.com/>.

Members interested in participating should please let Greg know. (E-mail address is on page 1.) At the time of writing, planning sessions were pending.



Broadsword calling Danny Boy

I have been re-watching several movies about World War II that are now available on Blu-Ray. Some are old favorites like *The Guns of Navarone* and *Where Eagles Dare*, while *The Monuments Men* is more recent. What they all have in common is a somewhat misleading depiction of radio communication of the era.

E-mission impossible

In *The Guns of Navarone* (1961), a team of Allied military specialists is given the job of destroying a German gun installation, located on a Greek island in the Aegean Sea. On the boat trip to the island, in the company of Anthony Quinn and Gregory Peck, Stanley Baker — callsign “Lucky” — contacts “George Mike William” on a portable radiotelephone with an amazingly short antenna. “George Mike William” (James Robertson Justice, back at base) warns the team about German patrols and deteriorating weather in the area.



Stanley Baker calls James Robertson Justice on sked in “*The Guns of Navarone*”, while Anthony Quayle, Gregory Peck and team look on.

The movie *Where Eagles Dare* (1968) is a tale of derring-do in which a team of undercover agents is flown from Britain into wartime Bavaria in order to rescue a captured U.S. General from a German castle, high in the Alps. While Clint Eastwood is busy picking up parachuted supplies, team leader Richard Burton



‘Broadsword calling Danny Boy’ ... Richard Burton makes a radio call from Southern Bavaria to UK headquarters in the movie “*Where Eagles Dare*”.

makes use of a backpack radio with a tiny telescopic antenna to call headquarters in England. “Broadsword calling Danny Boy” is the famous radio call in Burton’s rich Welsh accent, which brings Admiral Rolland (Michael Hordern) to the microphone of a large transmitter back at HQ.



Admiral Rolland, played by Michael Hordern replies to the radio call from Richard Burton in “*Where Eagles Dare*” while Colonel Turner (Patrick Wymark) looks concerned.

Those same callsigns, “Broadsword” and “Danny Boy” crop up in an episode of the BBC series *Doctor Who*, “Victory of the Daleks”, set in World War II London.

More recently, in *The Monuments Men* (2014), George Clooney heads a team of art experts who are tasked with saving buildings, monuments and art from the European countries occupied by Germany during World War II. In the liberated French town of Saint-Lô, George Clooney and Hugh Bonneville successfully repair a field radio using a German vacuum tube — it looks suspiciously like an 807. The radio is then used to maintain voice contact with team members who are dispatched to sites in Belgium and Germany to recover stolen art treasures.



Fresh from *Downton Abbey*, Hugh Bonneville hands a replacement vacuum tube to George Clooney during radio repairs in “*The Monuments Men*”.

The Monuments Men movie was very well-filmed, but critical reaction to the story-telling has not been quite so kind.

Plot holes

So what did the screenwriters get wrong in these movies? First of all — if you were operating behind enemy lines, you would **not** use plain language over a voice transmission. And even if identities were masked behind “tactical” callsigns, you would certainly not identify a real person in any of your communications... like Admiral Rolland did: “Colonel Turner and I will remain at Headquarters till operation completed. Good luck. Out.” —Michael Hordern in *Where Eagles Dare*.

Second — those portable World War II radios had amazing range for voice transmission! Bear in mind that the only voice mode available on short wave at the time would have been amplitude modulation (A3E), with power output limited to a few watts maximum from a battery-operated vacuum tube transmitter. As we have seen, antennas depicted by Hollywood are only a few feet long. Nevertheless, noise-free signals emerge from a loudspeaker, hundreds of miles away, with just a few atmospherics added for effect. Headphones — which would have prevented both the enemy and the audience from overhearing — are seldom used.



Stanley Baker's radiophone in a suitcase only has a short antenna to contact base. (*The Guns of Navarone*.)

Real radio

In reality, the bulk of long-distance military and espionage communication during World War II was carried out using **Morse Code**. From my younger days in the hobby, I remember senior members of the radio club from “the greatest generation” who were involved in World War II radio — their CW skills were excellent, though they seldom talked about their military experiences. On the civilian side, there were the Voluntary Interceptors (V.I.s) who stayed in reserved occupations and were secretly copying CW transmissions from German units in occupied Europe.

