THE INFOAGE
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The Value of Our Volunteering

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As we step up to the challenges ahead of us, it is good to take stock of the value we have brought to our community. InfoAge has returned 40,600 square feet of space at Camp Evans to public benefit service. This is in keeping with our National Park Service approved program of preservation and utilization. All work meets the secretary of interior standards for the treatment of historic properties. Using $80/square foot as a renovation cost, the value of our work is over $3,056,000. This is an impressive figure, but it is not the full story.

When placed under our stewardship, much of this space in the first eight buildings was unsafe to enter without a haz-mat suit and personal protective gear. The $3 million figure does not include the value of the lead based paint and mold remediation we performed on nearly all these buildings.

Nor does the $3 million include the value of work on buildings placed under our stewardship this past April. We have new roofs on nine WWII buildings with over 21,000 square feet for floor space. We have primed and repainted five wood frame WWII buildings and performed many other repairs.

In addition to emergency stabilization and preservation work, we have created an archive, a library, a massive web site, saved collections, set up a radio repair shop and a graphics workshop. Well over fifty rooms of furnishings, equipment, exhibits and displays represent even more value. When you add this to the $3,056,000 figure mentioned earlier, our total value approaches $5,000,000.

All this accomplished for less than $700,000. How can one explain the difference? The difference is you. You are the magic that is making this happen. You are dedicated volunteers with passion who are working to honor the past as you work to improve the future.

That is the quantifiable value of our progress. The human value is an area we will not be able to put a dollar value on. How do you find a value for the many families who visit with their small children to show them were a grandparent served in WWII. What is the value to the families who bring their elderly parents to Camp Evans so they can bask in memories of the work they did to save democracy. Some have since passed away and they were buried with the Camp Evans veteran medal we presented them the day we dedicated the site as the WWII Living Memorial.

Then there is the unquantifiable value to us. We are part of a success story. We have created a growing science and history community center. Every month finds more events and more groups enjoying our site. Many are performing valuable community service. We have saved a site soon to be named a National Historic Landmark. It is good to see happy kids having fun, learning and families making memories. Thank you, you have done well. You have created value by any measure.

Thank you!

The Army's First Radiosonde

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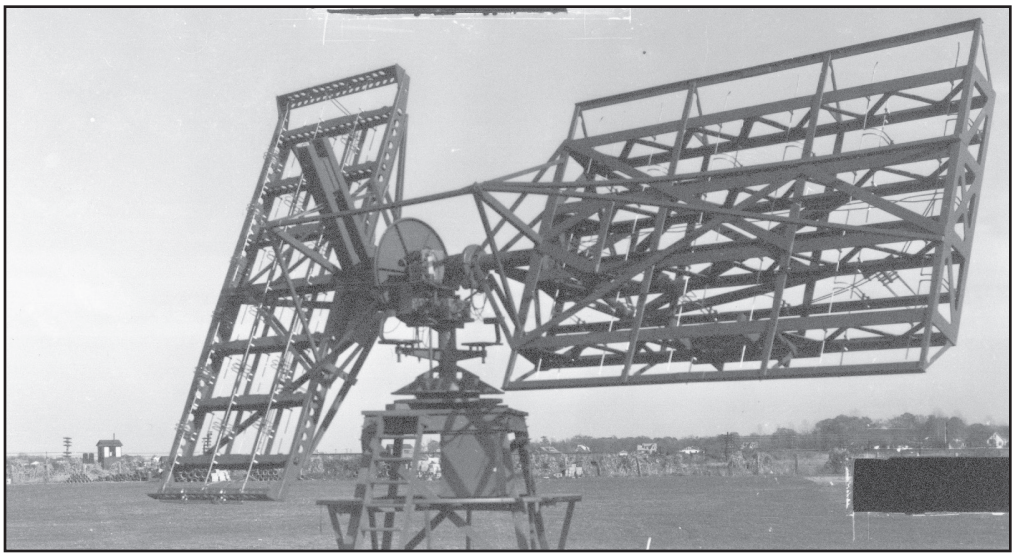
Recently while trolling the auction site e-Bay I came across an unusual photograph labeled Radio Set SCR-258. I was not familiar with this set and the image looked like 2/3rds of the antenna array of a SCR 268 "Searchlight Radar" minus all the transmitter boxes and support equipment. The photo was dated 12-17-41 at which time the SCR-268 was in production so what was this apparent variation? The seller had a modest "buy-it-now" price so I immediately purchased it for my personal collection of early radar documentation. It arrived a few days later and it is a clear glossy 8 x 10 official Signal Corps photo titled "Radio Set SCR-258-T1 Front ¾ View Complete Assembly". A sub caption is listed as: "SIGNAL CORPS GENERAL DEVELOPMENT LABORATORY. The antenna array pictured is rotatable in elevation and azimuth with two operator seats that rotate with the array as is done with the SCR-268 radar. The antennas themselves closely resemble the Elevation and Azimuth receiving antenna of the SCR-268.

