EARLY CHICAGO TELEVISION

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The following remarks describe my best recollection of my personal experiences with early television. Many of these experiences were in the Chicago area with mechanical television systems. Interest in the subject was revived this past summer with the death notice of Marcella Lally which appeared in the Chicago Tribune on Tuesday, July 17, 1984. Miss Lally was a regular television performer in Chicago in 1930 and 1931. The subject was discussed in some detail with Dr. Thomas W. Sills, who has conducted considerable research into early Chicago television.

The early experimental television activity in the Chicago area started in October 1925, four months after C. Francis Jenkins had demonstrated televised silhouettes in Washington,DC.

A nineteen year old boy, U.A. Sanabria, set up a laboratory in the Hearst Bldg. in down town Chicago. Financial support of the television experiments was by Wm. Randolph Hearst, personally. The time period is approximately the same as that ascribed to John L. Baird in England. In a forward to an album of Sanabria's songs he writes, "Stories about John Baird preceding either Jenkins or myself are incorrect as to date, for we have abundant proof to the contrary. Both Jenkins and myself developed television independently, and Television is truly an American invention, and do not let anyone ever tell you that Europeans ought to share in the credit."

I, Wm. N. Parker, had the good fortune to witness Sanabria's work in June of 1926. The television images were in silhouette and blurred, and it was barely possible to distinguish between the image of a person's hand with outstretched fingers and that of a wrench. A rotating drum with lenses was used as the scanner

I had just completed my sophomore year at the University of Illinois in Urbana, studying electrical engineering. I worked part time for the GM Scientific Co., a small enterprise run by two graduate students, A.J. McMaster and Lloyd P. Garner. The company supplied photo-electric cells and other devices to experimenters such as Sanabria and Dr. Lee DeForest. They suggested that I contact Sanabria for a summer job, since I lived in Chicago. I did not get the summer job. Sanabria wanted an expert in television amplifier design.

Also, during the year I had helped Dr. Jakob Kuntz with the testing measurement of a number of photo-electric cells he was making for researchers at other universities. At the 1926 Electrical Engineering Open House I demonstrated how an incandescent lamp could be controlled by the available room light -- quite a novel thing in those days. Dr. Kuntz arranged for the University glass blower to make me a special

cathode-ray tube to demonstrate a novel electron-beam modulation scheme.

The summer of 1927 I spent at the General Electric Co.(GE). in Schenectady, New York. My job included the testing and preparation of the published data for newly developed power vacuum tubes. An even more interesting part of my summer included my occasional visits to Dr.Alexanderson's laboratory where Ray D. Kell and others were experimenting with television. They demonstrated for the press a mechanical system using a disc having a spiral of 24 holes. A plate type neon lamp was behind the disc and the picture was about an inch square. The half-tones of faces were quite good. GE also had a short-wave transmitter which they sometimes used to broadcast television pictures.

My next contact with Chicago television came in the spring of 1928, when a quick trip was made to Sanabria's laboratory to borrow a pair of synchronous motors for use in the demonstration of television at the University of Illinois bi-annual Electrical Engineering Show. Under my direction, as EE Society President, students had worked during the year to build an amplifier and a pair of cardboard scanning discs mounted on a common shaft. The EE Department had ordered a pair of synchronous motors for our use. This would cause the scanning discs to rotate in step even when separated several feet apart. A day before the show was to open the motors had not arrived!

Sanabria had his motors built into his scanners with perforated leather belts to drive his scanning discs at 900 rpm. He told me to take the complete units for the duration of the show. I drove back to Urbana in the rain, arriving at our laboratory about daybreak, where the other students had been working all night. The television was ready when the show opened later that day!

The general public was extremely interested in the display and enjoyed watching their friends in the little receiver, as they posed before the flying-spot transmitting scanner. Typical "entertainment" consisted of winking each eye or using a handkerchief. When people were waiting in line by the hundreds, H. H. Slocum and I prepared and handed out a leaflet describing the operation of the equipment. It is quite possible that this was the first time that the general public had been able to witness a television demonstration. Most previous demonstrations were for the Press or VIPs.

A vital part of the television system was the bank of four large photo-electric cells which picked up the light reflected from the flying spot on the subject's face. These cells were made by Lloyd P. Garner at night when no one else was in the Physics Lab. A crucial step in the processing of the cells consisted of heating the "window" of the 22 liter glass flask while cooling the remainder of the evacuated flask with ice water! Adding to the danger was the fact that inside the flask was a handful of potassium metal--enough to

blow the side out of the building if exposed to the water! After the show some of the cells were sold to television experimenters who later used them in the Boston area.

