



Barquilla de la Santa Maria

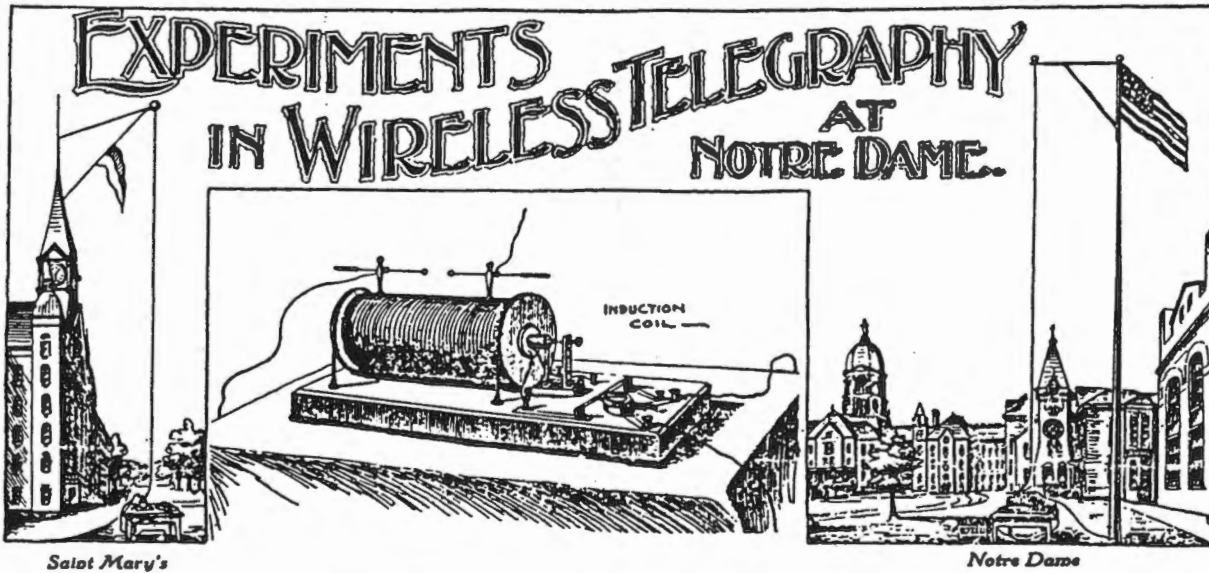
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HOLY CROSS COURIER 7



SCENE OF THE FIRST LONG DISTANCE WIRELESS SIGNAL SENT IN AMERICA.

Confessions of an Amateur Archivist==IV

Through the courtesy of Professor Jerome J. Green of San Diego, this picture which appeared in the Chicago Herald, April 22, 1899, is reproduced. The excellent line drawing was done by Professor F. X. Ackerman, then as now, professor of mechanical drawing at Notre Dame. It shows the Convent Tower at Saint Mary's, with the recording machine on a table near the Convent steps; the induction coil, which was a part of the X-ray apparatus sent to Saint Mary's by Father John A. Zahm; and the sending instrument connected with the charged sphere on the Notre Dame flag-staff, with the familiar Golden Dome and Washington Hall in the background.

'ROME AND ROB: The Green Brothers: Perry County to Notre Dame

by Patrick Mooney

Part One: 'Rome: Jerome J. Green 1865-1943

April, 1999 marks the 100th anniversary of the first radio-telegraphic (wireless) transmission in America. The event occurred in South Bend, Indiana on the campuses of the University of Notre Dame and Saint Mary's College, and was

the achievement of Jerome Joseph Green, Professor of Physics and Electrical Engineering at Notre Dame, 1893 graduate of The Ohio State University, native of St. Joseph's Parish, Somerset, Perry County, Ohio and descendant of

early Maryland and Pennsylvania Catholic families.

The 21-year old Guglielmo Marconi had begun his experiments with the transmission of what were then called Hertzian waves in 1895 on his family's estate in Bologna, Italy. When the Italian military dismissed his suggestion of the tactical usefulness of his work, Marconi traveled to England, where his cousin, Henry Jameson Davis (Marconi's mother was Annie Jameson of the Irish Whiskey family), helped him file British patent number 12039 on June 2, 1896. Experiments continued, The Wireless Telegraph and Signal Company was established on July 20, 1897, and word spread around the world (via telegraph wires) of this new phenomenon. On March 27, 1899 Marconi achieved the longest transmission to date: 32 miles across the English Channel.