A visit to several of my favorite internet reference sites indicated that the SCR-258 was the development model for the Army's first Radiosonde tracking receiver that was redesigned and re-nomenclatured SCR-658 when it went into in production. Now it all makes sense; optical tracking of released weather balloons was a continuing problem in cloudy weather so the solution was to outfit them with a small VHF transmitter and then track them with newly invented radar techniques. Since the SCR-268 tracking radar was now proven, it was a simply matter to adopt the "receive only" technology to make a tracking Radiosonde set. Once a transmitter was attached to the weather balloon it was another simple step to use the transmitter to also report back more weather information such as temperature, humidity, altitude, etc. Thus a new weather forecasting technology was born involving the collection of weather data at various altitudes. These Radiosonde devices were also called RAWIN when they measured wind speed and direction.

Now the next question is where was the photo taken? On the print itself are two blacked out sections that obviously contained additional information that apparently was considered classified at the time so was removed from the print. At the time of the print, Camp Evans was just starting in operation and Fort Hancock at Sandy Hook was being phased out. The background features of the print show level terrain with some houses as well as a railroad line. Neither were features of Sandy Hook or Camp Evans however checking with local residents confirms that the picture was taken at Ft. Monmouth.

Further research on the net indicates that the only remaining example of the SCR-658 set is claimed to reside at the USAF museum at Wright –Patterson AFB in Ohio. It is part of their Berlin Airlift display. An SCR-658 was installed at Tempelhof airfield in 1945 to provide weather data for that airport. The museum states that this SCR-658 was used as a back up system until as late as 1975 when it was then transferred to their museum. They indicate that the highest altitude it tracked was 140,000 feet. The SCR-658 used a single "bedspring" antenna array but still required the use of two operators. Later Radiosonde sets used a parabolic shaped antenna with fully automatic tracking.



Pictured here is the Radio Set SCR-258-T1 Complete Assembly

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Camp Evans - Protecting the President

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Recently, many Monmouth County residents became aware of the deep throbbing sound of a squadron of helicopters heading northward. This was not some exercise undertaken by the Army National Guard deploying from Sea Girt. Instead, it was the usual cortege of Marine aircraft escorting President Obama from the White House to an engagement in New York City.

The helicopters accompanying "Marine One", the designation of the aircraft carrying the President of the United States, routinely provide convoy protection. What is not as well known is the amount of "self-protection" carried by Marine One. Even less recognized is the on-board sophisticated Electronic Countermeasures (ECM), originally developed by the Army at Camp Evans that is the mainstay for protecting the President against a terrorist attack.

The primary threat to low flying helicopters is from lightweight, shoulder-fired, infrared (IR) homing missile systems known as MANPADS. The Russian SA-7 family of missiles, and to a lesser extent the U.S. Stinger have proliferated throughout the world, and have become potential threats to commercial as well as military aircraft whenever they are within the missile's range.

According to DoD sources, thousands of shoulder-fired missiles are available on the black market at affordable prices. Multiple sources corroborate the fact that these missiles are well within the reach of terrorists.

Infrared homing systems are designed to follow a strong source of infrared energy, thereby the designation of "heat seeking" missiles. A partial attempt to counter the seeker has been made by shrouding the aircraft engine exhaust to reduce its IR signature. But this is not enough.

Engineers and scientists at Camp Evans began looking at techniques that would disrupt the missile's guidance system. They developed equipment that created an even better infrared target than the aircraft, diverting the missile by providing incorrect cues to its steering system. The missile

The Russian SA-7
(Photo courtesy of globalsecurity.org)

Disassembling the AN/ALQ-144 IR Jammer
(Photo courtesy of Tobyhanna Army Depot)

Marine One with AN/ALQ-144 IR CM System as indicated by the arrow.
(Photo courtesny of William Kerr – National Geographic Channel)

rapidly breaks lock, and rarely reacquires the target because of the narrow field of view of the sensor.