Morse would have provided our movie heroes with much greater range than AM voice transmission, making the radio scenes more plausible —especially if a longer wire was substituted for the short whip antenna. In addition, Morse gives the opportunity to *encrypt* the message prior to transmission. Even if such a message was intercepted, encryption should ensure that its meaning was concealed from the enemy.

Read all about it

But don't just take my word for it! These days, with the official opening of once-secret dossiers, there are opportunities to read about what *really* happened to the spies and agents of World War II. Some of these stories are even more interesting than the tall tales dreamed up by screenwriters for the studios of Hollywood and Borehamwood.

Hams join the hunt

Henry, KB2VJP drew my attention to the monthly magazine *Electric Radio*

(<http://www.ermag.com/>) and recent articles describing World War II radio equipment. In the August 2014 issue, there is an article about the SSR-201 “Watch-Dog” aperiodic receiver. Compared with the limited bandwidth of a typical superheterodyne, the aperiodic receiver's

acceptance range was much wider, covering the entire short-wave communication spectrum without re-tuning. This allowed rapid identification of any spy transmissions in the immediate vicinity. Once a transmission had been detected, conventional receiving equipment could be used to tune in the signal and take a bearing.

The man behind these U.S. counterespionage efforts was a radio amateur — George Sterling, W1AE, W3DF — who eventually rose to the rank of FCC Commissioner. He had first taken to the airwaves in 1908 at age 14 and was subsequently licensed as 1AE. At the opening of World War I he was junior operator on a merchant ship. He joined the Signal Corps and served in France, where he located enemy transmissions.

After World War I, George Sterling returned to the Merchant Marine, then joined the Federal Radio Commission (predecessor to the FCC) as a Radio Inspector, moving up to supervise Field Offices and Monitoring Stations. As World War II loomed, George Sterling was

placed in charge of a new organization to monitor spy transmissions. He recruited personnel from the ranks of licensed amateurs and commercial radio operators into a new organization that became the “Radio Intelligence Division” (RID). Of the 300 RID personnel, over 70%



George Sterling, W1AE / W3DF

where he maintained radio links with the Dutch Resistance. His final overseas posting was in the British Zone of Germany, shortly after the end of the war in Europe.

Pat Hawker had a subsequent career with the UK's Independent Television Authority and the IBA. He was a columnist for *Wireless World/Electronics World* and for the *RSGB Bulletin*, later known as *Radio Communication*, where he contributed "Technical Topics" for an amazing period of fifty years, from 1958-2008.

The Secret Wireless War is published by Arundel Books. Further details at: <http://www.geoffreyridgeon.com>.

Man in a suitcase

This description of agent radios reminds me of former V.I. Harold Hilton, G3LWQ who taught me Morse code during the 1960s in preparation for my UK amateur radio test. As part of his HF station, G3LWQ

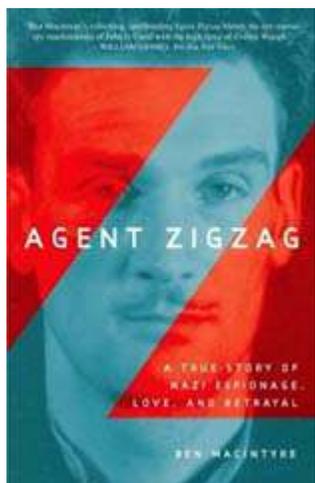


B2 suitcase transmitter/receiver as used on CW by agents in World War II.

had the transmitter from a genuine **B2 suitcase set**, as used by allied agents, plus an **HRO receiver**, many of which were employed at monitoring stations to pick up enemy traffic during WWII.

Double trouble

A feature of spy stories — including *Where Eagles Dare* — is the **double agent**, who appears to work for one side in a conflict but who shifts allegiance as circumstances change. Real life stories involving double agents were the basis for some of these fictional characterizations and once again,



truth can be stranger than fiction.

I recently read the book *Agent Zigzag* by British author Ben Macintyre. The tag-line is "A true story of Nazi espionage, love and betrayal."