In Chicago that summer (1928) Sanabria was working with radio station WCFL, experimentally sending his television signals out over the broadcast channel. He invited me to visit his operation located at the end of Navy Pier. The television images were quite good, having excellent half-tones and good definition.

During the summer of 1928 (after my graduation from the University of Illinois) I worked at Stewart Warner in Chicago. Dr. Rava encouraged me to construct a short-wave receiver and scanner which we used to receive television pictures broadcast by C. Francis Jenkins in Washington, DC. Although it was difficult to obtain synchronization we could recognize someone bouncing a ball and other silhouettes. Somewhat related work was with selenium photo-sensitive devices. Their response was much too sluggish for television work.

In the fall of 1928 at GE in Schenectady, Kell was experimenting with color television. He was trying to use the lenticular lenses developed by Kodak for color photography. I was at GE again, studying in their Advanced Course in Engineering. Extensive homework prevented me from spending much time with Kell.

It is interesting to note that both Kell and Garner had worked as students in Dr. Tycociner's laboratory in the EE Department at Illinois. Dr. Tycociner is the inventor of sound-on-film talking movies, and was a friend of Dr. Zworykin of electronic television fame.

In Chicago, Sanabria and Garner had teamed up with Clem F. Wade to form a new television laboratory to develop a television receiver to show stock market reports. When I came home to Chicago for the Christmas holidays they convinced me to join them in Louisville, where the new laboratory was to be located. I returned to GE, resigned, and arrived in Louisville in early January 1929. The laboratory was located in one of the U.S. Foil Co. buildings. U.S.Foil Co. made the aluminum foil wrappers for Eskimo Pies. Mr. Wade had started the Eskimo Pie Corporation, and U.S. Foil belonged to Reynolds Metals Co., owned by R. S. Reynolds, the financier.

Photo cells, special scanners, and other equipment was assembled and taken to New York for a demonstration for Mr. Reynolds. The demonstration was such a success that Western Union heard about the new way of broadcasting stock market reports and promptly put a stop to the development! They had some sort of franchise for their stock tickers. Plans were then made to move the laboratory to Chicago to broadcast television for educational and entertainment purposes.

I arrived in Chicago about the middle of May (1929) with

my first assignment that of modifying Crosley tuned radio frequency standard broadcast receivers (the metal box with three dials variety) for operation at 2100 kc. The UV 171 output tube passed sufficient current to operate a plate type neon lamp. Sanabria and some other engineers were already building the W9XAO television transmitter at 6312 Broadway where the WIBO studios were located.

Initially, a small television studio was built near the main WIBO studio on the second floor. A bank of photo-electric cells was mounted in the wall of the studio with a hole in the middle for entrance of the flying spot scanning beam. The light source was a Peerless reflector-arc lamp as used in movie houses. The scanning disc had 45 tiny holes arranged in three interlaced spirals, and was mounted directly on the shaft of a 900 rpm synchronous motor so as to scan at the rate of 15 frames per second. A projection lens in front of the disc magnified the approximately 1" square field at the disc to one about 2 ft.square at the location of the performer in the studio. Lenses of different focal lengths could be used to produce scanned fields up to 10 ft. square. As the flying spot moved rapidly across the performer, light was reflected back to the bank of photo cells. The photo cells converted the fluctuating light into corresponding electrical signals which had to be greatly amplified to be useful. An impressive part of the installation was a row of automobile storage batteries connected across the dc supply for the arc lamp to smooth out fluctuations in the light source.

The transmitter consisted of a pair of UV-204 250 watt vacuum tubes as oscillators, which were isolated from electrical ground. The transmitter was located on the third (top) floor, where it could feed the antenna, located on the roof of the building. An unusual modulation scheme was used, known as "series modulation". The modulator was located on the floor below, next to the television scanner, photo-cell bank, and multi-stage vacuum tube amplifier. The modulator (final stage of the picture amplifier) consisted of several UV-204 tubes connected in parallel. Their cathodes were at ground potential and their anodes were connected to the cathode of the oscillator tubes. A motor-generator supplied the necessary 2000 v dc.