One of the many systems developed was the AN/ALQ-144 IRCM system, which protected all models of U.S. Army helicopters. Fondly known as the “disco globe”, it looks more like a multi-faceted, iridescent, over-sized paint can; two of which hang near the landing gear of Marine One.

The key to its operation is a heated Silicon Carbide block that radiates a large amount of infrared energy. The block is surrounded by a large cylindrical mechanical shutter that modulates the infrared output, producing a pulsing pattern, which confuses the missile’s sensor.

After many years, the Army has begun a program to replace the 144 jammer. The urgent requirements of Afghanistan and Iraq have pushed the services to deal with the latest threats in a timely manner, through a number of Quick Reaction Capability efforts

The public will be able to learn more about the AN/ALQ-144 and other formerly classified equipment when the new Electronic Warfare Display opens at the InfoAge Science and Learning Center later this year.

A Historic Radio Transmission Comes From Moving Train

by Cheryl A. Kashuba

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The New York Times received a historic transmission from a Delaware, Lackawanna & Western train on January 22, 1914. George Cullen, passenger traffic manager, sent the following message: "On board Lackawanna Civil Engineers Special. 35 miles east of Scranton, Penn., going sixty-four miles an hour. Greetings in the first wireless message from a moving train to a newspaper."

The special train carried 500 members of the American Society of Civil Engineers from Hoboken, N.J., to Nicholson and back. The engineers disembarked at Nicholson to inspect the massive viaduct then under construction.

Shortly after the first message was received, Hunter MacDonald, president of the engineer society and chief engineer of the Nashville, Chattanooga & St. Louis, sent a second message: "The members of the American Society of Civil Engineers send you greetings from their special train on the Lackawanna. No S.O.S call is likely to be heard, as Phoebe Snow is in charge."

The train car was then 25 miles west of Scranton and going at a rate of 70 mph.

More than 30 wireless messages were sent and received by the Marconi operator on the train that historic day.

DL&W Railroad Station, Scranton, Pennsylvania showing the Marconi Radio Antenna, circa 1914. Photo from the collection of the Lackawanna Historical Society

The movement of trains depended on radio transmissions. Without them, there was no way to direct train traffic in and out of terminals and around tracks. Earlier forms of the telegraph used wires to transmit signals. Ice storms and heavy snows regularly brought down wires.

A sleet storm hit Washington, D.C., on the day of President Taft's inauguration. As a result, not a single train could move in or out of the capital for several hours.

To imagine the amount of train traffic in 1913, and the confusion that went along with trying to move and reroute it, we would have to think about some of the busiest airports in the nation today and remember that freight, as well as passengers, made use of the railroads. To solve traffic problems, other railroad companies experimented with automatic train stops, with less than satisfactory results. In 1913, the DL&W looked at the problem from a new direction and began experimenting with wireless radio.

Radio was still a young invention, and no one knew if radio signals could be sent to or from a vehicle moving at high speeds. Guglielmo Marconi wanted to expand radio for use aboard both land and sea vehicles. The DL&W chose to build towers in Scranton and Binghamton and to test Marconi's construction design.

They placed radio telegraph equipment in the two railroad stations. On November 27, 1913, the first official wireless transmission was sent from Scranton to a train traveling 60 mph along the DL&W track toward Binghamton. The Marconi operator aboard the train clearly picked up several pieces of news — 350 words in all.

The experiment was a success. The new invention would allow dispatchers to keep in constant contact with moving trains, communicating orders that could prevent accidents. Statistics of the time showed that three-fourths of train accidents were due to employee error. The ability to communicate directly with a train could save lives.

The new wireless radios would allow passengers to send messages without having to wait until they reached a station. And it would allow news bulletins to be sent to a moving train and relayed to the passengers.

Wireless towers were planned for two other stations along the heavily-traveled line between Hoboken and Buffalo, N.Y., — one at Lake Hopatcong, N.J., and one at Bath, N.Y. The four stations along that line would ensure that, at all times, a train would be in constant contact with a station.

This new innovation would help the DL&W to earn its reputation as the most efficiently-run railroad in the country.

For more information, visit www.everythingradio.com. Some information taken from "Getting the Wireless on Board Train," by Charles Frederick Carter, Technical World Magazine, February 1914.

Cheryl A. Kashuba writes on behalf of the Lackawanna Historical Society. She is co-author of the book "Scranton."

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Why Be A Ham?

