THE INFOAGE
MARCONIGRAPH
Volume 5, Number 1 www.infoage.org January-April 2011

WWII – "We Can Do It" Spirit Alive and Well at Camp Evans

Nearly seventy years ago, radar operators in Hawaii detected Axis planes approaching Pearl Harbor. Fifty minutes later the first bombs dropped bringing the United States into WWII. To win the war against terribly powerful foes the citizens of the United States had to employ every bit of American know-how and to adopt the "We Can Do It" spirit. During the war the officers, engineers and civilians working at Camp Evans did more than their share. It is for good reason the National Park Service is writing the nomination to elevate Camp Evans to National Historic Landmark Status for the service rendered by its staff to "win through to absolute victory."

The members InfoAge Science & Learning Center, the stewards of Camp Evans, hold the "We Can Do It" spirit of WWII. A major example is our successful annual "Haunted Hotel." In the face of last minute challenges we reinvented the event into a new attraction dubbed "The Haunted Hotel Turned Inside Out." Thanks to the dedicated volunteers and numerous organizations, enough money was raised to replace the leaking roof on building 9011A, the WWII Army-Navy Vacuum Tube Standardization Laboratory. Thanks to careful use of our funds and the funds raised by our Wall of Honor event, we were able to fund a new roof for 9011B, a.k.a. the WWII Metal Shop.

Once again, "Fright Master" Nels Warren and "Fright Mistress" Judy Warren conjured up the supernatural to entertain our visitors in the weeks prior to Halloween. Scores of volunteers made the event fun and a great success. To name the spirit leaders of some of the haunted spots along the nearly half mile walk: the Maze by Matt and James Orgill; the Campsite by Wall ROTC, Zombie Land by Dan Jacobs–family and friends, torture rooms by the Spring Lake Fire Department, the Vampire Keeper Cottage by Shore Players Foundation, the Clown Cemetery by the students of MAST, the Witches Lair by the Wall Thespians, the Mad Scientist lab by NJ Antique Radio Club, and the Haunted Disco by New Jersey Natural Gas. OMARC and Blossom had refreshments available. InfoAge would like to thank everyone in these groups and the individuals for the hours of hard work and their dedication to make this event a success. You proved after all the many years since WWII that Camp Evans is still a "We Can Do It" place.

Nearly everyday InfoAge volunteers are doing the tasks that are advancing our mission. We are working to raise funds as we creatively find fixes to stabilize and maintain a mix of 1914 Marconi Wireless Station buildings along with 1942–1943 U.S. Army Radar Laboratory buildings. It takes a lot of "Can Do" to keep the grounds looking excellent, to keep the WWII buildings painted, to keep the interiors clean, to keep our web site up to date, to fix our boilers, to edit the first book dedicated to Camp Evans history, to create a newsletter, to fabricate exhibits and posters, to travel to outreach events and Science fairs, and to be open every Sunday to show visitors and scheduled school groups our site and its amazing history. Saving Camp Evans is our gift to our nation to honor those who toiled here during WWII. We are please to say we inherited some of their "We Can Do It" as we face the challenges of raising funds and fight the foes attacking our buildings–time and the weather.

