Episode 500 Hiroki Kato AH6CY

Transcription Sponsored by Matthew Kaufman N3AR

Eric 4Z1UG
00:00
QSO Today episode 500 Hiroki Kato AH6CY

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Welcome to the QSO Today podcast. I'm Eric Guth, amateur call sign 4Z1UG, where I demonstrate the diversity and relevance of the amateur radio hobby and its impact on society by interviewing ham radio operators, many of whom played vital roles in shaping our technology through the amateur radio hobby. And while many people might say ham radio, do people still do that? This podcast demonstrates through in depth interviews just how amazing, diverse, and dynamic the amateur radio hobby continues to be.

This is a bittersweet moment for me. As with this episode of QSO Today, I have reached 500 episodes published of this oral history of ham radio. The sweet thing is that along the way, I have met the most interesting amateurs, heard their stories, helped them to tell them here on the podcast. I have made lots of new friends and have learned so much more about the hobby than I thought I ever would. The bitter truth, at least for today, is that my father, George Guth, passed away this morning at the age of 94 years. Today is May 3, 2024. I remember him with a blog post link in the show notes. So here we are, it's episode 500. No party or panel discussion, just another great interview. Here we go into the future.

Hiroki Kato. AH6CY was born and raised in Hiroshima, Japan, 20 miles from the epicenter of the atomic bomb blast in August 1945 that killed approximately 100,000 Japanese. Hiroki was fascinated with radio as a youngster and was first licensed in Japan. After moving to the USA, Hiroki continued to pursue amateur radio and began to research and collect military radios that both the Japanese used to bomb her Pearl Harbor and the radios that were on the Enola gay, the US bomber that dropped the Hiroshima bomb. AH6CY tells his ham radio story and about these radio restorations in this QSO today. AH6CY, this is Eric 4Z1UG, are you there? Hiroki?

Hiroki AH6CY
02:56
Hello, Eric, this is AH6CY.

Eric 4Z1UG
02:59
Nice to see you, Hiroki, thank you for joining me on the QSO Today podcast. Can we start at the beginning of your ham radio story. When and how did it start for you?

Hiroki AH6CY
03:11
I was born in Hiroshima, Japan, about 20 miles outside of the city of Hiroshima. It was a kind of small village, and although today it is part of the city of Hiroshima, when I was a fourth grader, mind you, I was born three years before the end of World War 2. And so I grew up in the post World War 2 era, and everything was in disarray and everybody was poor. The only item that is anything to do with electricity or electronics in a house was a broken radio. When I was a fourth grader, nine years old, my father gave me this broken radio. I took it apart and put it back. Lo and behold, it worked, and I was hooked. And so I started tinkering around with the radios. These were, of course, two radios.

Eric 4Z1UG
04:17
Hiroki, did you have tools?

Hiroki AH6CY
04:19
Well, the only tools I had was actually screwdriver and a little wrench and the. And I didn't even have a soldering iron then, but that was soon was the first item I acquired, and I had to beg my father to buy one. It was an expensive item in our economic status then. But anyway, as I said, the radio worked, and so that was hooked. And so I started building my own radio, and I built a lot of shortwave radios. And when I was 15, I decided to try for the ham radio license. And the ham radio was opened after World War 2, a few years before I actually applied for the license. So I built my first homebrew radio, which is a five watt, six valve or tube radio. Unbeknownst to me at that time, this was 1957.

Hiroki AH6CY
05:40
This was at the peak of the cycle 19 sunspot cycle. I had no idea. But with my misery, five watts, I could reach all over Japan practically every day, any time of the day. The condition was that good. And my interest in ham radio further increased. So I was quite active in operating my own home radios. I built a number of them, and so I was quite active throughout the high school.

Eric 4Z1UG
06:18
So when you built that five watt, 6V6 transmitter, what did you use for the receiver? The same receiver that you had fixed before?

Hiroki AH6CY
06:25
No, I had five tube super heather nine. Again, homebrew variety, similar to the commercial.

Eric 4Z1UG
06:34
AM radios that were popular in those days.

Hiroki AH6CY
06:37
Yes, indeed. I secured the 2, 10 meter, 30ft tall bamboo from a nearby forest, and that was my first dipole antenna.

Eric 4Z1UG
06:51
You were 15 years old when you got your first license in Japan. What was your first call sign and how did the licensing work there? Did they have, like, the novice license and the higher grades, or did they just have one grade of license?

Hiroki AH6CY
07:04
There were four classes of license in Japan, and the entry level was the. Called fourth class. No, I'm sorry, the form class and theCWclass. And I had a phone class, so my first radio was actually am transmitter, not cw. And theCWwas not required for this phone class. And my first call sign was JA4AAO Juliet Alpha four.

Eric 4Z1UG
07:53
And that was a phone class license.

Hiroki AH6CY
07:56
Right.

Eric 4Z1UG
07:56
What were the privileges? Just the ten meter band or was there other privileges that went along with it?

Hiroki AH6CY
08:01

You can operate on 80, 15 and 10, all AM.

Eric 4Z1UG
08:08
Was there a power limitation?

Hiroki AH6CY
08:10
Ten watts.

Eric 4Z1UG
08:12
So cycle 19 must have been really great. I've interviewed people that were there during cycle 19. They said you could load up a wet noodle and talk around the world.

Hiroki AH6CY
08:20
Yes, indeed. It was a very forgiving time.

Eric 4Z1UG
08:26
Now, it's my understanding that there's almost 2 million Japanese hams now in a relatively small population, compared to the United States. Why do you think that Japan took to ham radio? Because it sounds to me like they took to ham radio organically. About the same time that you got into ham radio.