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Do you like the spirit of adventure? Do you like meeting people from all walks of life? Do you like to find out what makes things tick? Most of all, do you like doing things at your own pace with no external pressure? If you answered yes to the above, have I got a hobby for you. It's called amateur radio, and once you get licensed you will be proud to be called a "HAM" and get your own radio station call letters. With almost two million radio amateurs worldwide you'll be joining a fraternity of individuals who all have one thing in common - the love of communicating by radio.

I've been licensed as a radio amateur for over 50 years now and I'm still amazed on how an electro magnetic signal called a radio wave can travel from one place to another almost instantaneously without any interconnecting wires. When Marconi sent this wave across his laboratory for the first time and rang a bell, I could just imagine how astonished he must have been.

In the early 1900's amateur radio was just catching on and more and more experimenters were doing what they could to improve their station. Since then, many amateurs have contributed much to the current state of the art. There were no rules and regulations back then as there were no license requirements. Interference between stations was utter bedlam as many operators were operating on or close to the same frequency. It took the sinking of the *Titanic* in 1912 to bring about a federal radio act which among other things required two radio operators to be on all ships with continuous watch coverage and made licensing of amateurs mandatory.

We have to be licensed otherwise bedlam would be prevalent today. The Federal Communications Commission (FCC) is the watchdog of all amateur activities and they are the ones who grant amateur licenses. Licenses are granted for 10 year periods and are renewable without further testing unless you want to upgrade to a higher class. There are currently 3 classes of licenses, from the basic technician to the general to the extra class and as you move to a higher class, you are granted more operating privileges. Are the tests hard? Not really, but you do have to do some studying. Study guides are available and the questions that you see are the ones on the test. There are many more questions in the book then you will see on the test. The technician test is quite easy but they do get progressively harder as you move up the ladder. Many just get the technician class and are content, but from my point of view, going up the ladder opens many more opportunities of enjoyment.

"When Marconi sent this wave across his laboratory for the first time and rang a bell, I could just imagine how astonished he must have been."

Is it expensive to buy equipment? Not really as there is a lot of used equipment available that won't cause you to go bankrupt. However, if you want to go first class, be prepared to spend thousands of dollars. No matter which way you decide to go, a lot of fun awaits you. Many people think that you have to be a technical genius to participate in amateur radio. Nothing could be further from the truth. Average people from all walks of life get their license everyday.

You may be wondering what kind of activities amateurs can get involved in. Well there are many. One of my favorites is contacting stations in foreign countries. That's called "Dxing." There are over 300 different entities to be contacted. Many hams have been trying to get all of them but it usually takes a long time. Then there's working QRP, that's low power operations. You see when conditions are right, you can contact foreign stations with very little power. With less than 5 watts of power you will be able to contact many stations around the world. That's the power from a pretty weak light bulb, isn't it? Of course, ionospheric conditions have to be just right for some of these communications to occur as we are at the mercy of what is going on high above the earth. Many hams like to build their own equipment and get a lot of joy with something they made with their own hands. Building their own antennas is one of the favorite activities that most hams engage in. Then there's just plain old rag chewing or just meeting new hams wherever they may be and getting to know them. Some hams like to participate in radio contests and try to get high scores for bragging rights and awards. There are many contests and awards to chase if you desire.

