

The Starved Rock Radio Club (SRRRC) meets on the first Monday of every month, unless otherwise scheduled, at 7:00 p. m. at the SRRRC clubhouse in Leonore, Illinois. Club nets are held on the SRRRC repeater (W9MKS) every Wednesday evening at 7:00 p.m. The W9MKS repeater is located at the SRRRC clubhouse in Leonore, Illinois, and it operates on a frequency of 147.120 MHz (+103.5 PL). The Starved Rock Radio Club was organized in September of 1933, and has remained an ARRL affiliated club since 1934.

The mission of the Starved Rock Radio Club has continually been to give faithful, co-operative service and assistance for the betterment of amateur radio, in the promotion of interest in amateur radio communications, for the advancement of the radio art, for the use of amateur radio for public service and welfare, and for the maintenance of fraternalism and the promotion of good fellowship along with a high standard of conduct. Visit us on the web at www.qsl.net/w9mks

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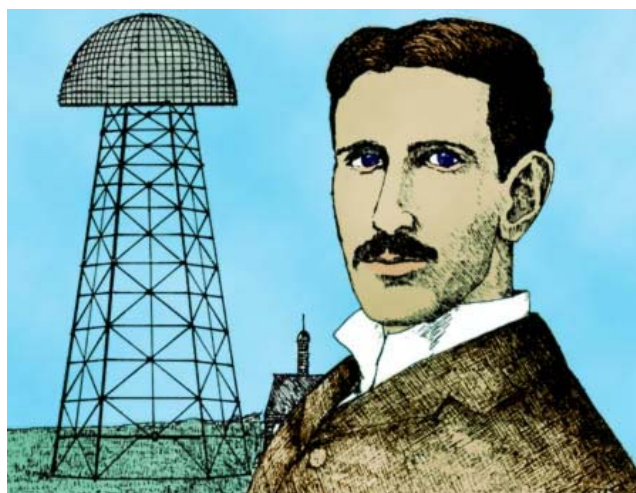
Static Editor:
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Nicola Tesla's Waterloo: The Wardenclyffe Project

By Ken Neubeck, WB2AMU
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Radio amateurs as well as much of our world have benefited from the many accomplishments of Nicola Tesla, the intuitive genius from Yugoslavia who developed AC power. Through his many electronic inventions and theories he is officially known as the father of wireless radio. During his lifetime, he saw both triumphs and defeats, something all the great ones in history go through. This article is about the circumstances that led to his biggest disappointment, transmitting power via the airwaves.

Tesla was certainly one of history's most interesting characters, not only for his tall and slender appearance at 6 feet, 7 inches, but also for his eccentric behavior and many obsessions. Some of the eccentric behavior documented was his vehement refusal to be in the same room with women who wore pearl earrings and his odd eating habits such as using exactly 18 napkins with his dinner. (Psychologists feel Tesla was an obsessive neurotic and that this was due to Tesla's relationship with his mother.)



Tesla's biggest triumph was the invention of AC power in the late 1880s. Tesla would continue to astound all of his critics for many years with his inventions. He was seemingly on a terrific winning streak when at the height of his success, he ran into his own personal Waterloo of putting into practice his dream of transmitting power via the airwaves. This project was way ahead of its time and as it turns out, beyond the technology that was available during Tesla's time.

An ideal location was found in Suffolk County on Long Island in the town of Shoreham for erecting a tower to transmit electricity over the Long Island Sound. The site consisted of over 200 acres

and it was made available by James Warren, the manager of the Suffolk County Land Company. Hence the transmitter station would be given the name Wardenclyffe. Financing of the project was provided to the tune of \$150,000 by the millionaire J.P. Morgan, certainly a considerable amount of money for the times.