Agent Zigzag is the story of Eddie Chapman, a charming rogue who prior to World War II was an explosives expert on the wrong side of the law. Captured by Germany in the

occupied Channel Islands (the only part of Britain to be occupied in WWII), he offered to spy for Germany, was

transferred to a French prison and then accepted by the *Abwehr* (German Intelligence Service).

From a radio point of view, the story becomes more interesting after the Luftwaffe parachuted Eddie Chapman with wireless set back into England, where he immediately turned himself in to the British authorities. Adopted by MI5, the security service responsible for counterespionage in the UK, he was handled by a case officer who proved well suited to the task.

Ronald Reed was a 24-year old BBC engineer and radio amateur, call sign G2RX, who was recruited into the Secret Service at the outbreak of World War II because of his Morse skills. He supervised Eddie Chapman's coded transmissions back to the German controllers, which had been carefully prepared and vetted beforehand by the UK's "Twenty Committee" (Twenty = XX, or Double Cross).



Ronnie Reed, G2RX

Agent Zigzag also involves the codebreakers at Bletchley Park who were monitoring Enigma-coded radio traffic from occupied Europe. Decoded messages from the *Abwehr* confirmed that Chapman was still considered loyal to Germany.

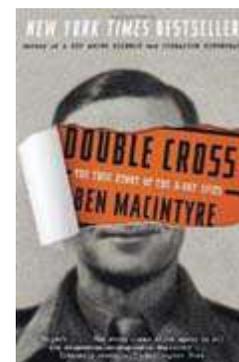
Ronald Reed, G2RX had a long career with the security services after WWII — he was still listed in my 1993 RSGB Call Book with a London address. He died in 1995.



Agent Zigzag is a great read — not only for details of the espionage techniques used in World War II, but also for an appreciation of the very unusual people who were recruited into the role of secret agent.

Seventy years ago

For more tales about **real** double agents, I would recommend another book by Ben Macintyre: *Double Cross* — the true story of the D-Day spies. This tells the story of German agents who landed in Britain and who were then "turned" into acting for the allies. The high point of this deception was convincing German Intelligence that the D-Day landings planned for Normandy on June 6, 1944 would take place in an entirely different area.



Great calls

All this information about *actual* activities of secret agents in World War II adds insight to our reading of fiction and our viewing of movies today.

With this in mind, and with all our modern technology, how would **you** maintain communication with an agent behind enemy lines? This is not as easy as it might seem in today's complex world, where cell phones and Internet are routinely monitored and conflict can flare-up in civilized countries as well as wilder areas that civilization has barely touched.

But don't think *too* hard about it or you might find yourself recruited into the world of radio security, just as happened to those great callsigns W3DF, G3VA and G2DX in World War II.

- NM9J (with assistance from KB2VJP – TNX!)

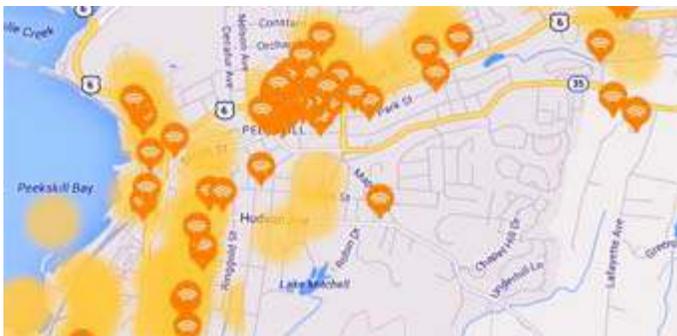
Wireless surprise

A few days ago, I switched on my old HP netbook to check whether it was still working properly. This was the same PC that I had used to investigate Cablevision's "free" Wi-Fi service when it first rolled out to Optimum Online subscribers. (See *PCARA Update*, November 2008, p5 and January 2013, p6.)

I was surprised to find that the built-in Wi-Fi adapter had connected automatically... but **not** to my own encrypted wireless access point, even though it was at the top of the preference list. Instead the Netbook had connected to Cablevision's free Wi-Fi service, with the SSID "optimumwifi".

