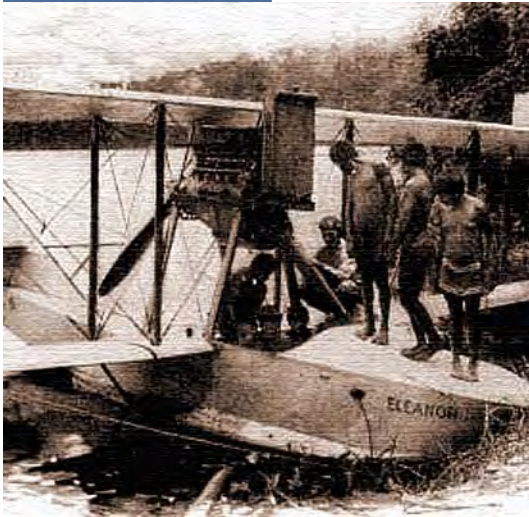


K9YA Telegraph

Robert F. Heytow Memorial Radio Club

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The Hamilton Rice Expedition

Part I: Shortwave in the Tropics 1924-1925

Philip Cala-Lazar, K9PL

This is the story of an 18-month long expedition to map uncharted regions of the upper Amazon basin. The Hamilton Rice Expedition relied almost entirely on amateur radio to effect its communications with the outside world. Making this possible

was the confluence of recently amended U.S. government regulations and technological advancements.

Starting July 24, 1924 the Department of Commerce opened the shortwave bands to the amateur radio service. This was also a time when compact custom and commercially built receivers, transmitters and the portable power supplies to run them became available. The Rice Expedition's radio operators boasted of their 50-pound transmitters and the small, efficient internal combustion engines that powered their generators and dynamos. Dr. Hamilton Rice employed the best technology available, "new boats, new boots, new generators—and on, bringing the latest methods of modern science into the wild."

(Note: Topographical and place names spelled as found in the original source materials.)

Alexander Hamilton Rice, Jr. (1875-1956) was the scion of a wealthy and prominent Rhode Island political family. Hamilton Rice earned his undergraduate (1898) and medical (1904) degrees at Harvard. Dr. Rice, a specialist in the exploration of rivers, and a graduate of the Royal Geographical Society School of Astronomy and Surveying (1910), organized and conducted seven expeditions into the Colombian Caqueta, Venezuelan Guayana and Brazilian Amazon.

He was said to be "as much at home in the elegant swirl of Newport society as in the steaming jungles of Brazil."

As founder of the Harvard Institute of Geographical Exploration he served as its director 1929-1952, this in addition to a long list of lifetime accomplishments including: Lt. USNR, WWI; Commander of the Legion of Honor (France); gold medalist, Royal Geographical Society; curator, South American section, Peabody Museum of Archeology and Ethnology; and lecturer, diseases of tropical South America, Harvard Medical School.

The 1924-1925 expedition set out to perform a *survey of the Rio Branco from where it debouches into the Rio Negro to its branches, the Uraricuera and Tacutu; to follow up its first-named western tributary to its sources, the Parime and Auari; and to cross from one of these over the*

Serra Parime to the main source of the Orinoco. While the exploration team sought these objectives, the expedition's accompanying physicians, Doctors Rice and George Shattuck, performed medical, surgical and dental procedures on the inhabitants of towns and villages along their route.

CONTINUED - HAMILTON RICE ON PAGE 6

*"...modern
science into
the wild"*

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Inside This Issue...

<i>The Hamilton Rice Expedition</i>	<i>Page 1</i>
<i>Been There Done That</i>	<i>Page 2</i>
<i>QRP Redux—Back to the Future</i>	<i>Page 4</i>
<i>HamQTH.com</i>	<i>Page 5</i>
<i>Ham Lingo</i>	<i>Page 8</i>

Scott B. Laughlin, N7NET



Northwest Electronics

It's been more than twenty years since Marvin, a gray-ing businessman in his sixties, opened Northwest Electronics in Eugene, Oregon. Apparently, he'd tapped into a lucrative source for surplus electronics, mostly military transmitter/receivers, transceivers, test equipment, as well as a limited quantity of amateur radios. By continually rotating his stock he honed our curiosity to a feverish pitch and we kept the door swinging just to see what was

new. I sometimes recognized test gear I'd used during my years on the flight line.

Northwest Electronics expanded the horizons of my hobby, especially after I'd earned my Technician license. I hadn't had access to such a selection of components since the demise of Allied Radio and Lafayette Electronics. Radio Shack, who made a limited effort to support amateur radio, paled in comparison. Marvin's ICs, transistors, capacitors, resistors and chokes pumped new life into the QRP world.

I fabricated a few things. My favorite homebrew was a transmitter consisting of a single 2N2222A and nine additional components. The final assembly fit nicely in a plastic 35mm film canister. I had no means for measuring such a weak output. However, the current draw, ignoring the internal losses, led me to believe the power was about 250 milliwatts, at best.

I was also an active member of the nightly West Coast Slow Speed Net with a rockbound Heathkit DX-20 I've purchased from Marvin. Using the same crystal, a JAN cut for 3.702 MHz, I was anxious to give my QRPp transmitter a whirl. Following the net, the NCS listened for my anemic signal. Sometimes I was acknowledged, sometimes not, depending on conditions between Eugene and Seattle.

This was where I met Jim, an 80+-year-old-ham.