Hiroki AH6CY
08:46
There were a number of reasons why there are Japanese hams than in American hams. One of the most immediate factor that makes people want to do the ham radio was ease of entry. Imagine that you can start talking on the phone, am phone, from the very beginning. That was a big enticement for me and for many others. And even though there was an entry level CWclass, very few people took it, because, as you know, it takes time to learn Moscow, whereas am, you can just start getting on there right away. And that was one of the reasons. And also there has been. Second factor I can think of is there has always been the arts and craft tradition in the Japanese culture. And the people are quite used to building little things.

Hiroki AH6CY
09:52
Like I built all of my toys, essentially, when I was like five, six years old, using whatever is available around me. Every little kid carried a little pocket knife. If you combine the use of chopsticks, if you have a little knife to cut all kinds of things. And these were the times when, for example, you know, sharpening the pencil means you actually use a knife to sharpen pencil. I don't

think the American kids have ever used, actually, in at least in the past hundred years or so, using a knife to sharpen the pencil. It's an electric sharpener or, you know, some, the one, the kind you use by just sticking it in and twisting it.

Hiroki AH6CY
10:50
But, but it was a standard, very common thing for us kids to sharpen the pencil with a knife, that these all enhance, contribute to the use of hands to build things. And so that was a second reason. And the third reason is that there is a government actually encouraged anybody, especially young kids, to get into amateur radio. In fact, even today, if you have the 10,000 QSO that you can, QSOs you have conducted, you can approve, then government give you, issue you an award. I don't know of any other governments in the world which actively encourage the young people to get into ham radio.

Eric 4Z1UG
11:47
I'm assuming access to telephones was probably not easy.

Hiroki AH6CY
11:51
Absolutely. Probably. I must have been about 1213 years old. This was like ten years after the war was over that we got our first telephone, and majority of neighbors didn't have a phone. So the telephone and was not ubiquitous presence. So that's another probably factor, too.

Eric 4Z1UG
12:19
They used to tell a joke here in Israel. I was here in 1981 as a student. If you wanted a telephone, you had to order it and you had to wait a long time. So the joke was, you order the telephone and you say, well, when will it be delivered? And the telephone operator says, well, today is December 14, 1980. I think we can deliver it on February 3, 1982. He says, I think I'm busy that day. And she says, you're busy on February 14, 1982. He says, yeah, the air conditioning guy is coming that day.

Hiroki AH6CY
12:53
I see.

Eric 4Z1UG
12:54
So ham radio was very popular here until the rise of smartphones and cellular phones. But it sounds to me like the Japanese are still encouraging kids to come into ham radio. Maybe that's one of the things that the west needs to do in terms of getting more ham radio operators. It certainly benefits the society.

Hiroki AH6CY
13:14
Right. And the fact that there are many ham radio operators, whether they stay active or not, but they just dip their feet into electronics that way, I'm sure have contributed tremendously to the development electronics industry in Japan today. Of course, we see products coming all over the Asian countries, Korea, Taiwan, China, Vietnam, India, etcetera. The fact that the Japanese pick up the sort of the industrial development early on after World War 2 ended, I think owes at least partially to the presence of many ham radio operators who naturally continued their interest in electronics industry.

Eric 4Z1UG
14:12
Well, you know, transistor radios. In the sixties, Japanese transistor radios were ubiquitous in America.

Hiroki AH6CY
14:18
Absolutely.

Eric 4Z1UG
14:20
Every beach towel in California had a Japanese transistor radio. On it, as I recall.

Hiroki AH6CY
14:26
Right.

Eric 4Z1UG
14:27
So what happened after that, Hiroki, you get this amateur radio license at 15. Did amateur radio cause you to choose a technical direction for your career and education?

Hiroki AH6CY
14:39
Well, I thought I was headed for the technical field or some science field in college and as a profession, unfortunately in my academic career, I, I couldn't get along with my chemistry teacher in high school and the feeling was mutual. And if you don't do well in chemistry, you cannot get into the college major related to technology or electronics or anything like that. So I ended up going to the social science. I majored in political science in college. So ham radio a state as an avocation, I have always kept the interest in the ham radio and electronics in general throughout my life. My career, which was not, didn't turn out to be in the electronics field. So after high school I went to college, majoring political science in Tokyo.

Hiroki AH6CY
15:45
And then after my undergraduate education in Japan, I came to the US to do graduate work. History and political science was my main interest area. I was going to go back to Japan after obtaining a graduate degrees. Well, I met my future wife and the rest of history. I didn't go back to live in Japan, although I have been to Japan many times, and been back to Japan many times. At the one time I took a group of college students, my students, through Japan for half a year stay. Now while I was working, I was a college student and started, and the graduate work and the started teaching in American universities. I kept interest in ham radio. I kept my license alive both in Japan and in the US. But I was not active on the air.

Hiroki AH6CY
16:58
I was just too busy in my work. So even though I had actually, I always had the operating ham station, even though I was not on the air much. But my rejuvenated ham activity started when I retired in the year 2000. Then I became really active in all manners of m radio activities.

Eric 4Z1UG
17:30
And where are you now? Where's the QTH?

Hiroki AH6CY
17:33
I am in California, near San Francisco, right in the heart of Silicon Valley.

Eric 4Z1UG
17:40
That's like Palo Alto, Menlo park in.