Thank you,
Fred Carl, InfoAge Director
732 299-0894 • fred-carl@infoage.org

INVEST IN VICTORY
The InfoAge SIGNALEER
SIGNAL CORPS ENGINEERING LABORATORIES
INVEST IN INFOAGE

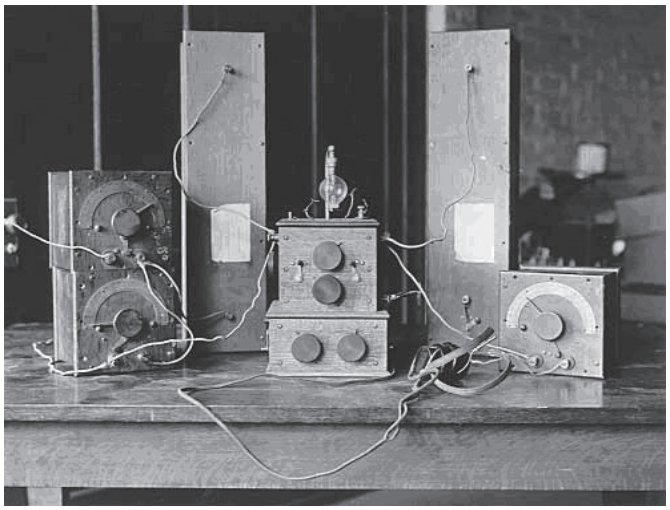
Electronic Warfare - The Early Years Part 2

John Cervini
AOC Garden State Chapter • 732-528-7854 • johntcervini@optonline.net

While a number of companies were vying for commercial dominance in the emerging wireless technology, world – wide events were brewing that would dramatically influence the future. The political chaos culminated in the start of WWI in August of 1914. In the first decade of the 1900s, the U.S. Navy was the largest potential customer for the fledgling radio industry. The Navy initially sought to buy equipment from the Marconi companies, but was unable to agree on terms, so instead made purchases from an assortment of German and U.S. firms, thereby helping to finance numerous competitors of Marconi.

Guglielmo Marconi-[left] during WWI

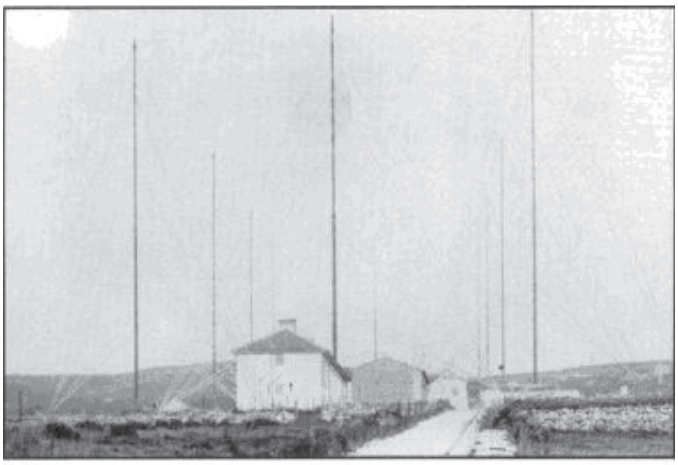
Marconi had purchased the patents for the Bellini-Tosi Direction Finding Technique in 1910 to improve Trans-atlantic performance by eliminating much natural static. Edwin Armstrong had demonstrated his regenerative receiver, which resulted in dramatic sensitivity improvement, at the newly constructed Marconi receiver site on the banks of the Shark River, at what is now InfoAge, in January 1914. By the time hostilities had broken out in Europe later that year, radio communications, or wireless telegraphy as this form of communications was then known, were used by most of the world's military and naval forces.



Armstrong Regenerative Circuit

The U.S. did not enter the war until 1917. Meanwhile, Marconi Stations on the east coast of England, equipped with Armstrong's incredibly important design, were able to intercept German radio signals across the channel. Maurice Wright, who became a Marconi engineer in England in 1912, (and was later Engineer in Chief), experimented with the then new Armstrong design in a radio receiving circuit in 1914. Two days before the outbreak of hostilities in August of 1914, he unexpectedly received German wireless traffic. He worked with Captain H. J. Round (later a colleague and supporter of Major E. H. Armstrong after the U.S. entered the war). It "made the interception of long range communications

possible for the first time" as reported by Peter Wright, Maurice's son, who later became a high official in the British Counter Intelligence Service (MI-5). Working at his lab at the Marconi Chelmsford Station, Wright realized he was listening to the German Navy. He got the intercepts to a Captain Reggie Hall of Naval Intelligence. Hall noted the tremendous military value of the data, and put Wright to work building a chain of intercept stations for the British Admiralty. They were able to track the U-boats via the continuous broadcasts, were also able to track the German fleet, and their U-boats, enabling the British fleet to engage them. The intercept stations set up in this effort were known as the "Y" stations.