Experimental television broadcasts from this small studio were mostly head-and-shoulder shots. One early performer was a young man singer playing a ukelele. Some of the programs used the audio channel of WIBO. Several movie stars also posed, including Don Ameche. The number of television receivers was very limited at this time (early summer 1929).

By this time we were operating as Western Television Corp. with Clem F. Wade as President and Martin J. Wade Jr. as Secretary. (I still have several thousand dollars worth of the stock, issued to me in lieu of salary.)

One of the early jobs was finding a supplier of 900 rpm synchronous motors at a price low enough to use in home

receivers. Samples were received from GE, Holtzer Cabot, and Emerson. The best price was around $11.00 from GE per motor, in lots of several thousand, which meant a projected price for the complete receiver of $250.00. Manufacturing of the receivers was started by the Hedman Mfg. Co. in Chicago.

In the fall of 1929 the television equipment was moved to the main WIBO studio for more regular broadcasting. Larger scanning fields were also tried, such as for a boxing match. In one case a golf lesson showed the entire person, including his golf club! More receivers were out in the field, mostly at stores. One of the early television receivers was installed in the home of H.S. Hayes, U.S. supervisor of radio, Chicago. I remember visiting his second floor apartment along the shore of Lake Michigan during a storm. The waves would sometimes splash onto the windows!

My assignment in the fall of 1929 was to design and build the television equipment for use at W9XAP, the companion station for the Chicago Daily News station WMAQ. Multiple "cameras" were to be used to facilitate the instantaneous scene changes required for smooth programming. Two flying-spot scanners were provided, each with a turret of four projection lenses and a steerable surface-reflecting mirror to properly position the scanned field. The low scanner was used for persons (such as an announcer) seated at a desk right behind a conventional bank of photo-cells built into the wall. The other scanner projected its scanning beam at eye height into the studio and was more suitable for long shots. The light sources for the scanners were 30v 30amp incandescent lamps as used for smaller movie theaters.

The light pickup for the long-shots was by means of two large photo-cells suspended from ceiling tracks on either side of the studio. Each photo-cell had its separate pre-amplifier and cable to the main-amplifier rack located adjacent to the scanners.

The main-amplifier boosted the picture signal amplitude so that it could be sent over a special low-capacitance cable to the W9XAP transmitter over a hundred feet away. A viewing monitor mounted in the rack permitted convenient checking of the pictures. Switching between pickups made use of relays, pushbuttons, and signal lamps. The switching system was designed to be compatible with the elaborate arrangement in the main control room used to control the aural WMAQ programs. This allowed very flexible sound and sight programming. A special feature in the switching system automatically blanked out the picture briefly during lens turret operation.

The special television studio was located on the 25th floor of the Chicago Daily News Building, 400 West Madison Street, just west of the river. This was one floor above the main studios and control room. When the television equipment had been installed and checked out, it was learned that the W9XAP transmitter was barely started! It was to have been constructed by WMAQ operators and engineers. My next

assignment was to work with them full time to expedite completion. Walter Lindsay, their Chief Engineer was most helpful.

The transmitter was designed like a commercial broadcast transmitter with a temperature controlled quartz crystal to maintain the exact 2150 kc carrier frequency. Several buffer stages amplified the carrier so as to drive a 1 kw water-cooled output vacuum tube. A similar water-cooled tube was used as the modulator in a series modulation scheme similar to that at W9XAO. A large storage battery on an insulated platform was used to heat the filament of the rf output tube, since the ac power in the building was sufficient only for running clocks and small devices. The 4000 v dc supply consisted of two double-commutator generators connected in series and mounted on either side of a large dc motor. The antenna was strung between the two flag poles on the roof of the building, just above the transmitter room.

During the final tune-up it was observed that modulation was very shallow, making the televised signal ineffective. Technical data and curves were measured, since none had been available. Calculations then showed the water-cooled tube to be ill suited to be used as a modulator. The transmitter was then modified along more conventional lines, with modulation taking place at a lower level rf stage and the two water-cooled tubes operating together as the final power-amplifier. Excellent modulation depth was now possible with a resultant powerful signal from W9XAP.

The "grand opening" of television station W9XAP took place in the evening of August 27, 1930. A number of receivers had been distributed to homes and stores in the Chicago area. Sears Roebuck had advertised extensively and crowds had assembled to see and hear. Bill Hay was the announcer and several other WMAQ artists performed. The signal was strong and the program good, but ghost images were terrific and results disappointing. Apparently, the nice crystal-steady signal from W9XAP made the ghost images distinct and objectionable, whereas the self-excited oscillator of W9XAO seemed to make them less distinct and quite tolerable.