Hiroki AH6CY
17:43
A town called Portola Valley next to Palo Alto. And every Friday afternoon these days I get together with my QRP buddies and operate in a public park in Palo Alto, right on the San Francisco Bay. And QRP is one of several major areas of ham activities I enjoy very much. Now getting back to my sort of brief biography, I taught in American universities, several universities for 20 years after I finished graduate school. But then I actually got into the electronic industry, mostly in marketing and sales capacity. So I traveled to all the Asian and the Pacific Rim countries, Japan, Korea, China, Taiwan, Singapore, India, Australia, Indonesia, etcetera, selling American products. Selling American products.

Eric 4Z1UG
18:58
If you were in California, you were there as the Silicon Valley is rising.

Hiroki AH6CY
19:03
Yes. I didn't know at the time. I arrived in Silicon Valley just as the so called Silicon Valley Revolution was starting. And there were still unbelievably, the orchards, the apple orchards, some agricultural land in what is today Silicon Valley. At that time, it was very fast. It was changing very fast into the electronic industry location.

Eric 4Z1UG
19:33
Fairchild and Hewlett Packard and Stanford University were the mainstays of the valley in those days.

Hiroki AH6CY
19:39
Yes. Yeah. The Silicon Valley actually had a very good environment where what has become known as Silicon Valley wasn't known as such then, but combination of the major academic universities, such as Stanford University of California, Berkeley, and then it was a financial center. It still is San Francisco Financial center. And then the availability of labor force and the land and water. These factors are very important, major factors to start electronic industry was here. So it was not really an accident. It was no accident that Silicon Valley has become a Silicon Valley.

Eric 4Z1UG
20:30
The confluence of all of these resources made it ideal for what it eventually became.

Hiroki AH6CY
20:38
Yes.

Eric 4Z1UG
20:39
I remember as a kid the Silicon Valley was orchards. I have a good friend that grew up in San Jose and remembers it being a hick town, and it's far from that now. So when you were traveling around the far east, what company were you representing and what were you selling?

Hiroki AH6CY
20:57
Well, I have been involved a number of startups, and on startups, as you may know, in Silicon Valley, at least in the early phase of Silicon Valley history, perhaps one out of ten companies that start failed. And that was expected. And we hear all kinds of glorious success stories of a giant company, such as Google or Intel or Apple and such. But underneath that, the glorious, successful companies, there are thousands of failed companies. So I worked for both successful and not so successful companies. It was an exciting time. One of the successful companies I worked for was

IOmega. And the IOmega may not be known to a young generation today, but it was unbelievably, it had the actually faster rising stock price than Apple when it was going high. IOmega was the inventor of Zip Drive.

Hiroki AH6CY
22:17
And Zip Drive was the first in the world to produce the affordable, removable storage device, 100 megabytes, essentially about the same size as the floppy drive.

Eric 4Z1UG
22:35
I remember, I think I had an IOmega zip drive.

Hiroki AH6CY
22:39
So we sold millions and, well, I guess probably billions of these items. And so my role was to take the IOmega products into Asia and also locating the manufacturing places in places like Philippines and Malaysia, Thailand and Singapore and Japan.

Eric 4Z1UG
23:09
Israel has the same history. You know, we've got our giants that have risen out of our Silicon Valley. But you're right. For every 20 companies, there was one rising star, and all the rest failed.

Hiroki AH6CY
23:24
Yes, I'm somewhat familiar with the israeli scenes. I have been to Israel many times. My wife's relatives, quite a few of them live in Israel, and some of them are working in the high tech industry in Israel and also in Silicon Valley.

Eric 4Z1UG
23:43
So we learned to fail fast here. Yes, but you know what? What's so interesting about that is without those failures, you don't have all these brilliant people in both valleys that actually create these amazing companies. There's something about business failure that makes you a better businessman.

Hiroki AH6CY
24:02
Yes. As a matter of fact, when were recruiting and when various companies, we always look for people who have failed and succeeded. People who only knew success would not be a great candidate for us because.

Eric 4Z1UG
24:23
They knew how to pick themselves up and start all over again.

Hiroki AH6CY
24:27
Right? It was a really risk taking, high risk taking environment. And if you are the type of people who shy away from risk taking, you are not wanted. Here.

Eric 4Z1UG
24:44
And now, this midshow break, the QSO Today project that now includes 500 episodes of the QSO Today podcast, the curation of hundreds of hours of QSO today virtual Ham expo presentations for public consumption is now supported completely by you, the listeners. I am using a business model called value for value, a concept developed by Adam Curry, K5ACC, where you contribute to QSO today exactly what you think its value is to you. Value for value. This mid show break and the promotion of the Ham Radio Workbench Podcast later in the show are the only commercials that interrupt the program. QSO Today has no commercial sponsors to influence the content, direction, and editorial content of the QSO Today project, which exists solely for the promotion of the amateur radio hobby.

Eric 4Z1UG
25:39
Those of you that have listened to over 500 podcast episodes know that I'm not only infatuated by the amateur radio hobby, but by the people who perpetuate it as well. The hours that I dedicate to QSO today is a half time job. Your support at any level pays for all of the technology that I use to create, produce, host, and deliver the QSO Today podcast and the project to the ham radio community. And while it is a labor of love, it costs money. I know from statistics and surveys that only 6% of you actually contribute to QSO today in some form. Please make a generous donation using the slider to set the amount of your donation. Make that donation monthly to ensure that QSO today is here for the next 500 episodes. As a value for value donation.

Eric 4Z1UG
26:32
It should be in the amount that you value each episode of QSO today or your access to our amazing catalog of ham radio educational videos found on YouTube, Vimeo, and using our own player link in the show notes page. Become a listener sponsor monthly or annually. Use my Amazon link in the right column of the QSO Today website before shopping on Amazon. Promote QSO today your friends and family by forwarding our email and social media posts. Subscribe to our mailing lists. Subscribe to the YouTube channel. Tell your friends all of these actions are value for value. Keep the QSO Today project alive by taking action now. We return to our QSO today.

