By Eric Shalkhausser W9CI, SK

The History of Ham Radio

Part 5: The first convention.

The first amateur radio get-together of any size was the St. Louis Midwest Convention in December of 1920, shortly after our licenses became available in 1919. No sooner had the enthusiasm at the St. Louis gathering died down than the ARRL Board of Directors proposed a national convention.

In these early years after World War I, there was so much newness in everything connected with wireless, and there were so many original and worthwhile ideas to be aired, that no mere Morse code contact was sufficient. Voice communication had not as yet entered our amateur wireless channels. Amateurs were on the verge of many new developments. Major Armstrong had announced his "single" signal regenerative and then his superregenerative receiver designs. There were new circuits to be tested in the transmitter field, including the Colpitts, the Meissner, the Hartley, and the Heising, among others.

Amateurs wanted to be informed. They found themselves in new technical surroundings. So, for the first time, citizens of the United States and Canada, all interested in privately owned and operated radio communication, decided to come together from far and near to a big first national convention.

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The first gathering of the clan took place from August 30 to September 3, 1921, at the Edgewater Beach Hotel, located on the shore of Lake Michigan in Illinois. History relates that, following the success achieved at this first national convention, it was ordained that two succeeding ARRL national conventions were also to be held at the Edgewater Beach Hotel in Chicago at two-year intervals — September 11 to 15, 1923, and August 18 to 23, 1925.

There was no telling what impact these get-togethers would have on the future destiny of amateur radio. Great effort and meticulous preparations were made for months in advance to ensure success. Everyone connected with the preparations hoped that this first national meeting would find attendance coming from the far reaches of the States and Dominions, representing all districts.

The midwest location proved to be a most strategic and advantageous choice. The Edgewater Beach Hotel was at the far north edge of Chicago, away from heavy traffic, with R.H.G. Mathews' 9ZN station located just to the north on the lake shore, sporting two tall station towers, a multiwire antenna, and up-to-date equipment in his spacious shack. All agreed that this was an ideal spot to congregate.

The convention committee had booked a large arena, the Chicago Broadway Armory, located within walking distance of the hotel. About fifty manufacturers and dealers in ham radio gear of all descriptions displayed and demonstrated their products. For the first time, amateurs had an opportunity to talk shop with those people who had kept amateur radio alive through their advertising in *QST, Radio Amateur News, Wireless Age,* catalogs, and other literature. This was a ham's paradise!

The convention hall, where all the sessions took place, was a beehive of activity. There was no let-up in making personal contacts, exchanging QSLs, and discussing many subjects slated on the agenda.

The first day

The ARRL president, Hiram Percy Maxim, addressed the members with an inspiring talk concerning the aims and accomplishments that amateur radio had achieved in the relatively few years of the ARRL's organization. In

Photo A. *Advertisement for the First National ARRL Convention & Radio Show in Chicago, August 30th to Sept. 3rd, 1921.*

