He's the man behind one of the most respected names in audio—Electro-Voice—and one of the most respected names in amateur radio—Ten-Tec. Al Kahn, K4FW, recently talked with CQ's N4XX.

A CQ Exclusive Interview with:

Albert Kahn, K4FW

BY DR. THEODORE J. (TED) COHEN,* N4XX

While born in LaSalle, Illinois, on July 9, 1906, Albert (Al) Kahn spent his youth in South Bend, Indiana. His father manufactured shirts. Al never attended college, noting that his sister, who graduated from the University of Chicago at the age of 19 and went on to a great career in journalism, got all the brains!

After bouncing around in a few jobs, Al started a radio service company and became deeply involved with sound equipment. It wasn't long thereafter that he began building microphones for public-address use. This led to the creation of Electro-Voice, which rapidly became a major supplier to the public-address, television, and moving-picture industries. When Al left Electro-Voice in 1969, following its merger with Gulton Industries, the company was the leading producer of quality microphones and speakers in the United States.

Not one to sit still for too long, Al soon formed Ten-Tec with Jack Burchfield, K4JU. Today, Al and his wife Anne live in what once was their summer lake cottage in Cassopolis, Michigan, where he signs K4FW/8. Al is a member of the ARRL, QCWA, OOTC, and FOC. It is with great pleasure, then, that we now present an exclusive CQ interview with Mr. Albert Kahn, K4FW. —W2VU

CQ: Al, what triggered your interest in ham radio?

Kahn: My first exposure to ham radio was at the age of 13, when our Boy Scout troop acquired an E.I. Company "Wireless Set." When we took the set out of the box and set it up, it failed to work. I convinced the scoutmaster to let me take it home, where it took about an hour to fix it. Once I got it running, I heard NAA *(an early U.S. Navy station.—ed.)* and was hooked. Less than two years later, when I was 15, I received my first license from the Department of Commerce; my callsign was 9BBI. Fortunately, I found four other friends in high school who were as excited about communications as I was, so as you can imagine that we had a blast.

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CQ: What did your first station look like?

Kahn: Well, as you know, there was only one amateur radio band in those days—200 meters. This is roughly at the top of today's AM broadcast band. The five of us bought Ford spark coils and had daily QSOs across town using crystal sets for receivers. Later, in 1922, I acquired a half-kilowatt rotary gap transmitter. Soon thereafter, I built a Hartley oscillator using a UV202 tube. The CW era had arrived! With 400 volts on the plate, I was able to get about 10 watts input, with an antenna current of 1.3 amps. The entire rig was built on a real breadboard. No fancy metalwork in those days!

CQ: If I remember correctly, that first station was in South Bend, Indiana. You made a contact in 1923 that in many ways changed your life forever. Tell us about it.

Kahn: It was just after midnight on November 17, 1923, when I worked Bob Baird, U8CWR—now W9NN—who at that time was in Dayton, Ohio. Bob was born about the same time I was, so here you had two teenagers staying up later than their parents liked, to play with their radios! *(Some things never change.—ed.)* Bob was running a UX210 oscillator with 1000 volts on the plate and 100 watts input. He accomplished this by using an advanced synchronous rectifier. The result was that he delivered 3 amps to the antenna, making copy on my end easy, to say the least. We went on to become lifelong friends, and even celebrated the anniversary of our first QSO by meeting on 40 meter CW on November 17, 2000.

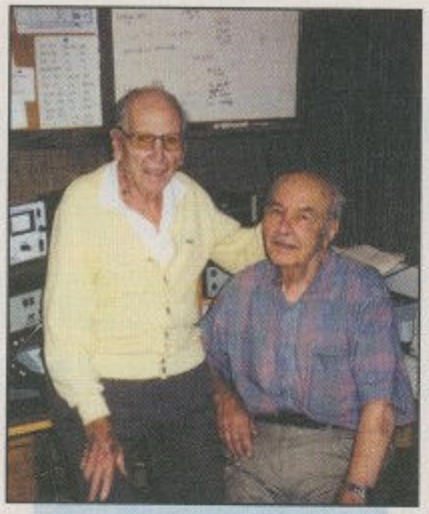
Albert Kahn, K4FW.