This seemed rather strange... the nearest outdoor Optimum Hotspot that I was aware of was roughly ½ mile away, on Route 202. I had a close look at the utility poles to see if any new hotspots had been installed and checked the online map of Optimum Wi-Fi access points — but there was nothing new nearby. What I did notice was that the map shows a lot more hotspots in odd places than the last time I checked. (<https://www.optimum.net/internet/hotspots/>)

I carried out a little survey using NetStumbler and VistaStumbler software on my notebook to locate the source of the "optimumwifi" SSID. A very strong signal



Map showing indoor and outdoor Optimum Wi-Fi hotspots in the Peekskill/Cortlandt area.

was coming from just across the street, where a new family had recently moved in. I remember seeing Cablevision trucks in their driveway a few weeks earlier.

It turns out that Cablevision is now offering free hotspots using their own Wi-Fi enabled "**Smart Routers**" installed in customers' homes. In May 2014, Cablevision CEO James Dolan said the company was rolling out "smart WiFi routers" that would put the company on track to expand its WiFi footprint to **one million access points** by year end.

This development is a bit of a double-edged sword. For cable customers who travel around with WiFi-enabled devices such as notebooks, tablets and smart-phones, the availability of additional "free" hotspots in the local area is obviously welcome.

But if your wireless device connects to a public hot-spot *automatically* when you were **not** expecting it, you need to exercise caution as the wireless signal is no longer encrypted. Usernames and passwords entered on non-https sites could be picked up by unfriendly eavesdroppers. There are security tips available on the Optimum web site to avoid this type of unwanted interception: http://optimum.custhelp.com/app/answers/detail/a_id/2273/kw/security%20tips%20wifi

Optimum customers who have one of these Smart Routers in their own homes might welcome having the router owned and managed by Cablevision. But I prefer to keep a close eye on the settings for my *own* router — and on the devices connected to it.

A further worry for Optimum customers with a Smart Router is that complete strangers might be making use of the limited wireless bandwidth around their homes as well as the available bandwidth on the cable connection. And who knows what Internet activities those uninvited visitors might be up to?

Meanwhile, if you have any of your wireless devices set to automatically connect to SSID "optimumwifi", you might want to change the connection over to manual.



D-Link dual-band WiFi smart router as supplied by Cablevision for home Internet service.



- NM9J

Newsletter types

At the start of 2014, your editor reported on the changeover from PageMaker to Serif **PagePlus X7** as the software used for composing this newsletter. Adobe PageMaker had been employed, ever since the first electronically-distributed edition of the newsletter, which appeared in December 2001. But PageMaker's dependence on Windows XP meant it was time for a change. This October 2014 newsletter will be the *eighth* edition composed using Serif PagePlus.



The changeover has not been entirely without problems. As a semi-technical publication, *PCARA Update* sometimes includes formulas, fractions, superscripts and subscripts — for example:

$$\frac{5}{8}\lambda, \sqrt{(R^2 + X^2)}, \text{CO}_2$$

... but subscripts and superscripts seem to be a weak point, caused by TrueType fonts with faulty metrics.

Just your Type

Before personal computers came along, most of us had limited exposure to typography and the strange world of typefaces and fonts. Then, with the release of Windows 3.1 in 1991, Microsoft included TrueType scalable font technology — and introduced millions of people to the built-in scalable fonts of Arial, Times New Roman and Courier New. Since 1991 we have seen

Arial - Abcdefghijk
Times - Abcdefghij
Courier - Abcd

Standard Windows 3.1 fonts

are still standard in Microsoft Windows to this day.

Type for you

When I took over the *PCARA Update* newsletter at the end of 2001 from founding editor Joe Ellman, KR2V, I had to make some rapid design decisions. Joe had been using word processing software for the newsletter, printing out one copy, photocopying at a local office supply store, then bulk-mailing paper copies to PCARA members. The club decided to save copying and



December 2001

postage costs by sending the newsletter to members *via* e-mail whenever possible.

I chose a simple two-column layout for the newsletter that would be easy to insert contributions from members into. The column width of 3½ inches would also contain the largest size photos and graphics in order to keep the overall PDF file size down.

The body in question

My choice for the newsletter's body text was a typeface called "Bitstream Charter", for which I've had a license since 1989. Charter was designed for Bitstream in 1987 by British typographer Matthew Carter. His career has spanned the era from hot metal typesetting (when



This 1989 Bitstream Fontware package included the "Charter" typeface.

newspapers and books were produced by pouring molten lead alloy into metal molds to cast a line of type), to phototypesetting (where light is shone through a film image of each letter and recorded onto photographic paper) all the way through computer typesetting and into our modern era of desktop publishing and e-books.