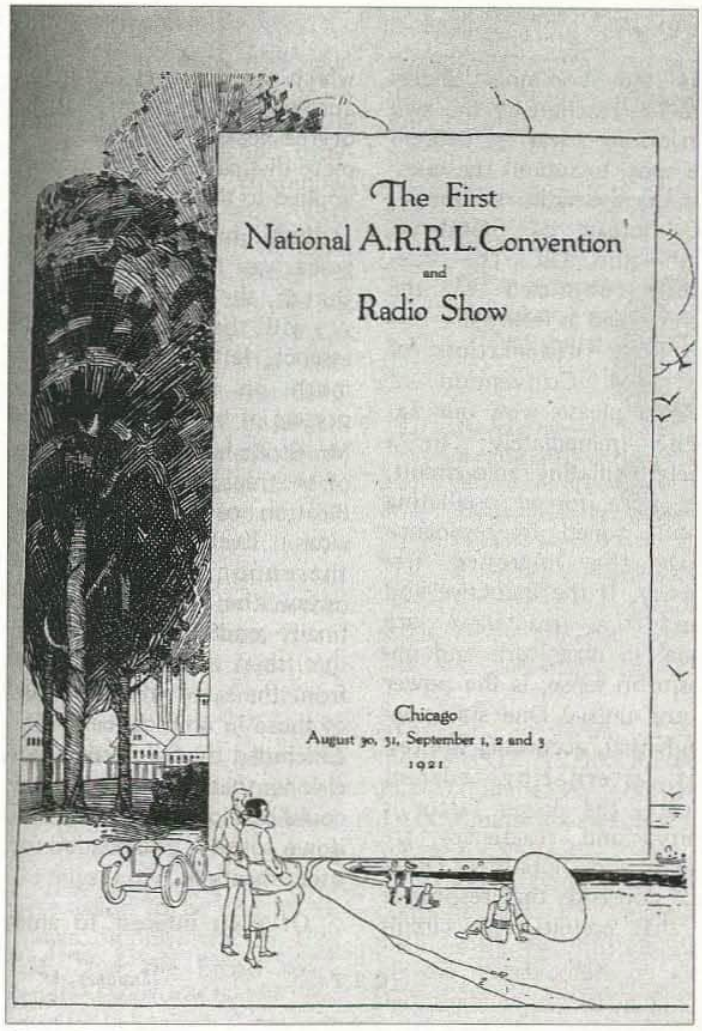


Photo B. *Convention announcement opening sheet.*

his introductory remarks, the founder of the League had the following to say:

"As we meet and open this great convention, it is indeed a historic event. ... In years to come, much will be said about what we do here at this first convention. We are striking out into the unknown, and even the smaller actions which we take here during the next few days will weigh heavily in the future, for they will establish precedents and standards. ... Let us not forget that we are pioneers, blazing a way many are to follow. Our responsibility is great, and we must so regard it. It is one thing to repeat what has already been done, but it is another altogether different thing to do what has never been done before. What you see before you here today has never happened in the affairs of man. Not only is it a great pioneer effort in radio history, but it is a great pioneer effort in political history. We American and Canadian citizens assembled in this room represent pioneers in the development of something totally revolutionary in the art of communication. The like of what we are doing and proposing had never crossed the brain of man a short ten years ago. We already have a privately owned, absolutely free, continent-wide means of instantaneous communication, and no man may say we shall not make it worldwide." (What prophetic statements emerged from this gathering of dedicated and enthusiastic men!)

"It is no small distinction," our president went on to say, "to be one of those who make history."

General and technical sessions

There would be no point in listing the names of the high and low notables in attendance. They were all present. The program committee had topics scheduled for discussion pertaining to club organization, interference control, observations of laws, legislative matters, message handling, and many technical subjects.

Charles H. Steward, member of the ARRL legislative committee, reviewed pending legislation, a matter which required constant attention. Seven bills under debate in Congress at that particular time related to subjects concerning radio control, radio regulation, and enforcement. Observations made at this meeting were that: "If just two of these bills go through in their present form, the wavelengths, power, and decrement are then subject to control of the Commission, and they keep us champing around from one wavelength to another, increasing and decreasing the power available for amateurs. Constant vigilance is of vital importance to ensure the amateur's place in the radio spectrum."

Probably the topic that drew top attention during the convention, and that was subject to heightened debate,

The Convention

THRU the many years of amateur radio there has developed an increasing desire to meet the other fellows that are, like yourself, interested in radio communication either as a pastime or business. And now comes a time when your wishes shall be gratified.

For, in Chicago on August 30, 31, September 1, 2 and 3, 1921, the American Radio Relay League will hold a First National Convention and Radio Show, which everyone is cordially invited to attend.

Chicago is itself a wonderful summer resort, offering every opportunity in any sport or diversion. You will never regret having spent part of your vacation here. The details of the convention are exceedingly comprehensive and every minute of the convention will be taken up with interesting and educational conference and lectures, being in all a most complete and co-ordinated program. Mornings, afternoons and evenings are fully arranged for, so that you will remember this convention as some of the most enjoyable days of your life.