CQ: So it's fair to say that your early interest in amateur radio led to a rewarding career in communications-electronics?

Kahn: Without a doubt! Radio was *the* technology of the 1920s, sort of like computers and the internet are today. The radio industry—manufacturing and broadcasting alike—was growing by leaps and bounds, and many of us got caught up in the excitement. We wanted nothing more than to work and play with electronics, which, not so surprisingly, led many hams to seek careers in this industry.

CQ: How did you come to start Electro-Voice?

Kahn: I bounced around a bit in my early 20s, not really knowing what I wanted to do. Finally, I started a little radio service company and soon specialized in sound equipment. In those



An October 1998 photo of Bob Baird, W9NN (left), and Al, K4FW, at Al's station in Cassopolis, Michigan.

Jack Burchfield, K4JU (left), and Al Kahn, K4FW, co-founders of Ten-Tec.

days, good microphones for public-address systems simply were not available. I thought I could build better mics than those on the market and started to experiment on my own. Soon there was more demand for my microphones than for my service, so I formed Electro-Voice for the purpose of manufacturing quality microphones. It didn't take long before we were the major supplier to the public-address, television, and moving-picture industries.

CQ: How did you happen to seize upon Electro-Voice as the name for your company?

Kahn: Now that's an interesting story. I think it was back in 1929, or so . . . we had built a sound system for Knute Rockne, then coach of Notre Dame. Rockne was in poor health, and he asked us to build the system that had speakers pointing in four directions. That way he could sit on the platform and coach four squads by switching among the various speakers. Mr. Rockne was extremely happy with our system and referred to it as "my electric voice." From there it just seemed natural to name the company Electro-Voice.

CQ: I understand that you are the co-inventor of the "Differential Noise Canceling Microphone," which was widely used during WW II by the U.S. Army and Marines. Who worked with you on this and how did you come to invent this important piece of wartime communications equipment?

Kahn: In 1941, I was in New York City having lunch with Cheney Beekley, then advertising manager of *QST*. "Beek" had some vague ideas about a microphone that would cancel background noise, but he had no idea how to build such an item. He had talked to others about his ideas, but was discouraged by their lack of interest. I thought it could be done. The fact that war was looming on the horizon, with its need for better communications equipment, also stimulated my thinking. Anyway, when I returned home, I began experimenting with the phase relationships between sounds from close and distant sources. It didn't take long for the light to dawn, and I soon had a working prototype of what was to become the Army's T-45 Lip microphone.

CQ: I'll bet that inventing the microphone was easier than selling it to the military?!

Kahn: *(laughing)* You're right. Inventing the microphone was the easy part; getting it accepted by the military was unbelievably difficult. I first approached the people at Fort Monmouth and Wright Field. Both rejected my invention. Then I called an old friend, Col. Web Soules, who was stationed at Fort Knox. Web and who was also W9DCM. He and I kept a ham traffic schedule, and we got to know each other pretty well. He asked me to bring down one of my noise-canceling microphones for testing. I did, and we found that it worked beautifully inside an M2 tank. In the meantime, I worked for Leo Beranek and S.S. Stevens at the Cruft Labs of Harvard University, running exhaustive tests on the microphone. We spent weeks making articulation tests under a wide variety of conditions. When they published and circulated their findings, which gave top ratings to my noise-canceling microphone, the barriers fell by the wayside. It wasn't long before I received an order for 100,000 microphones, now called the T-45, from the Marine Corps. Within a month or two we were producing 2000 microphones a day using three shifts.

CQ: What was the principle behind the T-45 mic?

Kahn: The design was simple. It was worn on the upper lip. Sound coming from the rear was reversed in phase and mixed with sound from the front. The result was noise was cancelled before it could degrade the operator's voice signal. In all, we found that the microphone extended the communications range of the tank by 40%. I shared the patent with "Beek." The Signal Corp thought enough of the invention to place a secrecy order on the patent. After the war, the FAA required all commercial aircraft pilots to use Electro-Voice Differential microphones. As you can imagine, with the microphone such a hot seller, a lot of people tried to break our patent, but none succeeded.