Charter BT - Abcdefgh
Charter Italic - Abcdefg
Charter Blk - Abcde

The 'Charter' typeface was designed by Matthew Carter for digital output devices with limited resolution.

Unlike previous computer typefaces that were based on "classical" designs from the days of movable-type and hot-metal, Matthew Carter crafted Bitstream Charter to look good with 1980s laser printers and their limited resolution. My old HP LaserJet IIP had a resolution of just 300 dpi (dots per inch), while my current printer can be pushed to 1200 dpi. Charter also looks good on computer displays, which only have a resolution around 96 dots per inch. If you examine body text from the PCARA newsletter with a magnifying glass, you will see the squared-off serifs, combined with a lack of excessive curves



Magnified view of a Charter BT TrueType bitmap showing the squared-off serifs.

and diagonals, that make the Charter fonts look good on low-resolution devices.

Bitstream Charter includes a *true italic* variation, with *cursive letterforms* — as opposed to an *oblique version* that simply slants the regular face over at an angle. *Charter Italic* is used for our picture captions, which are intended to attract your eye into a closer reading of the column while skimming through the newsletter. Italic style is also used in body text for the names of publications, ship names, foreign words and any other items that need a different stress from normal text.

The bold variant originally supplied with the Charter family is actually **Charter Black**, which stands out strongly from body text. Charter Black is used for the sub-headings in our newsletter articles.

I recently changed from standard Charter BT to Bitstream’s “Charter BT Pro”, which contains some OpenStyle features such as ligatures (**fine flight**), old style figures (123456), SMALL CAPS, and superiors (1st, 2nd, 3rd, 1234).

Newsletter body text is justified “flush-left/ragged right” for optimum readability. Ragged-right text gives your eye a reference to help find the next line, as opposed to right-justified text where each line has additional space included to equalize the length.

A fat head

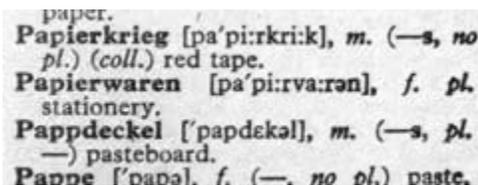
The typeface used for the large headline at the beginning of each article is **Bitstream Aldine 721 bold**, which is Bitstream’s version of Monotype **Plantin**. In the early 20th century, the UK Monotype foundry

Aldine 721 BT - Pqrstuv
Aldine 721 Bold - Pqrst
Aldine 721 Bold Condensed

Aldine 721 BT is Bitstream’s version of “Plantin”.

designed Plantin as a plumper version of earlier European typefaces, for use on the newer coated papers, where ink would not spread out so much into the fibers. It is named after the French printer Christophe Plantin (1520-1589).

I may have acquired my fondness for Plantin from dictionaries and Penguin paperbacks. A notable feature is the uppercase “P” where the bowl (curved stroke) does not quite meet the stem (straight vertical stroke).



German-English dictionary set in Plantin.

Bitstream Aldine 721 also appears at the top of

page 1 in the *PCARA Update* masthead. The variant used there is **Aldine 721 Bold Condensed**.

Underground literature

The final font frequently found in these pages is Gill Sans. This sans-serif face is used for special text and tables, to contrast with the body text set in Bitstream Charter. It also appears, usually in *italic form*, for the labels within diagrams and photographs.

Gill Sans MT - Abcdefghijkl
Gill Sans Italic - Abcdefghijklm
Gill Sans Bold - Abcdef

“Gill Sans” typeface is also used in the PCARA Update newsletter.



Prospero and Ariel.

Gill Sans was designed for the Monotype Corporation by English sculptor Eric Gill around 1927-1930. Gill also carved the giant statue of Prospero and Ariel outside the entrance to BBC Broadcasting House in London.

Eric Gill apparently had a highly unorthodox life-style, but he left behind some out-

standing work that remains popular to this day.