Eric 4Z1UG
27:19

Okay, so you retired in 2000, you've always had your license, but you came back with some new passions. What were those new passions?

Hiroki AH6CY
27:27
Well, of course, like most hams, my earlier interest was the DX. Just reaching the far reaches of the world, especially with the less and less power, rather than more and more power, became my interest. And also because of my background earlier on, I became interested in figuring out, in finding out what kind of communication device the wartime let me back up a little bit. I was three and a half years old when the first atomic bomb was dropped on Hiroshima.

Hiroki AH6CY
28:16
Living 20 miles from the ground zero meant that our life, my parents, my family's life, and as well as that of my neighbors and friends, were all heavily influenced by what the bomb brought in a devastated city and trying to sort of rebuild the economy and so forth, that war was a daily reminder, even though war itself was over, the consciousness related to war just wouldn't have gone away. One of the such things for me, especially after I became a little interested in radio, as I mentioned earlier when I was in fourth grade, was I wondered what kind of radius the airplane B29 bomber called Enola gay, which dropped the bomb carried. And so that was a part of my consciousness.

Hiroki AH6CY
29:28
And also I was interested in what kind of radio they used in starting the Pacific phase of World War 2, that is, bombing of Pearl Harbor. The Pearl Harbor occurred on, in December 1941. I was born in January, that is a month after Pearl Harbor was attacked. So the, I was interested, I was curious, and although I didn't do anything about it, I couldn't do anything much about it then, what kind of radio they used, and that been in the back of my mind throughout and so when I retired, I became serious about researching these radios. And so that led to my general interest in looking at all the radios used in World War 2, both in european and the pacific theaters. And to make a long story short, after I discovering the.

Hiroki AH6CY
30:38
After learning what kind of radios the B29 bomber Enola gay carried, and also the three seat bomber that dropped the bomb on Pearl Harbor carried, I started looking for actual models, the same model radios. And it turned out that acquiring the wartime radio used by American military establishment was relatively easy. Surplus market was quite open and active.

Eric 4Z1UG
31:16
What did the Americans carry?

Hiroki AH6CY
31:19
Well, this Enola gay carried two major transmitters and auxiliary transceivers. The ARC 13, which is a 100 watt AM and CW, and the MCW, that modulatedCWtransmitter, Enola Gay, carried two ARC 13. One was used to communicate up to 1500 miles, that is, the. To be able to communicate from the skies of Japan to the South Pacific islands, where the American air base were located, specifically Tinian. Tinian was the air base, a little island where this air base was located and where B29 took off for the Japan mission. And the so ARC 13 could transmit efficiently at this distance. They carried the, what is called ARC 5. ARC 5, smaller transmitter and receiver combination, which they used for air to air and then air to the ground, operating tower communication in the short distance communication.

Hiroki AH6CY
32:57
Now, the Enor gay, as I said, carried two ARC 13. One is for communication between the aircraft and the Tinian airbase. But another one, an ARC 13, was to transmit the modulated CW tone. And it was switched on as the last bombing run started in 45 seconds before the bomb was actually dropped. When the signal stopped, that's an indication bomb was released. So all the other B29s were equipped with only one ARC 13, but the Enola Gay itself has two.

Eric 4Z1UG
33:49
And then what were the Japanese using when they bombed Pearl Harbor?

Hiroki AH6CY
33:54
Japanese. The three seater bomber, which the command aircraft and the. It took off, along with many other bombers from the aircraft carrier, from the near Midway area for the harbor attack. And this was, as many of you know, many of the listeners would know, that it was not detected. There was a. Some radar sighting, which was misinterpreted as some kind of a training mission. But anyway, hundreds of aircraft that took off from the aircraft carrier near the Midway. This was a few hundred miles the northwest of Hawaii. They arrived in the skies of Hawaii, unmolested by American defenders. And everybody knows that it successfully made an attack on Pearl Harbor, decimating the American fleet in the Pearl Harbor.

Hiroki AH6CY
35:34
Now, the command aircraft was a three seater bomber, and it carried the transmitter called crew type 96, and it has also 100 watts output, but it is only CW only transmitter. And so the many people have the impression that when the successful attack was conducted, they send a message, Tora Tora Tora.

Eric 4Z1UG
36:04
They made a movie.

Hiroki AH6CY
36:06
Yes, there are many movies and many books are written, but nobody shouted the Tora Tora into a microphone. It didn't have a microphone. It's a CW only transmitter. And so the Tora Tora was actually sent in Japanese Morse Code and to the waiting aircraft carrier near Midway.

Eric 4Z1UG
36:37
Now, you said that the American, like the ARC 5 s and the ARC 13s, that these were actually relatively plentiful in the surplus market. How was it to find a KU-96 or something similar from the Japanese?

Hiroki AH6CY
36:54
Well, it was very difficult to locate the radios used by the Japanese military establishment, because when the general MacArthur came to Japan and as a supreme commander of the occupying Allied forces, he ordered complete destruction of wartime material, not just the tanks and the weapons, but also all the communication devices used by the Japanese military. So this explains why it is very rare to see the surviving the wartime radios. But interesting thing happened to me. I advertised in the Electric Radio Magazine, which some of you may know, some of the listeners may know is a tube radio, specialty magazines. But anyway, I advertise that I'm looking for the Japanese military radios, and I didn't have much hope for it.