Usually the television pictures received from W9XAP were very clear and free from ghosts. The opening night had a peculiar set of ionized layers located 50 to 100 miles above the surface of the earth, which reflected the television signal back to the earth delayed in time. A test after the program on opening night utilized a single tiny black spot on a white background. Observations of the received picture showed a dozen or more additional spots fading in and out. The location of the spots in the picture field enabled the calculation of the propagation path lengths. The occasional poor performance in this manner helped in the later abandonment of this frequency band in favor of the VHF and UHF frequency bands currently used for television broadcasting.

The signals from both W9XAO and W9XAP were received at distances up to 400 or so miles throughout the midwest. On one occasion I attempted to demonstrate a television receiver at a dinner meeting of radio engineers at the University of Iowa in Iowa City. They had been interested in television for some time but did not as yet have an operating system. After dinner the set was turned on (with hopeful expectations). The signal from W9XAP was nice and strong and a clear picture of Irene Wicker making dolls and other articles from paper could be seen. Many of the programs were "sight-only" since most of the WMAQ programs were not yet designed for television. One interesting "sight-only" program broadcast during the evening of November 4, 1930, consisted of election returns. The returns were posted on the back wall of the studio at W9XAP and the long-shot scanner used.

Television programs from WIBO-W9XAO during the Spring of 1930 were regular enough so that they were listed in the daily papers. For example, the Chicago Daily News for May 7, 1930 not only lists the programs but shows a big two column photo of Marcella Lally performing before the photo-cell bank at WIBO-W9XAO. Miss Lally might well be the first regular live television performer to be seen and heard simultaneously. She also sang regularly at WMAQ-W9XAP in the Fall of 1930, as indicated in the November 6, 1930 issue of the Chicago Daily News.

An even more demanding test of the programming flexibility occurred on the evening of January 7, 1931, when the play "The Maker of Dreams" was broadcast from W9XAP and WMAQ. The cast included Irene Wicker, Douglas Hope, and Vinton Hayworth. This may well have been the first simultaneous sight and sound broadcast of a complete dramatization. A number of interesting program experiments were tried under the guidance of Judith Waller, the WMAQ Program Director. The whole television activity was enthusiastically supported by Wm. S. Hedges, the Station Manager. In addition, demonstrations were put on for special groups.

The transmission of fingerprints for Police Commissioner John H. Alcock was considered quite a success. On another occasion several hundred school principals were assembled to see and hear how television worked and could be used as a powerful educational tool. I had to give the talk! Actually, I was assigned to spend most of my time at W9XAP after it was in operation. Many famous people visited the facilities, including Dr. Lee DeForest.

A third scanner was added to transmit ticker-tape stock quotations over W9XAP. The tape was obtained from a broker's office in the building and was at least 15 minutes old. Several silent programs consisted of cartoons drawn on the tape which was then slowly pulled past the scanner.

The educational aspect of television was further emphasized in a talk before a group of broadcast executives

at Ohio State University in the Spring of 1931. Mr Clem F. Wade had been scheduled to deliver the talk but the day before the conference he called me in to say he had an "earache" and that I was to take the train to Columbus that night and give the talk in his place. He had no talk to read nor any notes! After a sleepless night on the train I made some notes while waiting for Miss Waller to finish her breakfast so I could ride with her to the meeting. The talk was taken down in shorthand and published in the 1931 edition of "Education On The Air", by Ohio State University.

At the Western Television laboratory a search was on for a cheaper synchronous motor. Furthermore, the motor should be able to drive a scanning disc with lenses in place of the tiny holes. The search was prompted by a remark by a West coast banker after witnessing a television demonstration. He said,"Your picture has definite entertainment value, but,--the receiver has to be able to be sold for $50.00"! We had been proud of the GE synchronous motor, but the price was obviously much too high. One low-cost synchronous motor investigated was used to operate Tinker Toy models. It had very little power and could drive only a small, light weight disc. Another synchronous motor was made by the Barber Coleman Co., at Rockford, Ill. The parts for this motor could be purchased for less than $1.00 and it was quite powerful. However, the synchronous speed of this motor was 2400 rpm--an unusual speed for a two-pole motor operating on 60 cycles. Also, this motor would not operate a disc having appreciable inertia.