Tesla's initial goal was to set up a wireless radio transmitting station. However, in the back of his mind, his real goal was to experiment with the wireless transmission of power. He did not make this known to Morgan, particularly since such an invention would threaten the empire of power lines



The Editor's Shack

At this month's meeting, some members expressed their unhappiness that our budget was published in *Static*. Seems at some point, a decision was made not to print such items. Now, I don't remember hearing about anything like that; maybe it happened before I became a member. I've recently been told that there is nothing officially on the books to prohibit the club's financial reports from being published. Maybe it was just a gentlemen's agreement by a former editor. If so, I'll continue that agreement, and I apologize for the breach in policy.

Maybe a formal motion should be made, so that the policy is clearly defined, and recorded for posterity. But how far do you take that sort of thing? For example, the club advertises ham-

fest ticket and table prices. Our contract with the fair board may or may not be a matter of public record, but I'll bet it wouldn't take much more than a phone call to find out how much a similar use of the facility would cost someone. Although there are other odds and ends to figure in, if we published just attendance counts, someone armed only with a calculator, a telephone, and a bit of time could probably figure out our profit (or lack thereof) from the hamfest.

Pat Ryan, KC6VVT, also made a worthwhile suggestion at the meeting – having a Club Historian. I think Pat's primary concern was that since *Static* has been distributed primarily in electronic format for the past few years, a printed copy of each issue is kept on

file at the clubhouse. I have been doing that since I was elected editor, but I think the idea of a Club Historian is an excellent one. As you may recall, one of the projects I've been working on is scanning old issues of *Static* into electronic format. While doing so, I've noticed that many issues seem to be missing, and those files are completely unorganized. While many of the club's records are the province of the Secretary or Treasurer, a Historian could ride herd on other items, like photographs. I've found a lot of photographs of club events in the files, but they aren't captioned or even dated. A picture may be worth a thousand words, but sometimes you still need a few words.

73, W9QA

September Meeting Notes

Frank Carraro, KF9NZ - SRRS Secretary

Rich, N9OUW, Vice President, presided in the absence of our President. Steve, KB9UPS delivered the promised mower. Curt KB9RKU will get a gas can and check it out. The tower is laying in the grass behind the clubhouse, and Mark K9ZQ will bring some pallets and get the tower sections up off the ground. There will be a Building and Grounds Committee meeting next Saturday, Sept 13 starting about 10:00 AM. What we do next with the tower, getting the beams in under the back room floor and other pending matters will be hashed out. There are a bunch of projects in the B&G agenda, and we can use LOTS of help...HELP!

K9ZQ told us about an old-time ham from the DeKalb area who recently claimed to have a lifetime pass to the Starved Rock Hamfest. Anybody know anything about this? The gentleman's call is W9FLD. The QSL contest was won by Judy, KC9CVR (with

a card for her first QSO!) with a 6M QSO with KG4YJS in Jacksonville FL. Next month's target is KF4OK, Birmingham AL. The proposed by-law regarding the establishment of a lifetime membership was defeated. There seemed to be little interest in the establishment of a life membership. Joe, KB9EZZ reported on his recent appearance before the County Board Sheriff Committee. There was apparent interest in the project. The Board will look into the cost of erecting the antenna and determine if they can find the money to have that done. Joe will be at the September 25th meeting to discuss it further.

REPEATER STATUS REPORT

During the last month, the UHF Ringo vertical was installed on the new tower and the UHF Yagi was taken down from the old tower. The Yagi was installed by K9PHW on his tower, and

the remote site is now working off of a 2M receive antenna on top of his 40 footer, and transmitting the UHF signal on the Yagi. Works great

Some weeks back we started to have problems with the transmitted signal from the repeater dropping out on loud syllables. I realized that the cause of this was a level problem between the remote site and the main repeater that caused the PL decoder at Leonore to lose the PL tone. I need to get over to the remote site with all my test gear and reset the levels, but so far have just not got it together to do that. In the meantime, the PL decode is turned off. (You are hearing only a single "beep" courtesy tone). The only problem with this is when we have enhanced propagation events, we are getting long squelch breaks, and some weak audio at times, from distant transmissions. I'll try to get this fixed soon.