Hiroki AH6CY
38:13
But someday, one day, I got a call from someone who lived about 100 miles from me saying that I think I have a Japanese military radio, and I don't know what it is, but come and take a look. So I went there, and they turned out to be exactly the same model as the one used in Pearl Harbor attack. It was a total serendipity. And some of the surviving Japanese military videos of the World War 2 era were actually the radios brought back by American GIs stationed in the South Pacific islands as a souvenir. And this is the reason why a few rare Japanese military radios are found in the US. The other military radio that survived were the ones used right after the war to augment the landline telephone communication.

Hiroki AH6CY
39:33
And these were exceptional radios that were allowed by the MacArthur's occupation regime.

Eric 4Z1UG
39:43
And what was the condition of this radio when you found it?

Hiroki AH6CY
39:47
Mine was surprisingly in good shape. All the tubes were there intact. The only thing missing was a power supply. So I had to build my own power supply to resurrect this radio.

Eric 4Z1UG
40:05
Did you have to rebuild this radio in order to make it look new?

Hiroki AH6CY
40:08
Very little. I cleaned it up, and then I had to build my own power supply to work with this. That's the only thing I did. So the radio itself was miraculously intact. I wouldn't say the same thing with my ARC 13, the transmitter that was on the B29. I had to do a lot of work on that one, but fortunately, the parts were pretty readily available in the Internet. The Internet market has done something great about the, you know, great in terms of looking for all parts and all radios. Even today on the eBay and other Internet market, you do come across the military radios from World War 2 era, both the Japanese and Germans. Not very often, but if you keep looking, you know, some of these old radios do show up.

Eric 4Z1UG
41:20
The tubes that were used in radio sets before World War 2 in America, were they similar to the ones being used in Japan?

Hiroki AH6CY
41:27
Yes.

Eric 4Z1UG
41:28
So are they interchangeable?

Hiroki AH6CY
41:30
Well, some were and some were not. The many of the Japanese tubes were copies of American tubes. The Japanese manufacturers were actually copying many American tubes before World War 2 began. After World War 2 began, the Japanese built their own tubes along with the copies of American tubes. So some tubes are interchangeable, others are not. This tube used in the Pearl Harvard attack, it was made in Japan tube, and it was not manufactured in the US at all. Japanese tubes were the so called ST and also the octal pin tubes, but there were no miniature tubes or sub miniature tubes.

Eric 4Z1UG
42:32
While MacArthur might have destroyed the military radios, the tube manufacturers were still there. And can you find tubes that are compatible with that radio now in Japan?

Hiroki AH6CY
42:44
No. They are very difficult, almost impossible to find.

Eric 4Z1UG
42:49
So this radio, does it get on the air?

Hiroki AH6CY
42:52
Yes, it got on the air just for testing purpose.

Eric 4Z1UG
42:56
It's not a rig that you'll pull out every once while just to make a contact?

Hiroki AH6CY
43:00
No.

Eric 4Z1UG
43:01
Now, it's my understanding, because I've seen articles online, stuff, that you also are very interested in the spy radios that the Allied forces used in Europe during World War 2. I think they call that the paraset.

Hiroki AH6CY
43:15
Yes.

Eric 4Z1UG
43:15
We've had other paraset restorers and builders on the QSO Today podcast. How did you become interested in the paraset then? Did you refocus your interest in energies to the other continent?

Hiroki AH6CY

43:27
Well, as part of my research into wartime radios, I did do a lot of readings and how radios were used. And one of the interesting books I came across as part of my overall historical research was the book called Spy Princess. Spy Princess is the story of a young woman who worked for, as a radio operator, agent for SOE. SOE stands for special operations executive, which is a secret paramilitary organization created by Churchill a year after the european theater of World War 2 began. And after I read that book, Spy Princess, which is, as I said, a young woman who worked as an agent. She was captured by Nazis in Paris and was later sent to concentration camp and was executed. She carried one of the spy radios.

Hiroki AH6CY
44:49
There are several well known spy radios used by SOE and MI6, British intelligence agency during World War 2. And she carried a spy radio called B two. But I also learned after I started digging more into SOE activities, SOE used the simpler, lighter the spy radio called Paraset, which became a sort of a cult radio among the two to replicate Paraset, which because the three tube, relatively simple radio. And it has become a kind of a popular thing to do among some hamsters. Now, I have built three of those and one thing led to another. And so the, I have actually real model of b two in my shack, which I restored. And actually that one I put on the air. It works very well. And Paraset, as I said, I built three replicas.

Hiroki AH6CY
45:58
Parasete is another radio, impossible to find, almost impossible to find in the market. I have seen the real one in several museums in Britain and in european continent. I became especially interested in Paris partially because of the simplicity, but also it used as a final tube, 6V6, the same tube I used in my first homebrew radio when I was 15. So I have a special feeling for this tube. 6V6, five watt tube.

Eric 4Z1UG
46:41
So do you operate the Paraset when you go out on Fridays to do Poda?

Hiroki AH6CY
46:48
Not very often. Occasionally I do that, and I have done that. And I have some interesting QSOs with the Parasete. I also have two cold war era spy radio, American spy radios, and one used during the Vietnam War era, especially in the, in the jungle environment. It's a very interesting case. I can, I can show you one of those.

Eric 4Z1UG
47:29
So we're on a video conference right now, and Hiroki is in his garage showing me his stuff.

Hiroki AH6CY
47:36
I am in my shack, and this is one of the three units. And as you can see, it has, it is completely sealed.

Eric 4Z1UG
47:46
It actually looks like a speaker.

Hiroki AH6CY
47:48
It looks like a speaker.

Eric 4Z1UG
47:50
But, but if you unscrew the case with the thumb screws, this particular spy.

Hiroki AH6CY
47:55
Radio can be dropped from the aircraft. And it has to withstand the enormous.