There will be people that you know and many that you do not know that will be present from every district and city in this great United States. Probably the most important feature of the convention will be the huge banquet on the night of September 3rd, and there should be none failing to attend. Everybody from the Young Squirt up to President Harding will be there to pass you the sugar and tell you what a record station he or she is going to have this season.

The first day will be given over entirely to the arrival, registration and locating of the many delegates. The program will start promptly at ten A. M. August 31st, so you should arrange to be in Chicago some time during the previous day, August 30th.

We have arranged to accommodate you at the finest hotels in the city, very close to all activities, at rates from two dollars per day up.

From the moment that each delegate arrives, and they should not forget to bring the ladies, until their departure, the utmost of consideration will be devoted to their safety, comfort and pleasure.

Convention delegates will be admitted to the meetings, lectures, sportive expeditions and the Radio Show without any charge.

Banquet charges will be five dollars per plate, and reservations should be made immediately with convention reservation manager,

N. C. BOS
118 No. LaSalle Street
Chicago, Illinois

(Make all remittances payable to Chicago Executive Radio Council)

Photo C. *Announcement for the first Convention, 1921.*

proved to be the controversial question of power factor in ham transmitter circuits. As one reporter remarked afterward, "Without a doubt, this debate was the main attraction at the convention."

There were staunch supporters of the two main participants in the discussion, and it did not take long before sides were chosen. At the outset, Ellery W. Stone from the west and W.B. West 8AEZ were the antagonists in this struggle for definition and thoroughness of detail for presentation of facts.

Said Mr. Stone: "Power factor is unity in any AC circuit in which inductive and capacitance reactances cancel."

Said Mr. West (ignoring inductance and capacitance): "I confine my views in the matter to the relation of real watts to apparent watts."

This confrontation went on for hours, with other participants joining, until all agreed that it appeared that the confusion lay in the definition of power factor. There was no common understanding reached by the two parties. So it was decided, on the spot, to submit the question to the radio section of the Bureau of Standards, Washington, DC. The statement submitted to the Bureau read as follows:

"For information of National Convention of ARRL, please wire our expense immediately: In a freely oscillating radio circuit, and in a forced oscillating circuit tuned to resonance with the impressed frequency, if the inductive and capacitive reactances are equal in magnitude and opposite in sense, is the power factor unity? One side contends that, according to present alternating current theory, the power factor is unity, and reactances are equal and opposite. Other side contends that resonance is that condition

The Radio Show

THE manufacturers and dealers' exhibit at the First National Radio Show, which is to be held in conjunction with the convention, will be the most spectacular conglomeration of modern radio equipment that has ever been put on display under one roof. This gorgeous and pompous affair will be well worth the trip itself.

The Broadway Armory, the most modern and largest exhibit and convention building in Chicago, will be used entirely for this great show.

Divided into model exhibit booths and beautifully decorated in one accord, it will equal in splendor any of the successful automobile shows. The magnitude of the affair is positively stupendous.

It will indeed be a great thing for the manufacturer and dealer, as it is held at a time that marks the opening of a new and more active radio season. Business conditions are rapidly improving and a very successful season is predicted.

In addition to publicity thru radio publications, circulars and placards, the daily newspapers with circulation over the million mark will be employed to advertise the show. This should result in a daily attendance of anywhere from three to eight thousand of interested people. The results to the advertisers, both direct and indirect, will be unprecedented.

This is not a money making proposition and the booths are being sold on approximately a pro-rata basis. The convention delegates will be admitted without charge, and the general public will pay an admission fee. Permanent passes will be issued to exhibitors. The show will open at the same time as the convention, ten A. M. August 31st, and everything must be in readiness the day before.

Here are some reasons why every manufacturer and dealer should be an exhibitor: It is the biggest affair that has ever been promoted in the age of radio. It comes at a time that marks the opening of the regular radio season. There will probably be over ten thousand people reviewing the apparatus. By personal contact with the field which he is selling he may gain good will. The exhibit cost is low and the results will be big.

Your competitor may have an exhibit and if you do not—well, think it over.

There will be every accommodation available for the exhibitor, delegates and the general public. The Armory is conveniently located near the three hotels at which the majority of the delegates will stop. There are also excellent amateur stations near by which will supply both spark and phone transmission for the reception of exhibitors.