Jamboree On The Air 2003 is October 18-19

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NEWINGTON, CT, Sep 21, 2003-- The annual Jamboree On The Air (JOTA), which combines Amateur Radio and scouting, takes place this year on October 18-19. JOTA offers amateurs an opportunity to offer Boy Scouts and Girl Scouts (Cub Scouts, Brownies and Girl Guides are welcome) a chance to participate in this worldwide scouting tradition--now in its 46th year--and share experiences over the air with other scouts. Maxim Memorial Station W1AW will be on the air for at least part of this year's JOTA.

"W1AW will be active in JOTA on

Saturday, October 18, during the afternoon and early evening," said ARRL Educational Programs Coordinator Jean Wolfgang, WB3IOS. "ARRL 'Big Project' Coordinator Mark Spencer, WA8SME, will be operating and has already scheduled two groups of scouts to come by during that time."

Reports to ARRL following JOTA 2002 showed that more than 10,000 Scouts from around the US took part. Wolfgang urges participants to complete a JOTA survey, available on the ARRL Web site's JOTA Survey for USA Participants page.

Begun in 1958 through the efforts of Les Mitchell, G3BHK, the event has spread around the world and includes participation by approximately 500,000 Scouts and Guides in more than 100 countries.

Because JOTA is an international event, participating stations must abide by FCC third-party traffic rules. As ARRL Regulatory Information Specialist John Hennessee, N1KB, explains, anytime an unlicensed--or under-

licensed--individual (the "third party" here) participates in a contact with a foreign station, the US must have a third-party traffic agreement in place with that country or the contact may not take place.

A list of countries with which the US shares third-party agreements is available on the ARRL Web site. Some countries make exceptions for events like JOTA, but the US does not, Hennessee notes. Additionally, during third-party contacts, both the call sign of the foreign station and that of the US station must be exchanged at the end of the contact.

Participants may want to register their JOTA events on the Youth Skeds Database site. This helps scouting groups to locate JOTA events in their vicinity.

JOTA begins Saturday, October 18, at 0001 *local time* and ends Sunday, October 19, at 2359 *local time*. Details also appear on page 46 of the September issue of *QST*. For additional information, contact Jean Wolfgang, WB3IOS.

SRRC JOTA Operation to be held at Chief Shabbona Park

Starved Rock Radio Club (SRRC) Amateur Radio operators will assist scouts in making World-Wide radio contacts during the Jamboree-On-The-Air on Saturday October 18th at Chief Shabbona County Park.

According to Joe Tokarz of the SRRC, "We hope to make this the third year in a row where we contact former scouts on the International Space Station!"

When Scouts want to meet young people from another country, they usually think of attending a World Jamboree. But few people realize that each year more than 400,000 Scouts and Guides "get together" over the airwaves for the

annual Jamboree-on-the-Air (JOTA). Modern technology offers Scouts the exciting opportunity to make friends in other countries without leaving home.

JOTA is an annual event in which Boy and Girl Scouts and Guides from all over the world speak to each other by means of Amateur (ham) Radio. Scouting experiences are exchanged and ideas are shared via radio waves. Since 1958 when the first Jamboree-on-the-Air was held, millions of Scouts have met each other through this event. Many contacts made during JOTA have resulted in pen pals and links between Scout troops that have lasted many years.

With no restrictions on age or on the number of participants, JOTA allows Scouts to contact each other by ham radio. The radio stations are operated by licensed ham radio operators.

JOTA operations will be at Chief Shabbona County Park just North of Ottawa. Set up begins Saturday at 8am. Examinations for the Federal Amateur Radio license will be from 10am to Noon.

For more information, contact Joe Tokarz
815.433-2347 or kb9ezz@arrl.net.

CHAPTER 6 – First Radio Book For Boys

Excerpted from *Voices in the Air—The Fascination of Radio* © Robert Bonebrake

Reprinted with permission of the author, Robert Bonebrake, W9GCQ. This 174-page book is available at the Streatorland Historical Society Museum or from Francis Kmetz, WB9VLW, at \$12.95 each. The club has a copy at the clubhouse, which can be checked out. It is enjoyable reading.