During these same few years, after his appointment in September 1895 at age 29 to head the Electrical Department at Notre Dame, Jerome J. Green had been assiduously developing the department and his own career. In a letter headed, "N.D. Feb. 10, 1898", to his brother Robert L. Green in Columbus, he writes:

..."have been putting in a shaft on piers to reach from the engine to the next room where we are setting up a new dynamo, It is a dandy and is paid for now.

..."Fr. Morrissey [Notre Dame president] came in a day or two ago and was looking around at the new stuff. He asked if there was anything else that we needed 'Yes,' I said, 'we need a set of portable A.C. instruments, cost about \$100.' 'Get them. Get them.' he said. He surely uses us all right.

..."am all right with Fr. Zahm, too. Frank Ward sent me the New Lex. Tribune and Herald which contained articles about him going to school with

J. A. MacGahan at Pigeon Roost, etc.

"When I went to call on him I took those papers. He was pleased and he began to ask questions and finally claimed kinship with me. I fixed it so he could do that and he did. He said, 'Why, we are first cousins.' He was a different man entirely from what I formerly knew him. He asked me to come again soon. He came over to see the X-ray outfit the next day and was delighted. I showed him all the improvements we had made and when he heard I had ordered a new alternator, he said, 'Well, it is a wonder you got it.'

"He brought an Egyptian mummy hand from St. Mary's. I photographed the exterior and got the interior by X-rays without disturbing the crumbling cloth wrappings. Got a splendid job of it, too. He was delighted again. He said when he gave me the hand, 'Don't let anyone see it. Lock up the doors over there. And don't let Fr. Kirsch see it, for he will unwrap it. He is just like a big boy.'

"I expect to have plain sailing now for Fr. Morrissey always used me OK and now Zahm will help."

After word of Marconi's talk in London on March 2 and his successful English Channel wireless telegraphy transmission of March 27 reached South Bend, Professor Green, with the help of several of his students, began experimenting with wireless transmission within the electrical engineering laboratory in Science Hall. The following is from the Notre Dame Scholastic of April 22, 1899:

"Professor Greene [sic] is not going to permit his men to be behind the times as far as any new inventions or discoveries in the scientific world go. He has had them working all this week at the Marconi wireless telegraphy. So far as we can learn they have been more successful in operating here thus far than others have been in

any other institution in America. When Mr. Greene first started to work at it they used it to send signals from the physics laboratory in Science Hall to other adjoining rooms in the same building.

..."They found that everything worked perfectly well here, and so they set about their last and greatest trial. This was to send a message from Notre Dame to St. Mary's Academy which is more than a mile away from the university.

..."When everything was finished and the operator pressed the key and sent a signal, a reply came back from the Academy saying that it had been received all right.

"This is the farthest distance a message has been sent in this country as far as we know, and the boys in the science department feel highly elated over their success.

"Professor Greene is preparing a new apparatus, and will make further experiments in the near future."

In fact, by the publication date of the above, Jerome J. Green had been invited to Chicago by the *Chicago Tribune* to perform his experiments among the tall buildings of "The Windy City."

Before leaving South Bend, however, we have the recollected eyewitness account of Marion McCandless, the long-time alumnae director of St. Mary's, who was a member of the physics class at St. Mary's Academy that spring of 1899. In the Holy Cross Courier of November 1937, McCandless writes:

"The death of a great scientist [Marconi] in Rome last summer stirred the memory of this amateur archivist.

..."In less than two months after Marconi had spoken in London on wireless telegraphy, Sister

made a startling announcement in our physics class. She said that Professor Green had sent successful signals through the air at Notre Dame, and he wanted to try the experiment of sending them more than a mile--to St. Mary's. As preparations for the event were made and the procedure explained to us, the class was torn between doubt and faith. Surely it could not happen, and yet--had we not, less than a year before, seen a horseless carriage propel itself through St. Mary's grounds, emitting a huge plume of steam! And more wonderful still, had not the classes for the past three years studied the bones of the hand, discovered mislaid glasses in closed books, and tested real diamonds in the verboten jewelry of those days, through the magic of our X-ray equipment! At Sister Antonine's request, this mysterious mechanism had been sent from Europe, in the summer of 1896, by that great scholar and good friend of St. Mary's, the Very Reverend John A. Zahm C.S.C.

"From the convent archives (copy supplied by Sister Antonine) I quote,

On April 19, 1899, Professor Jerome J. Green of Notre Dame University made a test of the Marconi system of wireless telegraphy between Notre Dame and St. Mary's.

The instruments employed in these tests were made by himself and his students except the induction coil which belongs to St. Mary's science hall...