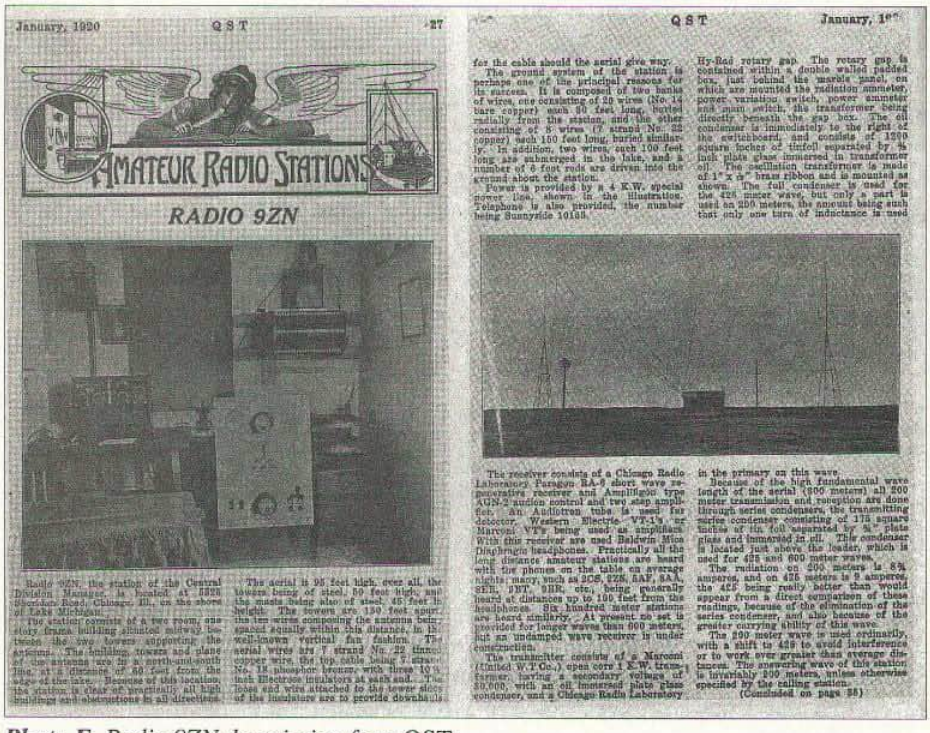
It will be a long while before such opportunities as are here offered will again be presented.

Photo D. *Radio show announcement.*

in circuit which causes power factor to automatically assume that degree necessary for the complete dissipation of the power applied to the circuit."

Within hours after the telegram was forwarded to the Bureau, the reply came back ... with an answer that, in essence, left both sides very much up in the air. Supporters of both Mr. West and Mr. Stone hailed the outcome of the reply as complete vindication of their respective sides. Even a committee thereupon appointed to review the entire discussion finally ended up by stating that they were not reasoning from the same premise. Most of those in attendance finally concluded by these vague decisions that another subject could be more productive and down to earth and headed for other meetings.

Of great interest to amateurs who were still purchasing and installing spark gap transmitters was the subject of broadband interference. It was contended that spark gap units were doomed to fade out of ham stations, because the waves they transmitted on the air were not as sharp as a CW wave. It is true that they could be held better in reception and did not have tendencies to jam each other, like the CW signals did. Also, each spark on the band had an individual characteristic that identified it, and what distances could be covered (having 1000


January, 1920 QST 27

AMATEUR RADIO STATIONS

RADIO 9ZN

Radio 9ZN, the station of the Central Division Manager, is located at 1323 Sheridan Road, Chicago, Ill., on the shore of Lake Michigan.

The station consists of a two room, one story frame building situated midway between the two towers supporting the antenna. The buildings, towers and plane of the antenna are in a northand-south line, at a distance of 80 feet from the edge of the lake. Because of this location, the station is clear of practically all high buildings and obstructions in all directions.