The solution turned out to be a pair of gears to reduce the speed to the necessary 900 rpm, combined with a slip-clutch arrangement to permit the motor to attain its full speed before the high-inertia lens disc could get up to speed. The slip-clutch included a helical spring to isolate the motor from the high-inertia disc. The spring connected two conical sleeves so as to allow slippage only in the rotational direction which tended to unwind the spring. A small friction disc prevented undesirable torsional oscillations in the spring-disc system and allowed the picture to smoothly pull into synchronism.

The scanning disc used with the new motor was aluminum and about 8" in diameter. Forty five lenses about a cm in diameter and having a focal-length of 1" were arranged in three interlaced spirals. It was important that the optical centers of the lenses be accurately located radially to provide a uniform scanning field without dark lines (or overlapped lines either). Careful hand sorting enabled the use of relatively inexpensive commercially produced lenses. They were made by the Simpson Instrument and Lens Co. of Chicago. The lenses were seated in counterbored holes in the disc and (carefully) staked-in using a drill press. The counterbored holes were accurately located using a precision-made jig made on a Swiss boring mill. The cones and other parts were made on a small bench lathe (owned personally by Garner). Analysis of time and material costs indicated that the $50.00 target could indeed be met.

The new scanner was used in two new models of Western Television receivers: a table model, and a tall floor version called the "Empire State" model. In both models the picture was viewed on a translucent screen and so could be seen by a number of viewers at once, as compared with the "peep-hole" pictures of previous television sets. The lenses projected the light from a special "crater" lamp developed by Garner. The tiny but intense light source produced a fairly bright picture on the screen, which was several inches square. The radio receivers used in these sets were made by the Echophone Radio Mfg. Co. in Waukegan, Ill. A couple of hundred of the new sets were made and distributed. In February 1932 Garner and I delivered a dozen table models to First National Television, a trade school in Kansas City run by Jerry Taylor. The school operated television station W9x? using Western Television scanners. The transmitter was located in the tower of the Power and Light building.

The brightness of the projected picture may be appreciated by the fact that life-sized images of faces were successfully shown (on larger screens) to audiences of several hundred people seated in an auditorium! Altho the pictures were hardly "brilliant" they were recognizable. In one case, television was being demonstrated before a distinguished gathering of engineers at their annual meeting held at the Edgewater Beach Hotel in Chicago. I was the guest speaker and the show went well in spite of some last minute problems at the WIBO-W9XAO studios. On another occasion, nearly a thousand people in the auditorium of a Milwaukee library saw a direct-wire demonstration.

I had an interesting experience with one of the new receivers on New Year's Eve of 1931. I had been working hard on the new scanner and took a set home to show to the family. I tuned in a beautiful picture except that the synchronization was poor. The picture would sway slightly side to side,--just the problem I had been working on. Thinking the picture was from W9XAP in Chicago, I was disappointed and turned off the set. I later learned that W9XAP was not on the air that night and that I was getting Kansas City instead! The scanner was working fine but the different power systems were not locked in perfect synchronism. I was already aware of the power network synchronism problem, having written an article, "The Synchronization of Power Networks is Necessary for Television", which appeared in the October 1930 issue of Radio Industries, published in Chicago.

In the spring of 1932 I helped install Western Television equipment at the State University of Iowa where the Electrical Engineering Dept., under the direction of Prof. E. B. Kurtz, operated television station W9XK. The aural portion of many of the programs was transmitted over WSUI, operated by Carl Mentzer for the University. The emphasis was on educational programs, and regular schedules were maintained until 1939,--long after most mechanical television stations had ceased operation. Prof. Kurtz discusses the W9XK

operation in considerable detail in his book,"Pioneering in Educational Television", published in 1959 by the Ford Foundation. The television equipment used at W9XK is now at the Smithsonian Institution in Washington, DC.

Experimental television transmissions were also carried on over a long period by the Milwaukee Journal, which operates broadcast station WTMJ. As early as 1930 they operated W9XD in the VHF band. I remember helping take a field-strength survey for the original transmitter, located in a garage. The measured field-strength was greatly increased by cutting in half the length of the vertical antenna used! The original antenna was a full wavelength long, so that radiation from one half nearly canceled that from the other as measured in the horizontal plane. The transmitter was later moved to the top of the Hotel Schrader, where I spent some time installing Western Television scanners and helping tune the transmitter. This pioneering work was under the direction of Dan Gelerup, Ch. Engineer of station WTMJ. Mechanical television was continued until April 1938, when the Milwaukee Journal started to use electronic television.