British Marconi Station – 1914

Meanwhile, all amateur and commercial use of radio in America came to an abrupt halt on April 7, 1917 when, with the entrance of the U.S. into WWI, most private U.S. radio stations were ordered by the President to either shut down or be taken over by the government. The German government had been violating America's neutrality by transmitting encrypted messages back and forth across the Atlantic from Tuckerton N.J., and from stations on Long Island. For the duration of the war it became illegal for private U.S. citizens to even possess an operational radio transmitter or receiver. Radio in the U.S. had become a government monopoly, reserved for the war effort.

The Navy appointed A. Hoyt Taylor to be in charge of the Marconi Belmar Station. He later achieved fame as head of the Navy's radar development at the Naval Research Laboratory in Anacostia, across the Potomac River from Washington D.C. Many of the engineers who established their reputations in radar technology worked for Taylor in New Jersey at the Marconi Station during WWI.

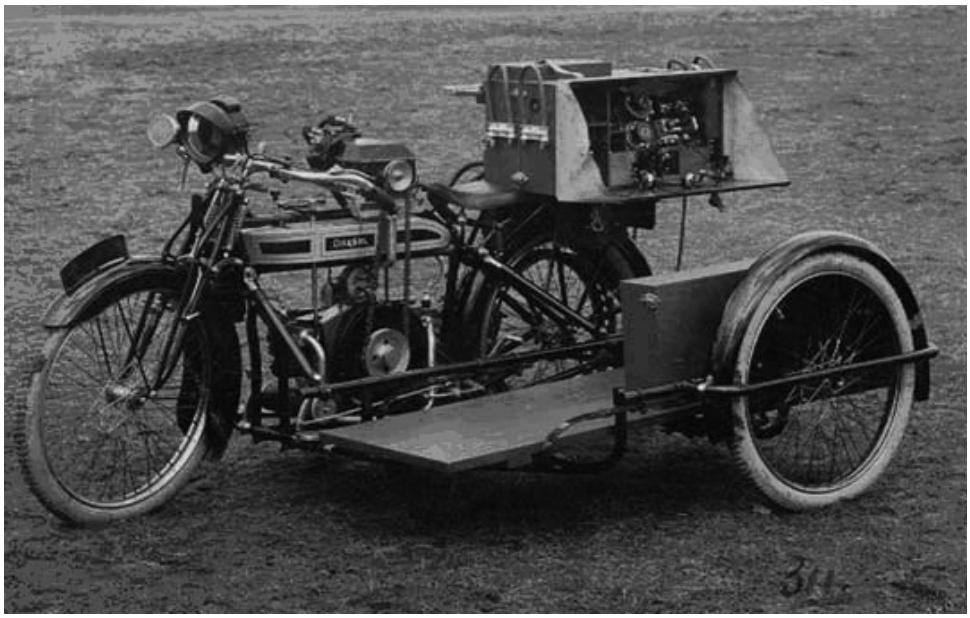
A.H. Taylor

While the British "Y" stations were operating efficiently, Germany moved its U-Boats into the North Atlantic to intercept and sink ships that might bring supplies to the escalating war effort. Believe it or not, Germany had planned an invasion of the New York Harbor as early as 1899 when the idea of a joint Army-Navy assault of New York Harbor involving the landing of two to three battalions of infantry and one battalion of engineers on Long Island was envisioned. After seizing New York, the troops would then split and proceed north to Boston and south to Norfolk. This plan never materialized, and would have been doomed from the start.