CQ: You, of course, were the president of Electro-Voice. In growing the company, you apparently preferred to hire hams for key positions. Why was this?

Kahn: You're right! In those days, people who held ham tickets had a good understanding not only of the technology, but also of the electronics industry. Almost all of my staff were hams, including W9IOP, who was our vice president of marketing; W8UPN, our purchasing agent; W4OSU, who managed our Sevierville, Tennessee plant; and W9BHI, who was responsible for accounts payable. In spite of the pressures at work in the postwar years, all were active on the bands using both CW and phone.

CQ: All indications are that you grew Electro-Voice's line of microphones and speakers into a premier line of products.

Kahn: Yes, the team was very successful. In the last year that I was pres-

Ten-Tec's manufacturing facilities in Sevierville, Tennessee.

Since its founding in 1969, Ten-Tec has always enjoyed a reputation for high quality in the amateur radio equipment it manufactures.

ident sales reached $20 million *(in 1969 dollars! —ed.)*. We had 1000 employees, three plants in the U.S., and one plant in England. Our stock was on the American Stock Exchange.

CQ: You and Electro-Voice also were involved with the old Radio Manufacturing Engineers, or RME, company, weren't you?

Kahn: Oh, yes! At the end of World War II, RME had fallen on hard times. I was a very good friend of the president, Eric "Shaw" Shalkhauser, W9CSZ, and so I bought the company. Russ Planck, W9RGH, stayed on as manager. It was my intention to continue and expand the RME line of receivers, and indeed, we did produce several new models. *(For more information on RME, refer to Joe Veras, N4QB's "Radio Classics" column in the August 2001 issue of* CQ.*—ed.)* Whatever we did, it just didn't seem to be enough, and the RME division continued to lose money.

By now, Electro-Voice was a public company on the American Stock Exchange, and we couldn't continue to operate at a loss for our own pleasure at the expense of our 2000 shareholders. At about the same time, we developed and patented a torque-drive phono pick-up cartridge, which was the first cartridge to reproduce stereo signals. Orders were pouring in from almost every phonograph manufacturer in the States, and our Buchanan plant reached full capacity, so we converted the RME plant to the production of these cartridges. While this was happening, I received a call from GC Electronics, offering to buy the name and assets of RME. It wasn't long before we traded RME for their American Microphone division, and that pretty much spelled the end of RME. The last receiver we produced was the RME 6900.

CQ: Electro-Voice was merged into Gulton Industries in 1969, and you left about six months later. Did you plan to retire at that time? After all, you were 63, and no one could blame you if you wanted to turn down the flame a bit, so to speak.

Kahn: Well, truth be told, I just didn't get along with the rest of Gulton's management. But retire? Hell, no; I was just getting started. Jack Burchfield, K4JU, and I decided to start Ten-Tec in Sevierville. Jack, who at that time was W8CRD, was an engineer in the Electro-Voice engineering department. He had a Masters degree in engineering from the University of Michigan, and it didn't take him long after joining Electro-Voice to become our Chief Engineer for Consumer Products. Jack was a great CW operator, and like me, he loved contests. We frequently spent the evening before a contest plotting optimum propagation paths. Needless to say, we became very close friends.

CQ: When you left Electro-Voice and formed Ten-Tec, it seemed logical that Jack should join you.

Kahn: Of course! The Ten-Tec plant was completed in the summer of 1969, and in September of that year Jack joined me to launch our new line of amateur products. Our first product, the Power Mite PM-1 transceiver, was aimed at the QRP crowd. This little CW transceiver ran 2 watts output on 80 and 40 meters and sold for $49.95. We even sold the basic PM-1 circuit modules, tuning dial, etc., separately; completely wired, it sold for $29.95. Both the modules and the transceiver were big sellers.

CQ: How did Ten-Tec's product line evolve from there, and to what do you attribute your success?