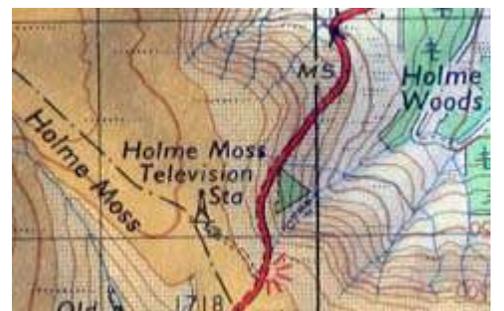
Eric Gill based his sans-serif font on the typeface designed by Edward Johnston in 1916 for signs on the London Underground railway system (subway). The “Johnston Underground” font also appears in BBC TV’s series “Sherlock” as part of the title sequence and in pop-up messages on-screen.



“Johnston Underground” was designed for the London subway.

Gill Sans reminds me of the BBC logo, *Radio Constructor* Panel Signs, Penguin paperbacks, British Railways signage, government leaflets and Ordnance Survey maps.

Your computer might *already* have a copy of “Gill Sans MT” installed on it as it is one of the TrueType fonts included with Microsoft Office.



UK Ordnance Survey map using Gill Sans. Area shown is Holme Moss in Yorkshire.

- NM9J

Peekskill / Cortlandt Amateur Radio Association

Mail: PCARA, PO Box 146, Crompond, NY 10517

E-Mail: mail 'at' pcara.org

Web site: <http://www.pcara.org>

PCARA Update Editor: Malcolm Pritchard, NM9J

E-mail: NM9J 'at' arrl.net

Newsletter contributions are always very welcome!

Archive: <http://home.computer.net/~pcara/newslett.htm>

PCARA Information

PCARA is a **Non-Profit Community Service**

Organization. PCARA meetings take place the first Sunday of each month* at 3:00 p.m. in Dining Room B of the Hudson Valley Hospital Center, Route 202, Cortlandt Manor, NY 10567. Drive round behind the main hospital building and enter from the rear (look for the oxygen tanks). Talk-in is available on the 146.67 repeater. *Apart from holidays and July/August break.

PCARA Repeaters

W2NYW: 146.67 MHz -0.6, PL 156.7Hz

KB2CQE: 449.925MHz -5.0, PL 179.9Hz

N2CBH: 448.725MHz -5.0, PL 107.2Hz

PCARA Calendar

Sun Oct 5: PCARA meeting, Hudson Valley Hospital Center, 3:00 p.m.

Hamfests

Sun Oct 5: Hall of Science ARC Hamfest, NY Hall of Science, 47-01 111th St., Flushing Meadows, Queens NY.

Sat Oct 11: BARA Fall Hamfest, Westwood Regional HS, 701 Ridgewood Rd, Twnshp of Washington, NJ. 8:00 a.m.

Sun Oct 12: Mt Beacon ARC Fall Hamfest, Employee Rec. Center, 83 Red Schoolhouse Rd, Fishkill, NY 8:00 a.m.

Sun Oct 12: Meriden ARC Nutmeg Hamfest, Sheraton Four-Points Hotel, 275 Research Pkwy, Meriden CT. 8 a.m.

Sun Oct 26: LIMARC Long Island Hamfair, Levittown Hall 201 Levittown Parkway, Hicksville, NY. 9:00 a.m.

VE Test Sessions

Oct 4: Yonkers PAL Ham Radio Club, 127 N Broadway, Yonkers. 2:00 p.m. Michael Rapp (914) 907-6482.

Oct 5: Yonkers ARC, 1st Police Precinct, E. Grassy Sprain Rd, Yonkers, NY. 8:30 am. John Costa, (914) 969-6548.

Oct 9: WECA, Westchester Co Fire Trg Cen, 4 Dana Rd., Valhalla, NY. 7:00 pm. S. Rothman, 914 831-3258.

Oct 12: Mt Beacon ARC Hamfest, Employee Rec Ctr., 83 Red Schoolhouse Rd, Fishkill NY. 9:00 am.

Oct 20: Columbia Univ VE Team ARC, 531 Studebaker Bldg, 622 W 132nd St, New York. 6:30 pm. Alan Crosswell, 212 854-3754.



Peekskill / Cortlandt Amateur Radio Association Inc.

PO Box 146

Crompond, NY 10517