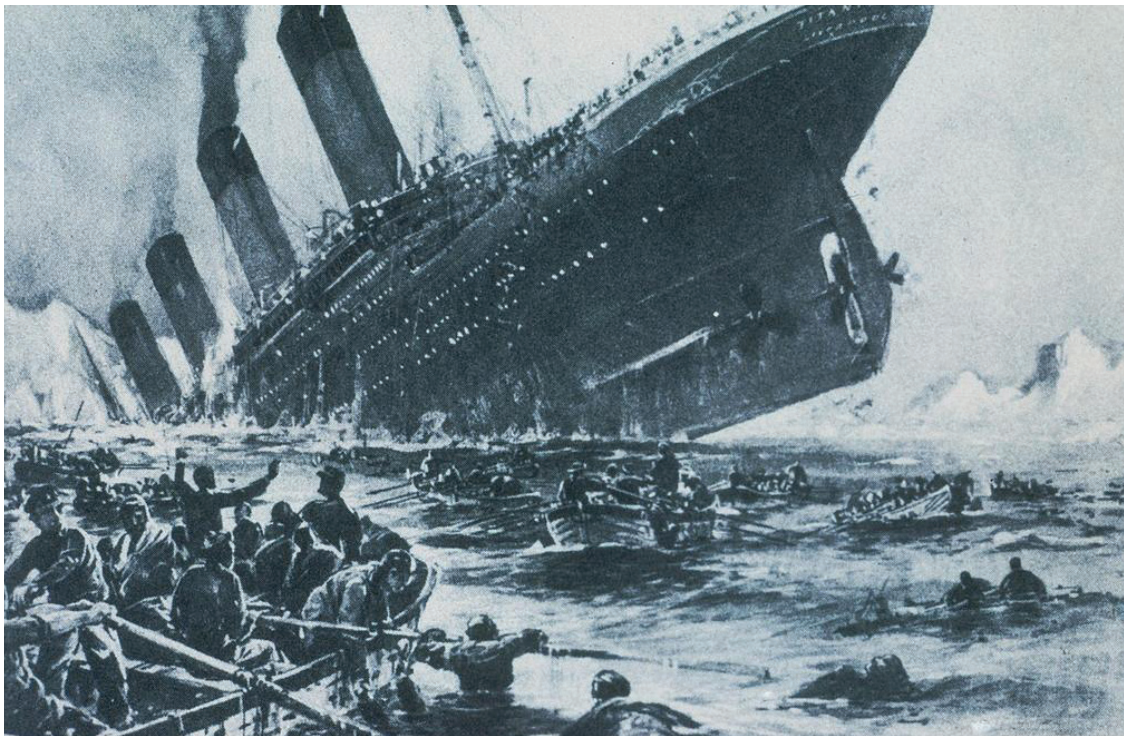
How do hams communicate? Well, there are many modes of operation. Voice is probably the most popular mode. However many hams communicate with international Morse code and other forms of digital communications such as PSK and RTTY and slow scan TV. Yes hams do send pictures to one another as well. Oh by the way, you don't have to learn Morse code if you don't want to as it is no longer an FCC requirement.

Once you get your license what do you do next? Well unless you have an "Elmer" or someone to guide you, you may be confused as how to get your radio signal on the air and the protocol to use. I would recommend an amateur radio club if you have access to one. The amateurs at OMARC, OCEAN MONMOUTH AMATEUR RADIO CLUB, are very knowledgeable in most facets of the hobby and will be more than happy to show you the ropes and answer any questions you may have. There are many fine radio clubs in the Central New Jersey area and any one of them will be just too happy to get you started. I happen to mention OMARC only because I have been the president for over 10 years now. We currently have around 70 members in the club of both male and female, young and old. You are welcome to visit us at any time. We meet at the Diana site on Marconi Rd. in Wall Township on the second Saturday of the month at 9am We invite you to drop by and say hello. By the way, the Diana site was part of Camp Evans a few years ago and is now the Infoage Science and Learning Center. You can't miss our site as a huge radar antenna can be easily seen from the road. As you proceed through the gate, our building is to the far right. We have a first class radio station located there and we will be happy to show you around and answer any questions you may have.

The New Jersey Historical Diver Association, Inc.
invites you attend our showing of the 1958 film classic

"A NIGHT TO REMEMBER"

Starring:
Kenneth Moore and Honor Blackman
Produced by William MacQuitty • Directed by Ward Baker



On April 14, 1912, just before midnight, the unsinkable *Titanic* struck an iceberg. In less than three hours, it had plunged to the bottom of the sea, taking with it 1,500 of its 2,200 passengers. *A Night to Remember* depicts the ship's final hours in an unforgettable rendering of Walter Lord's book of the same name.

Saturday Night: January 30, 2010 at 8 PM
InfoAge Science/History Learning Center
2201 Marconi Road, Wall, NJ

Admission is *FREE* • RSVP required
Refreshments will be served • Donations gladly accepted

Call 732-776-6261 or e-mail NJHDA@aol.com

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The Newsletter of InfoAge

Inside this issue...

Our Partners

Infoage and its member groups are working to preserve Camp Evans, and its new educational mission is under way. We are cleaning around buildings, painting building exteriors and interiors, and making repairs to expand our capacity. You are invited to join this work to save history, honor the communication pioneers of wireless, WWI, WWII, space exploration, and the cold war.

Our partners include Blossom, the New Jersey Antique Radio Club, the National Broadcasters Hall Of Fame, Save America's Treasures, the American Radio Relay League, the Association of Science Technology Centers, the Institute of Electrical and Electronics Engineers, the Association of Old Crows, the Mid-Atlantic Retro Computing Hobbyists, the Quarter Century Wireless Association, the New Jersey Teachers Association, the New Jersey Historical Divers Association, the Garden State Central Model Railroad Club, and the Ocean Monmouth Amateur Radio Club.