U-boats actually conducted operations in American waters during World War 1. In 1915, Germany declared a policy of "unrestricted submarine warfare", which would subsequently lead many countries to declare war against the Kaiser. Later on, the German submarine U-156 sunk a vessel 10 miles offshore of Fire Island, Long Island. On 10 April 1915 the British steamer Harpalyce, a Belgian relief ship and clearly marked as such, was torpedoed without warning by the submarine UB-4 near the North Hinder lightship, just outside the strip of sea declared a safe zone. The ship had been en route for America to collect food for starving Belgians, and its sinking outraged American citizens already unhappy at other American deaths when the SS Falaba was sunk on 28 March 1915 by U-28.

German Submarine U-28[right] at sea

Pictured right is the WWI Marconi Portable System mounted on a motorcycle



In 1917, the U.S. declared war on Germany. U-151 departed Kiel on 14 April 1918. Her mission was to attack American shipping. She arrived in Chesapeake Bay on 21 May where she laid mines off the Delaware capes, and cut the submerged telegraph cables which connected New York with Nova Scotia. On 25 May she stopped three US schooners off Virginia, took their crews prisoner, and sank the three ships by gunfire. On 2 June 1918, known to some historians as "Black Sunday", U-151 sank six US ships and damaged two others off the coast of New Jersey in the space of a few hours.

Meanwhile, Taylor was given the title of TCO (Trans-Atlantic Communications Officer). He was also Commanding Officer of the Belmar Station, with general supervision of the trans-Atlantic network. He was given his pick of any men he wanted to pull into this work, since the Navy considered it of the most urgent importance. In addition to receiving the French and Italian code messages, Belmar ran continuous intercepts on the high power German station at Nauen. They copied thousands of code words and forwarded them to Washington. Wire connections with Washington terminated within the Office of Naval Communications: Outgoing messages for Europe were sent to the Belmar station over Marconi's leased wire system and then forwarded by radio to Europe. Received messages were sent by wire to Washington. The Nauen station spent most of its time broadcasting propaganda in English, much of it undoubtedly designed to influence the German population of the U.S.. At certain periods of the day, for about twenty minutes, Nauen would suddenly go off the air. The engineers often wondered what the Germans did during this interval, so Taylor ordered a receiver man to search and explore all possible bands to see if he came upon any other frequency. Sure enough, they found Nauen broadcasting a very unusual four letter code at an alternate frequency for twenty minutes during these intervals. According to the staff, there was no question but that this was a special code directing the operation of submarines.

At this time, German submarines had appeared off the coast, not far from the station, and had sunk several ships and barges. The station used to get a lot of anonymous calls from various shore resorts telling of strange lights seen at sea. On one occasion, an operator discovered strange signals on a considerably higher frequency than any they were normally receiving, and coming at very irregular and very brief intervals. The staff could not help but feel that some of these signals might have been an attempt to communicate between German submarines and spies on shore, because everyone felt at the time that the German subs were being refueled, or resupplied from this side of the Atlantic.

Taylor dispatched an operator on a motorcycle, with a portable receiver. He cruised much of the central Jersey Shore in an attempt to find where these signals came from, but couldn't pin them down. After coming back, he built a portable loop direction finder with an attached receiver, mounted in an old truck. No submarines were found, but the equipment was probably the first Naval portable DF system built! The U-boat threat ended with the cessation of hostilities, and the Belmar Station resumed its trans-Atlantic communications mission.

InfoAge Participates in the New Jersey Science and Engineering Festival 2010

Ray Chase
New Jersey Antique Radio Club • 908-757-9741 • raydio862@verizon.net

Pictured is the centerpiece of the InfoAge display at the New Jersey Science and Engineering Festival.