Eric 4Z1UG
48:05
Stresses of hitting the ground at terminal velocity.

Hiroki AH6CY
48:09
Okay? Yes. And completely steel. This is one of the three units. Transmitter, transmitter, receiver and power supply come in different boxes. Now, around here, this is a gasket and the cover I just took off is attached very tightly. This is totally impervious to water or anything that comes alongside. This was occasionally buried in the mud in Vietnam. So some American military unit or the intelligence unit who had to leave stuff for a few weeks and come back to retrieve it, they buried it in the mud. So I have never seen any other spy radios built in this way. But that's one of the.

Eric 4Z1UG
49:11
So you have the transmitter and the receiver in the power supply. So you have a complete set?

Hiroki AH6CY
49:16
Yes, this is a complete set. When I acquired it, I only had to do a minimal work to make it work. This has been.

Eric 4Z1UG
49:24
Were those like AM and CW?

Hiroki AH6CY
49:26
No, just cw. By the way, one of the common things in all of the spy radios during World War 2 and Cold War era was no spy radio had a speaker.

Eric 4Z1UG
49:41
Well, it makes sense.

Hiroki AH6CY
49:43
Only headphones. Also, with a few exceptions, all of the spy radios has a key built in the most key. Let's see. You may not be able to see this very well. This is a key.

Eric 4Z1UG
50:02
Yeah, it looks like a little button on the bottom.

Hiroki AH6CY
50:04
And the aracet and the other spy radios also have the key built in.

Eric 4Z1UG
50:14
And now this mid show break, every two weeks I listen to the Ham Radio Workbench Podcast with George KJ6VU, Vince VE6LK, Mark N6MTS, Thomas K4SWL, Michael VA3MW and Rod VA3ON, and their guests on often topical and important projects in amateur radio. This discussion amongst the regulars and their guests remind me of the conversations that I used to listen to on 146.94 and 146.46 MHz in Orange County, California while working on my own workbench almost 50 years ago. It is amazing how much practical ham radio knowledge that we can absorb by listening to the Workbench podcast. That starts to make sense when we start our own deep dive into our own projects. So join me by listening to the Ham Radio Workbench Podcast now.

Eric 4Z1UG
51:09
And as George and crew push beyond 200 episodes, you can get to the Ham Radio Workbench Podcast by clicking on the banner in this week's show notes page. And now back to our QSO.

Eric 4Z1UG
51:23
I saw there's a list of Paraset builders. Yes, and you're on the list. There's an organization, a society of.

Hiroki AH6CY
51:32
There was a very active society located in Britain and I was a member and so are some of the hams in european continent and the f sticks. Oops, I can't remember his call sign. Jean Paul Moffet in southern France. And I have been the sort of a volunteer clearinghouse of all the Parasete radios built in and original, and they also built one. So we have been collecting the names of the museums and the hams and non hams who have built the replicas. And unfortunately that British based Parasete organization is not functioning because majority of the members are silent keys. But there's a new paraset group on the interest group based in America, in the USA, and that is still going active. But the members are relatively new.

Hiroki AH6CY
52:59
Many of the people are in sixties and seventies, but unlike the other one I mentioned, headquarters and based in Britain, the members are relatively new, younger.

Eric 4Z1UG
53:13
You were saying that you also restore other rigs and I'm looking over your shoulder and you've got a Collins s line with the amplifier and everything.

Hiroki AH6CY
53:22
Right.

Eric 4Z1UG
53:23
So you've rebuilt the Collins S Line?

Hiroki AH6CY
53:26
Yes, I acquired this s line and some time ago, a few years ago. And the major rework I had to do is naturally I do the old recap, the change the capacitors, but all the components were in good shape and I had to rebuild the power supply of the 30 l one, the amplifier, 500 amplifier, and had some work in the transmitter, but not a whole lot of work was needed.

Eric 4Z1UG
54:05
What's the rig to the left of the amplifier?

Hiroki AH6CY
54:09
This one here, that's actually my main radio. I use the main HF radio, Icom IC-7610. It's a very good radio.

Eric 4Z1UG
54:21
Yes, I understand it is.

Hiroki AH6CY
54:23
I have a whole bunch of homebrew QRP radios. Actually it's all over my shack.

Eric 4Z1UG
54:30
I'll make a reference in the show notes page to an article that you wrote about a potato QRP radio that apparently if you have eight potatoes you can actually run the radio. Could you talk a little bit about how that battery works?

Hiroki AH6CY
54:44
Well, I had an article in April 2022 QST, about the potato radio experiment I did. It started out in a funny way, that one day in my QRP group, Friday outing group, were talking about the batteries and one of the guys said, oh, I have a potato battery, which was a joke. And of course I've never seen potato battery used for ham radio. But it occurred to me, well, many people have an experience of playing the potatoes or bananas as a battery. When they were in the grammar school. It occurred to me, maybe there's something interesting about the vegetable batteries. So I started doing some research and I came across a very interesting article written by a professor at Hebrew University.

Hiroki AH6CY
55:54
And he was, and he and his team discovered that when you boil potatoes your battery output goes upward of ten times output so that really made me think, well, if you can, you know, get the much higher current, maybe there's a way to use it for the ham radio, for QRPP. That is one milliwatt plus of transmitter and the receiver. So I got serious. And the potato, by the way, potatoes. And as well as the bananas and the avocado and all the other vegetables and fruits I have tested, usually produce 0.5 to a little over 1 volt. Some potatoes now, but the current is minuscule micro ampere and the. But by boiling the potatoes, I actually use the mashed potatoes and boiled potatoes and so forth.