Western Television equipment was also sold to CKAC in Toronto, Canada and a number of other stations. One set of equipment was shipped to Mexico City in late Spring of 1933, but, for some reason, was never paid for! This helped Western Television cease operations. Sales of corporate stock was also difficult. Also, WIBO was forced to stop broadcasting in May 1933 and the new owners of WMAQ-W9XAP, NBC, stopped broadcasting mechanical television in favor of electronic television March 31, 1933.

Western Television Research Corp. was then formed with L.P. Garner as President, Armando Conto Treas., and W.N. Parker as Sec. Tools and some of the equipment were moved from the 6312 Broadway location to space in an industrial building on the near North side of Chicago. The building was shared with United Transformer Co. and several others. One interesting project undertaken there was a display for the 1933-1934 Chicago Worlds Fair. Television scanning was demonstrated by having the scanner slowly start and then gradually come up to speed. The moving spot would thus turn into a field of bright lines due to the persistance of vision of the human eye. I also spent a couple of weeks demonstrating television in schools and department stores with a group from the Milwaukee School of Engineering. They presented shows in various High Schools in Wisconsin and Northern Illinois each year. The shows included up to 100 experiments to demonstrate electrical phenomena for popular audiences. One specular experiment produced an artificial lightning discharge several feet in length!

Two other television exhibits at the 1933-1934 Fair were a large-screen demonstration by Sanabria and Mel Hayes (I think), and a "picture-phone" by some other group. With the Fair under way both the Contos and the Parkers took off for Europe for three months, --and thus ended my "career" with

mechanical television in Chicago!

In early February 1934 I was asked to come to Laredo, Texas to tune up the big 65,000 watt broadcast station, XENT. The transmitter and studios were located in Mexico about 10 miles from the border. A huge Diesel engine-generator supplied the electrical power. Carl Mentzer of WSUI had built the transmitter and had recommended me for the job. Mentzer had to return to Iowa before the transmitter installation was completed. A young Mexican engineer, Nestor Cuesta, was the licensed operator. It seems that he had been selected to set up and operate the television equipment we had sent down the previous Spring, but was never given the "go-ahead"!

XENT went off the air temporarily in the summer of 1934 and I accepted a position with Philco in Philadelphia to work on electronic television development. I was responsible for rebuilding the W3XE transmitter and early experimental television receivers. Much important pioneering work was done at Philco.

Technical "firsts" at Philco include the first transmission of 441 line television, first single-sideband operation, and the use of a novel television modulation method (my first patent, U.S. 2,259,658). In addition to regular studio programs and drama, remote pickups were made of football games, wrestling shows, the Ice Follies, and ice hockey. A special 300 mhz relay transmitter was used as well as video cable. All of the equipment was made at Philco, including the Iconoscopes, picture tubes, and the phosphors for them. Notable remote pickups included the Philadelphia Mummer's Parade, and the 1940 Republican National Convention. I resigned as manager in the Fall of 1941 to work for the U.S. Government, expediting the production of electronics equipment for the war effort.

Sanabria and Garner built a television system using a screen 10 or 12 feet square and demonstrated it at large department stores across the country. The work was supported by a subsidiary of the Chicago Bridge and Iron Co. Garner later joined me at Philco for a while before going with RCA to develop high-power high-frequency vacuum tubes, working for Dr. Zworykin. Another associate at Western Television, R.E. Waggener, later joined me at Philco. Sanabria operated a television school in Chicago and manufactured radar cathode-ray tubes during the war, using the name American Television, Inc. He also provided a private laboratory for the use of Dr. Lee DeForest. I joined Garner at RCA, Lancaster, Pa. in February, 1943, in the development of Super-power vacuum tubes. I retired from RCA in 1972. Kell was transferred from GE to RCA and was active at the Princeton Laboratories in the development of color television.

During the summer of 1984 an effort was made to determine the status of the old W9XAP studios and the whereabouts of the equipment. Phone calls to the Chief

Engineers of the various Chicago stations indicated that no trace seemed to exist any more in Chicago. The studios had been used for a time by several groups however. A phone call to Marie Sanabria indicated that she is well. She seemed to enjoy hearing from me and to discuss the "long ago". It could well be that Garner and I are the only persons left from the early Chicago television days.