This fall, the Federal Government planned a two day science fair in Washington, D.C. on October 23 and 24. We thought about participating, but Michael Paitchell of Clifton, NJ decided that New Jersey should have its own science fair and proceeded to organize just that. He is kind of like a northern NJ Fred Carl and also is Vice President of the Clifton School Board, so has some standing in the community. Michael set out to create a New Jersey Science and Engineering Festival based at the Clifton High School, and also at a secondary location at the Caldwell Airport in Fairfield on the same dates. The Clifton high school is huge (5 or 6 thousand students) and is close to several major highways. Mike proceeded to raise about $50,000 from corporate sponsors to pull it off. During this time, he visited InfoAge and talked with Fred, and was amazed at what we have done here. He joined InfoAge and promised us help after he completed his science and engineering festival. InfoAge was invited to be a participant in his event where we would be shoulder to shoulder with displays from notable corporations, education institutions and other museums. There would be displays of robots, a racing car, flying models, and plenty of hands-on items to generate interest in youngsters. Shuttle buses would be provided to Caldwell Airport where attendees could experience close contact with many aspects of commercial aviation. Public attendance would be free, and best of all, there was no charge for display space.

This was a challenge that Fred did not want to pass up since it would give InfoAge publicity in the densely populated areas of Northern NJ and expose us to potentially thousands of new visitors. Fred turned to the groups best suited to pull off something like this, namely NJARC and MARCH. Unfortunately this came right in the middle of our Haunted Hike Halloween affair at InfoAge, one that already had to be drastically revised due to massive last minute changes. None the less, Harry Klancer agreed to make a major contribution, along with Al Klase and myself, while we and others kept on with our Mad Science Lab for Halloween at Camp Evans.

We made use of a collapsible display backdrop that had been donated to InfoAge as a centerpiece in order to mount posters describing InfoAge. We asked Mike

for a display space that was 30 feet wide and 10 feet deep with five 8-foot tables. Evan Koblentz of the MARCH computer group also agreed to go in with us and set up a table with vintage computers. For another display, we used the five computer history dioramas housed in recycled CRT monitor cabinets made by NJARC member Mel Nusbaum (If you have not seen this display, you really should check them out; they are awesome). Harry Klancer worked up an impressive display of the development of the mobile phone/cell phone. NJARC member Pete Olin loaned a restored working Atwater Kent 1923 breadboard style radio along with power supply, horn speaker and local transmitter so we could play appropriate programs through it. Al Klase supplied a "Pretty Good" crystal set, and a telegraph display was borrowed from the museum along with a telegraph "bug" (speed key) and tone generator. Highlighted alongside Mel's display were two earth satellites brought from the RTM museum. Evan Koblentz planned for two vintage desk top computers. One was rigged to allow viewers to play video games.

The accommodations were great and most everything worked out fine. Mike Paitchell deserves a huge amount of credit for organizing this event and pulling it off. On Saturday, Harry and I arrived nearly two hours before the 10 a.m. opening to fine tune our presentation. Our planning was well done as many other displayers were scurrying at the last minute to get set up. Notably the Liberty Science Center showed up 20 minutes before the opening time and had a less than spectacular presentation. The Trenton museum had one individual with three tables of paper hand outs on their various functions. This was not very interesting to young people. This high school has two large gyms, one on ground level and one at the second floor level. We were on the second floor level while the first floor was mostly robotics and model airplane displays. The InfoAge display was one of the best on the second level in terms of size and interesting content. Harry and I manned the display initially and then were joined by NJARC member Matt Reynolds. Later, Mel Nusbaum came by, and then Fred Carl helped man the booth for a couple of hours as well. Evan set up his equipment on Saturday morning and manned his display along with Jeff Brace, another MARCH member. MARCH showed an IMSAI 8080 home brew kit desk top computer circa 1975 and a circa 1982 Commodore 64 rigged to run the game "Guitar Hero" that could be played by visitors. He also had posters of the first Army Mobile Digital computer and loaned an IBM Simon, the first "Smart" phone for our cell phone display.