The aerial is 95 feet high, over all, the towers being of steel, 80 feet high, and the masts being also of steel, 45 feet in height. The towers are 150 feet apart, the two wires composing the antenna being spaced equally within this distance, in the well-known vertical fan fashion. The aerial wires are 7 strand No. 22 tinned copper wire, the top cable being 7 strand No. 18 phosphor bronze, with three 10 inch Electrose insulators at each end. The lead and wire attached to the lower ends of the insulators are to provide downleads for the cabs should the aerial give way.

The ground system of the station is perhaps one of the principal reasons for its success. It is composed of two banks of wires, one consisting of 25 wires (No. 14 bare copper) each 80 feet long, buried radially from the station, and the other consisting of 8 wires (7 strand No. 22 copper) each 150 feet long, buried similarly. In addition, two wires, each 100 feet long are submerged in the lake, and a number of 6 foot rods are driven into the ground about the station.

Power is provided by a 4 K.W. special power line, shown in the illustration. Telephone is also provided, the number being Sunnyside 10183.

QST January, 1[9]20

The receiver consists of a Chicago Radio Laboratory, Paragon RA-9 short wave receiver, receiver and Amplifier, type AGN-2 audion control and two step amplifier. An Audiotron tube is used for detector. Western Electric VT-1's or Marconi VT's being used as amplifiers. With this receiver are used Baldwin Micadaptic headphones. Practically all the long distance amateur stations are heard with the phones on the table on average nights, many such as 9CS, 9ZR, 9AF, 9AA, 9EH, 9NT, 9BR, etc., being generally heard at distances up to 100 feet from the headphones. Six hundred meter stations are heard similarly. At present no set is provided for longer waves than 600 meters, but an undamped wave receiver is under construction.

The transmitter consists of a Marconi (United W.T.Co.) open core 1 K.W. transformer, having a secondary voltage of 20,000, with an oil immersed plate glass condenser, and a Chicago Radio Laboratory Hy-Rad rotary gap. The rotary gap is contained within a double walled padded box, just behind the marble panel, on which are mounted the radiation ammeter, power variation switch, power ammeter and main switch, the transformer being directly beneath the gap box. The oil condenser is immediately to the right of the switchboard, and consists of 1200 square inches of tinfoil separated by ¼ inch plate glass immersed in transformer oil. The oscillation transformer is made of 1" x ⅛" brass ribbon and is mounted as shown. The full condenser is used for the 425 meter wave, but only a part is used on 200 meters, the amount being such that only one turn of inductance is used in the primary on this wave.

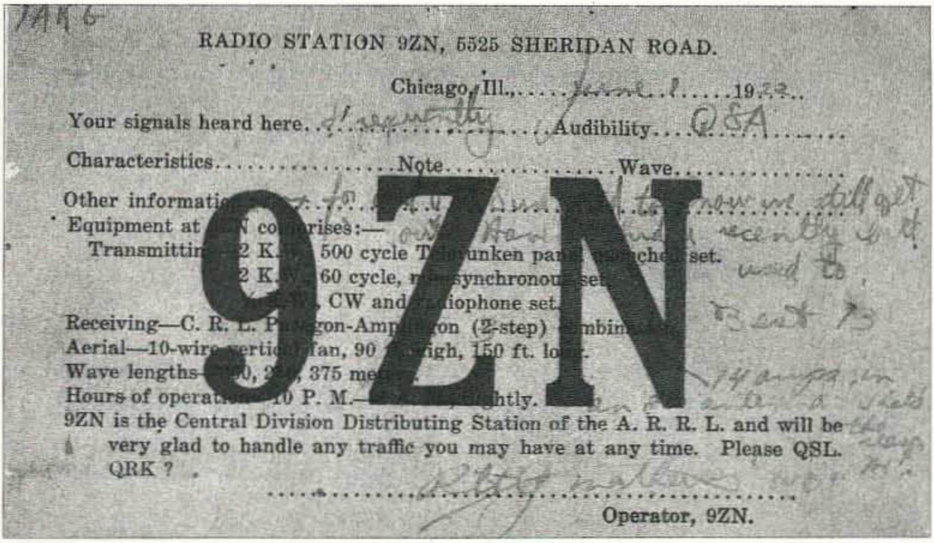
Because of the high fundamental wave length of the aerial (800 meters) all 200 meter transmission and reception are done through series condensers, the transmitting series condenser consisting of 175 square inches of tin foil separated by ¼" plate glass and immersed in oil. This condenser is located just above the loader, which is used for 425 and 600 meter waves.