Sister Antonine recalls "the vivid picture of that spring morning when the fragrant air was vibrant with something more than nature's awakening, as we walked about the east porch of the convent, awaiting the call from the telephone room. Sister Bertha (God rest her!) standing in her office close to St. Mary's one and only telephone, was as excited as I was at the recording machine. Professor Green had arranged to telephone when he was ready. Silently, in the hush of a thrilling expectancy we looked down the long sweep of the avenue, and up into the brilliant sky, wondering---

Then the call from Notre Dame! At the precise moment agreed upon, the signal came, as clear as if it had come from the machine beside us instead of being 'pulled' out of the air by the wire dangling from the convent spire. The result of each attempt that morning was reported at once to Professor Green via the telephone, and his voice betrayed the triumph he had achieved...

"Immediately it was decided to set up the wire on the roof of the academy... and bring the receiving set into the bay window of the parlor next to our science room. This was done, on April 21, to permit the students to witness the real conquest of the air. The girls in single file (as silent as Church-ranks in those days) waited on the porch until everything was ready. We felt like the chorus in some Greek drama---very much a part of it all and yet, in truth, entirely supplementary to the main action. There was breathless excitement, though we had no idea then what a really epoch-making event it was.

"Finally, we went into the room where mystery presided, and soon the Morse code signals were recorded 'out of the air.' We were assured that the distance between the two schools had been bridged by science, but for many another April and many another group of students, this bridging remained purely theoretical."

"I am now notorious on account
of mere accident..."

The Chicago newspapers had gotten wind of Professor Green's experiments before the successful transmission between Notre Dame and St. Mary's, and a later one between the university and St. Hedwig's in South Bend, but he had blue-penciled into frustration all draft articles submitted for his approval. However, the first news article appeared on page 4 of the Chicago Tribune on Thursday, April 20. The experiments in South Bend made page one on Friday, April 21.

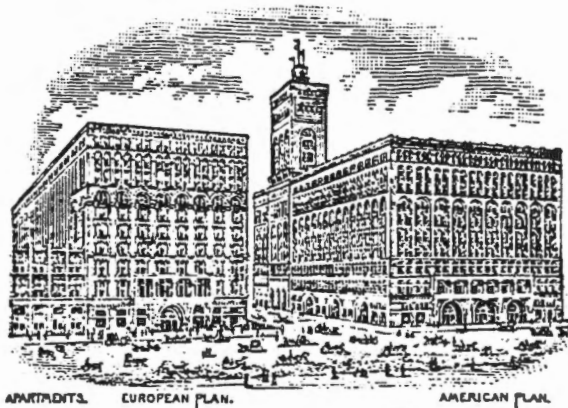
By Saturday, April 22, Green was in Chicago with his student assistant, Albert Kachur, apparently having been given carte blanche by "The Trib." to demonstrate the new communication science in the city. The affair made page one again on April 22, 23, 24 and 25, with major illustrated stories on Sunday and Monday, April 23 and 24.

The buildings and wires of downtown Chicago created considerable interference, making the first tests from the Tribune Building to the Marquette Building and the Dearborn Street Station only partially successful. A chunky little tug was chartered, Professor Green fixed a zinc ball to a spar twenty-six feet above the deck, and set up his sending apparatus at the coast guard station at the mouth of the Chicago River. The tug zig-zagged two miles offshore. Eventually three short blasts from the tug's whistle signaled the first successful shore-to-ship radio transmission in America!

Observers of Professor Green's Chicago demonstrations included officials of Northwestern University, Armour Institute, Chicago and Northwestern Railroad, Western Electric Company, Postal Telegraph and Cable Company, Chicago Telephone Company, and various telegraphers and electricians.

For Jerome Green's reaction to all the furor, see on the following page his letter of Monday, April 24, from the Auditorium Hotel in Chicago to his brother Rob in Columbus.

Jerome Joseph Green was born in Reading Township, Perry County, Ohio on December 26, 1865, the sixth child and first son of Joshua Green II and Emily Flowers. He attended the district school on Chestnut Ridge, qualified for a teacher's certificate, and worked as a carpenter as well as teaching a number of terms in the district schools of Perry County. In 1888 at age 22 he went to Columbus to matriculate at The



APARTMENTS. EUROPEAN PLAN. AMERICAN PLAN.

Auditorium Hotel

8 - From Baseline & Southgate
R. K. Southgate, Manager

Chicago, April 24, 1899

My Dear Roy

I am living high now
Auditorium. I eat till I almost
burst and it dont make me sick
I am only ready for more.

I am now notorious on
account of mere accident
but it is a great advertisement
for noble Saus. I have met
a lot of nice people too.

Strange but people do take a
great interest in this wireless
telegraphy. My picture was
sent by wire on the new machine from
Chicago to N. Y. and Boston Saturday
night. Printed in Boston paper.