Several of us had some butterflies in our stomach as we planned and set this up; we thought; what if nobody shows up? Well, 10 a.m. Saturday our fears were dispelled; we were mobbed. All day long crowds flowed through and they liked what they saw in our booth. We were against a wall, and from the other side of the room our illuminated dioramas and the flood lit poster display along with the two satellites drew people to us. They liked to play with the Atwater Kent radio, the Morse code display ("Texting in the Victorian Age") and pore over the cell phone history display. A simple thing, but Harry had an ordinary TV remote control and an older digital camera to demonstrate that the camera can pick up the infrared beam of the remote. Simple, yet fascinating to many. The attendance was equally divided between school children and adults, and many promised to visit our facility. We had brought a goodly supply of InfoAge and NJARC brochures and they were flying off the table.

Sunday hours were the same, 10 a.m. to 5 p.m., and the first hour was a little slow, but then the pace picked up to pretty much the Saturday level of traffic. Again, Harry, Matt and I initially manned the booth, and in the afternoon Dave Sica and Richard Lee from NJARC came to help. This was welcomed assistance in helping to disassemble and pack up the display. On Monday, most of the displays were unloaded back at InfoAge and, fortunately, there was no loss or significant damage to anything.

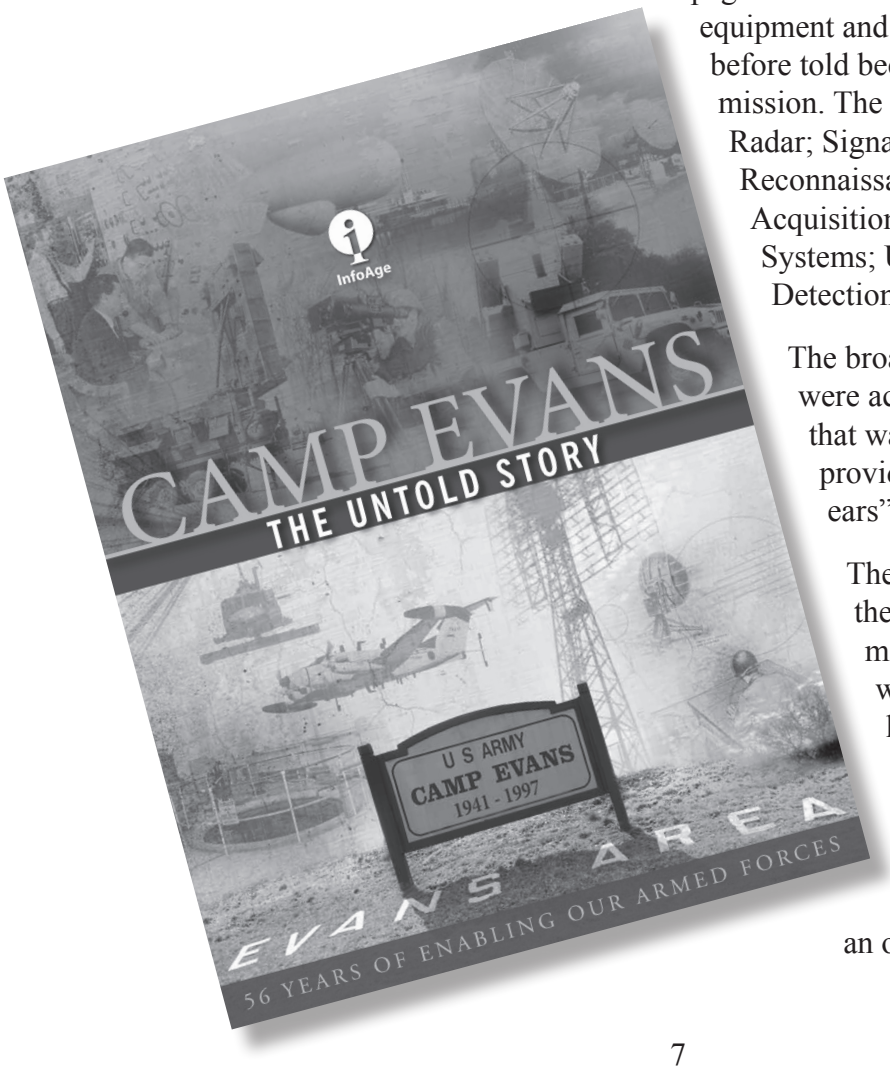
Later, Mike Paitchell stated that the attendance over the two days was 12,000 visitors. Of course that includes those who came to the airport location as well. It was enjoyable to most of us who participated and caused us to think about other programs that would help promote the InfoAge vision. This was quite a bit of work, especially falling in the middle of the Camp Evans Halloween program. Special thanks goes to those who stepped up to keep the InfoAge Halloween program operating while a few of us detoured to Clifton.