After re-building the crystal set, progress with my new radio hobby came to a halt because I didn't know what to do next. I had to do something or I would lose my rights to the place in the dining room for my card table. My father suggested a trip to the public library to see if they had any radio books.

I had been to the library before, and I knew how to use the card catalog. Several books were listed, and I found most of them in the technical section. They all appeared to be very old, with

yellowed pages and frayed bindings. They told of things like "Coherers" and "Spark Gaps" and other things which made no sense at all to me. Pictures showed kites and balloons holding up radio aerials. There were even pictures of Guglielmo Marconi at work in his laboratory. Although these books didn't give me any new ideas, they did give me insight into the early history of radio. Coheres and spark gaps were the major components of early radio receivers and transmitters. I began to develop an admiration for Mr. Marconi, and he became my second radio hero.

One book listed in the card catalog was not in the technical section. With some help from the librarian I found it in the children's area. Opening its pages I knew right away that this was a book I could use. It told of things I already knew something about – crystal sets. It had plans for building all kinds of crystal sets: Selective crystal sets, sensitive

crystal sets, and portable crystal sets. It showed pictures and gave detailed construction information. It showed how long the toilet paper tube should be and how many turns of wire to wind on it. Farther back in the book it described other kinds of radios I could build, but those would have to wait.

And so it was that the *First Radio Book for Boys* came to be my first source of information on radio. If memory serves me right, it was written by Alfred Morgan. It was exactly the book I needed, and I found it at exactly the time I needed it. Many years later when, as an adult, I went back to the same library to see if they still had the book, I found that it was no longer there. Probably scrapped years earlier. I wish I had it, complete with the burned spots from my soldering iron and pages that were sticky from soldering paste and rosin core solder. Alfred Morgan was my third radio hero.

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that Morgan owned in the U.S. Tesla would publicly state that he was only setting up a transmitting station that could broadcast throughout the world on all wavelengths and this was acceptable to Morgan. Tesla was aided in the design of the tower by architect W. D. Crow, which featured a 100 foot diameter copper electrode in the shape of a mushroom at the top of the tower. The tower was octagonal and was constructed entirely of wooden beams that were pre-assembled on the ground. The eventual design saw the tower reaching a height of 187 feet with a deep steel shaft in the center that ran 120 feet deep into the ground. No doubt that this was the biggest ground rod in the U.S. at the time! This shaft was encased in a twelve foot square well encircled by a spiral staircase. The design was highly ambitious for its time and extremely expensive. Tesla

always used the best machinery and materials that he could get. The project would be beset with delays due to late delivery of key machinery and slow payments by Morgan.

Tesla's conception of using the tower to transmit power was not to use it as a conventional antenna where it's a radiator. Rather, he wanted to use the dome as a device that had aerial capacity as a means to transmit power. The idea of aerial capacity was a concept that was in his mind since the time when he conducted experiments at his Colorado facility some years previously. However, aerial capacity would not prove to be a viable concept in the area of transmitting power.

At the end of 1901, Tesla's rival, Marconi, sent the first transatlantic radio transmission from England to Newfoundland. Marconi had won the race

for the first long distance radio transmission. Tesla was very disappointed but said, "Marconi is a good fellow, let him continue, he is using seventeen of my patents." (It would be several years later before the U.S. Supreme Court would rule that Tesla was the father of radio due to his numerous patents that preceded Marconi.) However, this was a devastating blow to Tesla as he was used to being in the forefront of new inventions and now was fading from the public view. Tesla was now on the down side from the high water mark of his professional career.

During the Wardenclyffe project, Tesla spent a great deal of time on Long Island during the building of the facility. He lived in a private home near the facility and had his meals brought to him by train from the Waldorf Astoria in New York City, all the way out to

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Shoreham on the North Shore railroad line. Money was no object to him and he spent it almost extravagantly. He would leave all of the financial details to his assistant, George Scheff. Although Tesla made millions of dollars during his lifetime, he died poor as he never was within the budget constraints of his projects.