Hiroki AH6CY
57:16
You can actually, from each large potatoes, russet potatoes you get, you can get about a five milliamp 1 volt. Okay, so you can imagine if you can get five milliamp 1 volt. If you have five or six potatoes. Now you are talking. You can actually power the QRPP radio. And so I look for the transistors that can work in low voltage. So here's one of the QRPP transceiver I built.

Eric 4Z1UG
58:02
You're holding up your QRPP transceiver now. I saw that you made that with a Pixi.

Hiroki AH6CY
58:07
Yeah. And inside is a Pixie transceiver was originally developed in 1990s by Northern California QRP club. And it has the three transistors. Now today, this so called Pixie radio was manufactured by a number of people in China. And you can buy them for anywhere from the US dollars. Three. Now Pixie uses so called the 386 audio amp, which doesn't work over unless you put in nine to twelve volt. Now the potatoes even. Of course, theoretically you can use nine volt, twelve volt. But this audio amp consumes so much current, so much that is by a QRPP standard, that I replaced the audio amp with the different transistor, which requires much less current, lower voltage. So the modified Pixie radio is inside. I took off the whatever is not needed, such as piezo sounder, to make theCWside tone I took it out to.

Hiroki AH6CY
59:46
So this QRPP radio can produce about the three milliwatts output.

Eric 4Z1UG
59:55
Have you worked anybody with it?

Hiroki AH6CY
59:57
Yes, with my QRP club members I have done the experiment. I can reliably communicate up to 3.

Eric 4Z1UG
01:00:05
Miles with the potatoes in series with.

Hiroki AH6CY
01:00:08

A very simple vertical antenna. So if you use the big three, four elements, yagi, with this, especially in a good condition like today, probably you can reach, I wouldn't be surprised, a few hundred miles.

Eric 4Z1UG
01:00:30
What electrodes do you use in the potato?

Hiroki AH6CY
01:00:32
Zinc and copper of plates strategically put.

Eric 4Z1UG
01:00:36
Into the boiled potato. And then when you're all done, you pull the plates out and you mash them up and you have.

Hiroki AH6CY
01:00:43
Yes, I mash up and put it in a nice plastic box so you can, you know, come up with all kinds of original ideas how to store potato batteries.

Eric 4Z1UG
01:00:56
So how much operating time does that give you?

Hiroki AH6CY
01:01:00
You know, unbelievable. I don't know. The reason why I don't know is I didn't use it long enough as an experiment, but the potato batteries last a long time. And even though, you know, potatoes, boiled potatoes start deteriorating, getting rotten. Even after they get rotten, they produce the electricity. So the, in one of the experiments I did with the potatoes, after one month after I boiled them, they were still going, oh, amazing.

Eric 4Z1UG
01:01:38
And I just bought a 7000 watt generator for the war here. And I could have just bought a whole bucket full of potatoes for my emergency radio system.

Hiroki AH6CY
01:01:48
Right. And as I said, it's not just potatoes. Any fruit?

Eric 4Z1UG
01:01:54
Tomatoes, bananas.

Hiroki AH6CY
01:01:56
Yeah.

Eric 4Z1UG
01:01:57
Oranges have a lot of acid in them.

Hiroki AH6CY
01:02:00
Yes. And also, I haven't quite, you know, there's endless experiment one can run. You know, you can add some chemicals.

Eric 4Z1UG
01:02:09
Then you could need them at the end or feed them to the goats.

Hiroki AH6CY
01:02:14
Right. Well, I am banned from my kitchen by my wife now because the, I was banned from boiling many potatoes in the kitchen because I was making a big mess. But anyway, it was a fun project and I hope people continue to experiment because there's, I think, practical application in some of the developing areas, you know, in, like in some poor villages in Africa where there still is no electricity and yet you need to communicate from one village to another. It is not totally out of question to have the transmitter and transceiver powered by fruit and vegetables, maybe even a.

Eric 4Z1UG
01:03:15
Paraset, it would have to be a QRP, transistorized Paraset. You might have the idea for a new spy radio.

Hiroki AH6CY
01:03:25
Yeah.

Eric 4Z1UG

01:03:27
Do you think, Hiroki, that projects like this might interest younger people in developing perhaps an interest in these crafts if we're trying to extend the culture of building and. I don't know. I tell my grandson, my father used to tell me, you're not dressed unless you have a knife in your pocket. So I've always carried a pocket knife in my pocket. It must be from his generation. I say this to my grandson as well, although it seems to me that he also has to learn how to use it. But do you think that this interest in the parasets and the potato radios, do you think that we can ignite some imagination in younger people to become interested in ham radio from this?

Hiroki AH6CY
01:04:10
Well, I think we can. However, it is a little more complicated today because there are so many things that can distract young people from this sort of activities. You know, video games, all kinds of tv programs. So you are competing with many other things. Having said that, though, I think it is incumbent upon the parents and teachers to give an opportunity for the kids to play with the knives and the crafts and certainly potatoes and bananas. These things are easily available and can be handled, introduced to us, you know, fun project. And the lighting, the little led with the potatoes offers a fun to the, at least, if not all the kids, but some of the kids. So you never know unless you try to introduce these.

Eric 4Z1UG
01:05:20
There's a very strong maker movement or maker groups in the Silicon Valley there.

Hiroki AH6CY
01:05:26
Yes, indeed.

Eric 4Z1UG
01:05:28
Have you taken any of the parasets or even the potato radio to a maker's fair to show it off?

Hiroki AH6CY
01:05:34
No, I haven't done that yet. But, you know, I have been in touch with the Potato Grower's Association in Idaho. Well, and it's not going anywhere now. You know, maybe that's not a right organization to work with. I think there are ways to do it. You know, it is. It takes parents and teachers to work up the, to use the imagination to do some fun projects.