This was a memorable event and gave us a huge amount of publicity in the Northern suburbs of New Jersey. It was right on target and in line with the vision of InfoAge in promoting the education of youngsters in the fields of science and technology.

Camp Evans: The Untold Story

InfoAge is proud to sponsor the book, "Camp Evans: The Untold Story," in recognition of the significant contributions made by men and women, both military, civilian, and contractors who served at Camp Evans, Wall Township, New Jersey and who left a legacy of innovation that had enabled and continues to enable our Armed Forces.

The InfoAge Science History Learning Center and Museum at Camp Evans is a focal point for the preservation and interpretation of New Jersey's rich communications, computer, and electronics history, providing a specialized learning center for all visitors. The area is especially significant in history, serving as the site of the Marconi Wireless Telegraph Company of America. During World War I the Navy operated the station under the authority of the Radio Act of 1912. The message announcing that World War I had ended and the Armistice had been signed was received at the Marconi Station and retransmitted to Washington.



Camp Evans' U.S. Army Signal Corps provided America's first World War II radar systems. In 1946, Camp Evans under Project Diana opened the "space age" by reflecting radar signals off the moon. During the 1950s, innovative and far reaching technologies were developed at Camp Evans.

It is appropriate that InfoAge, as a science and technology learning center, has its start at such an historic location. The intent of InfoAge is to provide visitors a dynamic and evolving interactive atmosphere, rich in specialized history, technologies, and basic science, and similarly, to invoke an appreciation for the vital contributions of the many engineers and scientists who developed the technology.

We ask that you consider purchasing this important book which captures the tremendous heritage of technological innovation at this historic site.

"Camp Evans: The Untold Story" has over 200 pages and 100s of photographs showing the actual equipment and technology developed in a story never before told because of the classified nature of the mission. The breadth of the work described covers Radar; Signals Intelligence; Electronic Warfare; Reconnaissance and Surveillance Sensors; Target Acquisition Systems; Identification Friend or Foe Systems; Unattended Sensor Systems; Radiation Detection Systems; and Meteorology Systems.

The broad spectrum of accomplishments were achieved with an assembled workforce that was considered the best in the country, providing products that were the "eyes and ears" on the battlefield.

The legacy of Camp Evans will live on in the hearts and minds of those who helped make that history. Their contributions will hopefully be better appreciated by having been recounted in this book.

To order your copy of "Camp Evans: The Untold Story," contact InfoAge at 732-280-3000, or contact us via e-mail at rfginc@optonline.net and an order form will be forwarded.

InfoAge
Science/History Center
at Camp Evans, Wall, NJ

InfoAge Science History Learning Center and Museum
2201 Marconi Road • Wall • NJ • 07719

732-280-3000 • www.infoage.org

NONPROFIT ORG
US POSTAGE
PERMIT NO. 441
RED BANK, NJ
07701

The Newsletter of InfoAge

Inside this issue...

64th Anniversay of Diana Day

When: Saturday, January 8, 2011, 9am – 4pm

Where: InfoAge - 2201 Marconi Road, Wall, New Jersey

Description: OMARC will have a special event commemorating the 64th anniversary of DIANA DAY at the OMARC site building 9116, on Saturday January 8 from 9am until 4pm. The event will be open to the public, free of charge.

*For more information about these events, such as admission costs and times, **call 732-280-3000** or visit us online at **www.infoage.org**.*