Ohio State University. Finding that without a high school diploma it would be necessary to complete preparatory work, which would require six years total, he completed the work at OSU in five years while working part-time in photography, carpentry and the invention of a "cash register." In 1893 he received the degree of Bachelor of Mechanical Engineering in Electrical Engineering, after some doubt occasioned by his absence of nearly six weeks, along with several other students, while testing the wiring for the illumination of the dome of the main exhibition building at the Chicago International Exposition.

Having been promised a job in Chicago which did not materialize, probably owing to the depression of 1893, he found part-time work teaching night school at \$2.50 a night at Hornsby's Technical College, eventually working for Chicago Edison, and becoming chief instructor at the National School of Electricity. In 1895 Jerome Green and his brother, Robert L. Green, were engaged by the Mexican Village Exposition Company (of Columbus, O., Atlanta, Ga., and Mexico City) to install electrical apparatus at the Cotton States and International Exposition in Atlanta. He was back in Chicago in time to be available when Fr. Corby and Fr. Morrissey came there looking for a replacement for Notre Dame's "Professor of Telegraphy", who had resigned during the previous year.

Jerome remained at Notre Dame as Professor of Physics and Electrical Engineering until 1915, with the exception of 1907-1908, when he took a leave of absence to study at the University of Paris and the Technische Hochschule, Berlin. On June 21, 1899 he married Elizabeth Feeney of Rochester, Minnesota, who died in South Bend in late March, 1900, a few days after the birth of their son, Francis. On September 8, 1908 Green married Mabel Cortis of London, England with whom he had two children: Winifred and Richard.



Jerome Green, ca 1942

Courtesy of the University of Notre Dame Archives

After leaving Notre Dame in 1915, Jerome Green taught technical subjects in several high schools and colleges in San Diego, serving as Professor of Electrical Engineering and Dean of Faculty at Pacific Technical University, San Diego, from 1927 until his retirement. He died in 1943 in his seventy-seventh year.

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This story will be concluded in the fall with Part Two: Rob: Robert Lee Green 1869-1951. Part Two will include information about the Green brothers' ancestry in Maryland and Pennsylvania, family background in Perry County, Ohio, and the story of Robert Lee Green: photographer, photo engraver, inventor, Columbus druggist, OSU graduate, Professor of Pharmacy and Food Chemistry at the University of Notre Dame for more than 35 years, and self-styled expert on human longevity.

Many thanks to Patricia Hillis Green of Perry County, Ohio for providing copies of letters from Jerome J. Green to Robert L. Green 1897-1899, along with much other information from the Green family papers. Her generosity made it possible to catch the flavor of the man!

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For Guglielmo Marconi:

The interesting WebSite of General Electric Company p.l.c., One Bruton Street, London, UK, contains considerable information on Marconi posted for their 1997 Marconi Centenary. The address is <<http://www.gec.com/marconi/index.htm>>

For Jerome Green:

The American Electrician, July, 1899. This article by Professor Green, detailing the technology of his recent experiments, was

reprinted by The University of Notre Dame, November, 1933 on the occasion of a special convocation held November 11, 1933 to confer the honorary degree Doctor of Laws on Senator Guglielmo Marconi.

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A Tribute to Bishop Watterson

Rt. Rev. John Ambrose Watterson, second Bishop of Columbus, died on April 17, 1899. The following words by Rev. John T. Murphy, President of Holy Ghost College, Pittsburgh, are excerpts from the Catholic Columbian of May 20, 1899.

The impression made on me by Bishop Watterson, the first and each subsequent time that I met him, was twofold. He impressed me, in the first place, as one who had a well-informed, elevated, just idea of his office and duty, as Bishop of the Catholic Church in these United States; and, secondly, he struck me as having the single-minded earnestness, the courage and constancy, the patience and prudence and love necessary to carry out such an ideal...

Bishop Watterson was, first of all, a teacher of divine truth. He was an able custodian and

interpreter of the deposit of revelation committed to the apostles. He knew that he had nothing to add to it, nothing to subtract; but he knew also that it admitted, yes, claimed the very deepest research and study. He welcomed all truth of the natural order as the handmaid of supernatural truth. ...When he came to this diocese nineteen years ago he was well equipped with learning, human and divine; but he did not rest content with that; he kept up and increased the range of his studies. He placed his talents, his acquirements, his diction and eloquence at the service of his diocese first, and of every good cause. He did this unsparingly, without thought of fatigue, without desire of applause...

Conscious of his duty to preserve and spread sound doctrine in his diocese he took all possible pains to provide well-trained, zealous expounders of truth for every parish. Above all,