Kahn: We produced some great equipment over the years, including the TX-100, RX-10, Argonaut, Century, Corsair, and others. Did you know that Ten-Tec had a number of significant "firsts" in the industry? We had the first all-solid-state transceiver, the first solid-state linear amplifier, and the first multiband QRP transceiver, the Argonaut. Today, the OMNI VI Plus, Jupiter, Scout, and Pegasus carry on the company's great tradition. The Japanese are serious competitors of ours, of course, but I think the reason we have been so successful is that we build the kind of gear that we ourselves would like to use, and we build this gear to the highest standards found in our industry today. I think, too, that hams like our direct sales policy. Not only does it provide them with cost savings, it also forges a closer connection with the factory.

CQ: Ten-Tec's products always have garnered the highest approval ratings among amateur, commercial, and military users. To what do you attribute this?

Kahn: There are several reasons. First, I learned early in my career that

equipment should be designed to require a minimum of service. Second, if service is needed, it should be accomplished quickly and at the lowest possible cost. To my mind, superior service is the key to satisfied customers. Finally, we always felt that if a customer had faith enough to buy our products, we should not, under any circumstances, take advantage of him or her.

CQ: There's no question, Al, that Ten-Tec's generous service policies have endeared the company to generations of amateurs! But let's change the subject a bit. We understand that you are quite an avid contester.

Kahn: Oh my, yes! I have participated in most of the major contests held over the years, many times from an offshore location. Some of your readers probably worked me during various contests when I was signing calls such as HV1CN, J37M, G5BBF, GW5BBF, K4FW/KL7, K4FW/V4, W8DUS, and XEØDUS. By the way, W9IOP and I activated the Vatican station, HV1CN, for the first time in the CQ WW contest, and a second time, two years later. Everything since then has been anticlimactic.

CQ: Speaking of the CQ World-Wide DX Contest, you played a pivotal role in keeping that event alive in the early 1950s. Could you tell us about that?

Kahn: Well, it was really a group effort by four of us. After Larry LeKashman left *CQ* in 1949, the new editor *(Perry Ferrell—ed.)* didn't have much interest in contesting and kind of let the CQ WW slide. At about the same time, Larry resigned a rather high-level job with RCA and joined me as sales vice president and a member of the board of Electro-Voice. However, he never lost his high regard for *CQ* and his friends there, and he often visited with them. When it became obvious that *CQ* wasn't interested in the contest anymore, Larry contacted Vic Clark, W2KFC *(later W4KFC—ed.)*, Hal Brooks, W9VW, and me. My call at the time was W8DUS. Together we made up the "International DX Club," and took on the task of running the World-Wide DX Contest.

During those years, Electro-Voice was growing fast and had not yet gone public, so financing the contest was no problem. Fortunately, we had an office staff to handle details. Larry tore into the contest effort as if we were introducing a new product. He sent rules to every QSL Manager and to all U.S. and foreign clubs. Total saturation! It worked. Logs arrived at Box 73, Buchanan, Michigan and were sent on to the Potomac Valley DX Club, as arranged by Vic Clark. The effort was a success, and it was fun, but all of the credit should go to Larry LeKashman for arranging and implementing the contest. All I did was supply the funds and clerical help.

We ran the contest for two years, after which time *CQ* got a new editor who understood the value of contests. He called me up one day and asked, "Could we have our contest back?" The rest is history.

CQ: We know that you still are active on the air today. What equipment do you use and what modes and bands do your favor?

Kahn: Oh, yes, I'm still active! I have an OMNI VI Plus, a Hercules, and a 6N2. You'll find me on all of the HF bands plus 6 and 2 meters. I prefer CW, but I do keep a few skeds on SSB.

CQ: As we draw this interview to a close, what are the kinds of things for which you want to be remembered by generations to come?

Kahn: That's a tough one, Ted. It would be enough to be remembered for bringing some measure of enjoyment to the thousands of amateurs worldwide who used, and are using, Electro-Voice and Ten-Tec products.

CQ: Al, you've had a remarkable life. Thanks for sharing it with us.

Kahn: Thank *you*.

Al Kahn, K4FW, in his shack in Cassopolis, Michigan. He remains an avid contester to this day.

Acknowledgement

The author thanks Mr. Jack Burchfield, K4JU, for his assistance in gathering material for this interview.