After completion of the first stage of construction, Tesla went back to New York City in order to attend to his business there. He commuted on weekends to Shoreham by railroad in order to conduct tests. However, problems would continually plague the project. Financing and delivery schedule difficulties were always present. Tesla was forced to sell off assets to his Colorado Springs facility in order to take care of legal suits. As Tesla always demanded the best equipment, he was forced to wait for key components such as the transformer made by Westinghouse in Pennsylvania. J.P. Morgan was getting cold feet towards the venture and was not making any more payments. During the spring of 1903, Tesla finally wrote him to tell him the tower would also be used in the sending power as well as radio signals. This was a fatal move and Morgan would never again send money for the project.

After this rejection by Morgan, Tesla took the train out to Shoreham and fired up the tower for a whole series of tests that night. Local residents were treated to a spectacular display of blinding streaks of light shooting off the spherical dome that would light up the evening sky for several miles. When questioned by the New York Sun about the mysterious experiments that were witnessed by the local residents, Tesla replied, "The people about here, had they been awake instead of asleep, at other times would have seen even stranger things. Some day, but not at this time, I shall make an announcement of something that I never once dreamed of." This boast would not be fulfilled and made evident Tesla's overconfidence in his abilities at this stage in his career.

To help stem expenses, the facility in Shoreham was used to make medical coils for hospitals and research laboratories. However, on occasion, the work crew that blew the glass for the vacuum tubes and fired up the steam generator would be laid off. When coal could be bought, the tests would be conducted on weekends when Tesla could take the train out. By 1906, there would be no more work force at the facility. Several years later in 1917, the tower was torn down in order to be sold for scrap to help pay off Tesla's various debts. Even this salvage operation took much effort as the tower withstood many charges of dynamite even though it was made of wood. Finally after three months, the tower was down on Labor Day. The salvage operation only netted \$1750 above costs. Tesla would say, "I did not exactly cry when I saw my place after so long an interval, but I came very close." Thus came the end to the Wardencliff project.

Tesla's failure can be attributed to several factors that worked against him. The high costs of materials for the project were a major factor. Also the idea of transmitting power via the airwaves was well beyond the technology of the times (and even today). Tesla had always excelled at doing things on a grand scale and did not worry about the smaller details such as financing. He had a habit of making outrageous claims in the past but at this point in his life he was making claims that he could no longer back up. The success that he achieved during the first part of his career with the invention of AC power led to a feeling of overconfidence and invincibility. Also, while Tesla was excellent in developing theory, he had difficulty in translating them into practical working systems. This is always the hard part.

History has shown that great men often have one or two personal failures that affected their career. For example, Michaelangelo, who created such masterpieces as David, the Pieta and the fresco on the Sistine Chapel, had experienced extreme frustration in his ability to complete the original project of the tomb for Pope Julius II. He

would say, "I find that I have lost all my youth in this affair of the tomb."

Today, there is only a small red brick building as the last reminder of Tesla's presence on Long Island. After many years of non-use, the Peerless Photo Company bought the site in 1939. The facility closed by 1990 with environmental problems surfacing with chemicals in the soil. The site has been made a historical landmark through the efforts of a Yugoslavian group.

It is truly ironic that less than two miles away, there was another site of another project too ambitious for the times; the closed Long Island Lighting Company Nuclear Power Plant. This area of Long Island had other roles in radio development. To the south of Tesla's lab lies the old RCA Radio Central Transmitting Site used during the 1900s. (A local Amateur Radio club has taken the same name.) It seems strange that among the strip shopping malls of the Long Island area, there lies a major part of radio history not fully recognized by the local population.

Even more ironic is the fact that one of Marconi's work shacks was temporarily located down the street on Route 25A about three miles from Tesla's lab in the nearby town of Rocky Point by an Italian American group. Marconi's shack was at this location for a few years before it was moved to Bayshore, Long Island. It would have rankled Tesla if he knew more attention was paid to Marconi's work shack while his Shoreham lab remains vacant and completely anonymous to the surrounding community today.

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Tower Arrives At Its New Home

W9DON photo