The radiation on 200 meters is 8½ amperes, and on 425 meters is 9 amperes, the 425 being really better than would appear from a direct comparison of these readings, because of the elimination of the series condenser, and also because of the greater carrying ability of the wave.

The 200 meter wave is used primarily, with a shift to 425 to avoid interference or to work over greater than average distances. The answering wave of this station is invariably 200 meters, unless otherwise specified by the calling station.

(Concluded on page 58)

Photo E. *Radio 9ZN description from* QST.



RADIO STATION 9ZN, 5525 SHERIDAN ROAD.

Chicago, Ill.,............19....

Your signals heard here.......................Audibility...............

Characteristics...................Note..................Wave.................

Other informati...

Equipment at ... comprises:—

Transmitting ... 500 cycle Telefunken ... set.

... 60 cycle, ... synchronous set

... CW and radiophone set.

Receiving—C. R. L. ... Amplification (2-step) ...

Aerial—10-wire ... fan, 90 ... high, 150 ft. long.

Wave lengths ... 375 meters

Hours of operation ... P. M.— ... nightly.

9ZN is the Central Division Distributing Station of the A. R. R. L. and will be very glad to handle any traffic you may have at any time. Please QSL. QRK ?

Operator, 9ZN.

***Photo F.** 9ZN QSL card, June 1922.*

Watts available)! The overall sensitivity and selectivity of circuits was a hindrance. The CW signals were difficult to tune and hold. Wave shifting was usually noticeable. Regenerative receivers had shortcomings, especially since they were asked to be equally effective in bringing in CW, ICW, and the broad spark signals. Receivers lacked adequate control to meet requirements. Being regenerative, they radiated energy and caused considerable interference, especially in more congested areas.

For most signal reception, the oversized loose couplers in station equipment were still serving their major purpose. Domestic and foreign longwave stations were very much on the air with news broadcasts, weather reports, time signals, and general information. Many stations served as sources of code signals for practice — NAA, 2,500 meters; POZ, 12,000 meters; PL, 10,000 meters; and MUU, 14,000 meters, continued on the air for years.

So loose couplers were in constant use by amateurs until, with the introduction of the honeycomb-coil design, units that occupied far less space but had equivalent inductance gradually replaced them. Amateurs also began to convert to shorter and shorter wavelengths with the move to CW and the application of available transmitting tubes. Amateur station layouts began to take on new and revitalized appearances. Power supplies had to be designed and built to accommodate larger tubes for that new requirement of "juice" for the "bottles." In turn, many new receivers were being built using variometers and variocouplers.

As is the case each year, with the coming of fall and colder weather, radio conditions improved, static tapered off, and interest in DX and relay activities increased. So the ARRL Board of Directors decided that a determined effort should be made to span the Atlantic via amateur radio. There had been an earlier try, not organized, that had failed. Undaunted, plans were laid by the ARRL traffic department announcing that all radio amateurs should enter into a series of transmitter tests. Selections would be made to find the best and most far-reaching transmitters to qualify for the proposed undertaking. The following form appeared in *QST,* September 1921, page 12, directed to all hams:

"Traffic Manager, ARRL, 1045 Main Street, Hartford CT: Please enter my station as a transmitter in the Transatlantic Sending Tests, Dec. 8th to 17th. I will be ready to transmit in the preliminary tests on Nov. 7th to 12th, and if I fail to cover the specified distance in the preliminary tests, I shall relinquish my rights to transmit in the final tests. Name … Call … St … City … State … Power of transmitter … type (CW or spark) … greatest distance heard (give three records) …"

The stated goal was: "We want the Atlantic Ocean spanned on schedule by an amateur station, and we want definite proof that it has been done."

To be continued.