Eric 4Z1UG
01:06:04
I think that's true. What excites you the most now the sunspot cycle is up. You've got obviously a beautiful set of radios, and you love QRP. What excites you the most now about amateur radio?

Hiroki AH6CY
01:06:18
I have been experimenting with all kinds of antennas, outdoor antennas, and because I live now in the antenna restricted area. And so my one year activities, primarily outdoors, fortunately, I live in a very good climate in northern California. We have more sunny days and than not. And so the, as I mentioned, every Friday afternoon I get together with a small group of people interested in QRP's and operate in the San Francisco Bay public park. And so in the past few years, I have been experimenting with all kinds of portable antennas. So I have built all manners of vertical antennas and magnetic loop antennas. And in the past few months, especially, I have been working with the full size delta loop antenna that is attached to the back of my car.

Eric 4Z1UG
01:07:26
So that means you put up a pole about 10 meters and you hang the delta loop on that.

Hiroki AH6CY
01:07:32
Actually, my latest concoction, my creation, is the four band delta loop.

Eric 4Z1UG
01:07:40
Really?

Hiroki AH6CY
01:07:41
Yes. It is a telescopic fiberglass. It has two elements.

Eric 4Z1UG
01:07:48
You're holding it up in two places. So you got two poles.

Hiroki AH6CY
01:07:51
Yes, two places and attached to the back of my car. And I run the wire. So three wires, one cut 20 meters. And that also works very well for ten meter and then 17 and 15. So there are three wires, three loops.

Eric 4Z1UG
01:08:13
Hanging from those two poles.

Hiroki AH6CY
01:08:15
Yeah, exactly. And buy the telescopic fiberglass on both sides and then hang with it, with the bungee cords, small bungee cords for the listeners.

Eric 4Z1UG
01:08:32
He's showing a picture which I hope he'll send me, and I can put it in the show notes. Okay. So are you using the fiberglass fishing poles for this, or did you actually buy some kind of push up mass, like from DX engineering or something?

Hiroki AH6CY
01:08:47
Pactenna. Pactena used to produce, I don't know what they still do, but at least they used to tell the telescopic fiberglass, which is very much like the, you know, clap ear, the telescopic, the fishing pole. There's no reason why you can't use a fishing pole.

Eric 4Z1UG
01:09:11
They'll go up at least 6 meters.

Hiroki AH6CY
01:09:14
Right. It's very light. And the, I like the fact that actually it bends. That makes, it gives a tension to keep the wire straight. And the, actually, I'm almost finished with writing the article about this particular four band delta loop.

Eric 4Z1UG
01:09:36
The delta loop, the radiation pattern is perpendicular to the loop itself. Right. So it's going to go right off the back of your car.

Hiroki AH6CY
01:09:44
Yes.

Eric 4Z1UG
01:09:45
So you just point your car across the bay.

Hiroki AH6CY
01:09:47

Right. And the delta loop is, this delta loop I have built, has been, is the most efficient antenna, portable antenna I have built, among many kinds of antennas I have built. It's big, of course, but by attaching it to the back of my car, I have a kind of nice base.

Eric 4Z1UG
01:10:14
Would you say this is your favorite antenna now for portable operation?

Hiroki AH6CY
01:10:18
So far, yes. And the, actually, I'm hoping to be able to make it. This is a sort of single element for each fan, but I want to make it two elements or possibly even three elements using my car's body.

Eric 4Z1UG
01:10:36
So you're making a delta loop beam.

Hiroki AH6CY
01:10:39
Right. That's what, that's my next project. It requires a lot of mechanical sort of trial and error.

Eric 4Z1UG
01:10:48
Hiroki, before we finish, do you have advice that you'd give to new or returning hams to the hobby?

Hiroki AH6CY
01:10:56
You know, my advice would be just stay low key. You don't have to have a giant antenna. You don't have to have, you know, fancy equipment, but you can still enjoy ham radio. And this is, you know, just stay low key and try to, you know, enjoy what it can do. I don't know whether that be appropriate advice for everybody, but that's how I have maintained my interest. As I mentioned earlier while I was working hard that I didn't have much time, much on the air time, but I have kept the interest throughout my life. It has been a true vocation. It has never been my vocation. I have never made money from ham radio activities and I have spent money, but I have kept it alive since I was a kid.

Eric 4Z1UG
01:12:05
So and I think that's amazing. Hiroki. This was such an amazing opportunity for me to speak to you and to talk to you about the things that interest you in ham radio. I've really enjoyed this. I know this will be a very successful episode 500 of the QSO Today podcast. With that, I want to thank you so much and wish you 73 thanks.

Hiroki AH6CY
01:12:29
You very much for inviting me. I feel honored that I am the 500th interviewee on your program. Stay well. 73 this is a 86 cy that.

Eric 4Z1UG
01:12:44
Concludes this episode of QSO today. I hope that you enjoyed this QSO with Hiroki. Please be sure to check out the show notes that include links and information about the topics that we discussed. Go to www.qsotoday.com and put an AH6CY in the search box at the top of the page. You can sponsor the transcription of this episode or any of the previous episodes by clicking on the transcription button on every show notes page. The cost is $75 per episode, regardless of the length. We will quickly transcribe the episode and give you credit for your sponsorship. Please send us the call sign of the podcast to make sure that we transcribe what you want. Remember that QSO today is value for value. Please support our project by making a donation or becoming a listener sponsor today.

Eric 4Z1UG
01:13:34
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Eric 4Z1UG
01:14:31

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