After many decades as a grass seed farmer, Jim rented his fields to a younger man and turned his attention to amateur radio and Oregon Navy MARS. Impaired hearing made SSB impossible unless the phonetic alphabet was used. His mode of choice was CW, naturally, a genre of which he was master. He often copied my weak signal.

Jim's fist was like music. It was always a pleasure to rag chew with him. So I was pleased when he called me one evening on 80-meters with news of Marvin's pallet sale. A large collection of surplus electronic equipment would be auctioned to the highest bidders on the forthcoming Saturday morning. Unfortunately, my work schedule prevented me from attending, so that night, following the West Coast Net I contacted Jim on CW to learn what I'd missed.

"In two hours the stuff was gone. I'm sure going to miss Marvin," he said.

"Miss Marvin? What happened?"

"Nothing happened to him. He told me he's quitting electronics per se, and making room for his new business, aerobics. That's a physical exercise program, isn't it?"

"I think so. That's sure a change from electronics."

"Ain't it though," said Jim.

Because Northwest Electronics was located on a lesser-traveled side street, nearly a year passed before I happened to drive by Marvin's store. I was surprised to see his sign displayed and pleased to spot Marvin at the sales counter. Swinging into a parking space, I hurried in to celebrate his return.

"I see you're back in business," I said.

Marvin looked at me and blinked and then adjusted his glasses. "What do you mean? I never was gone."

"Oh? I heard you got out of electronics and went into aerobics."

"Aerobics? That's crazy," he said, frowning. "Who told you that?" Before I could respond he added, "I got out of surplus electronics. Had to, my source was gone. I went into robotics. It offered a brighter future."

*"Aerobics?
That's crazy"*



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I realized Jim had misunderstood what Marvin had said. Taken aback I didn't want to name names. I told him I'd heard it on the radio.

He was silent for a moment. "So that's why my business dropped off," he growled.

Time marched on. After a previous decade in the Air Force and in close proximity with B-52s my ears were beginning to fail me. But like Jim, I heard many things that were never said.

Barb, KC7BSY, and I retired in April 1999. After packing a 2-meter HT and a few clothes in an over-size tank bag we mounted a Suzuki 650F and headed south. The chill factor was severe at high altitudes. Perhaps we should have waited another month before heading over the Cascade Mountains and then south into the high desert country of Oregon and California. But we were tough and we pressed on toward Reno, then Las Vegas, then Phoenix. Eleven days passed before we arrived at a wind-blown scar on the Sonoran Desert floor called Why, Arizona.

Cost of living was affordable and it was a new adventure. After deciding to spend the summer there we bought an ancient travel trailer and then rented a mailbox so we could stay in touch with our kids. Much to our surprise our new box began filling with junk mail addressed to Eli Berlin, a retired and now deceased Air Force Master Sergeant who must have belonged to a host of military organizations. No amount of complaining to the postal clerk changed anything.

Next on our list was to fabricate a solar-powered amateur radio station.

An unstated law dictates that if a radio operator of a solar-powered station has a spouse there must always be sufficient charge left in the battery for a television, lights, and a water pump. Adhering to this rule and still getting on the air required a low-power bare-bones radio with no lighted display, no memory banks, and no microprocessor. Several transceivers qualified, but a MFJ-9420 was the most readily available. I ordered one from Squeak, a salesman at AES in Las Vegas, and then set about homebrewing a tuner and an inverted vee antenna. When the package arrived I was ready.

My first morning on the air I found Cal, KI5CW, heading up the Handicapper Net on 14.287 MHz.

WELCOME. I'M IN OKLAHOMA. I NEED YOUR NAME AND LOCATION FOR THE LOG. OVER.

Giving my name was easy, but who, besides a pocketful of snowbirds had ever heard of Why, Arizona? I gave him a general location, instead.

I'M IN THE SONORAN DESERT ABOUT THIRTY MILES NORTH OF MEXICO AND HALF WAY BETWEEN TUCSON AND YUMA. OVER.

HOW CLOSE IS THAT TO WHY? OVER.

I could not believe my ears.

THAT'S WERE I AM. OVER.

DID YOU EVER MEET ELI BERLIN? OVER.

His question left me nearly speechless.

ELI HAS PASSED AWAY CAL BUT I HAVE HIS OLD MAIL BOX. DID YOU KNOW HIM? OVER.

YES I DID. I KNEW HIM VERY WELL. DURING THE VIETNAM WAR I WAS THE AIRCRAFT COMMANDER OF AN AWAC PLANE. I FEW ALL OVER SOUTHEAST ASIA AND ELI WAS MY FLIGHT ENGINEER.

Cal's warm comments concerning Eli moved me and I decided to send him a QSL card. However, living lightly on the desert didn't include Internet service.

Later that week Barb and I motored ten miles to visit the Ajo Library where I accessed qrz.com to retrieve KI5CW's full name and postal address. My query brought up Al and a different city in Oklahoma. I pondered this surprise. Maybe there was a noise burst that canceled the audio when he gave his call,

and again when he gave his name. Perhaps he actually said Al rather than Cal. That had to be it. I entered our contact data, addressed the card and sent it off.

About a week later a letter came from Al. He was hot. He rarely got on twenty-meters and he'd never heard of the Handicapper Net. Someone was using his call and he was going to find out who. I was embarrassed and at a loss.

Another trip to Ajo was in order.

This time, after logging onto qrz I tried different combinations of letters before deciding that I'd misunderstood the "C". It had to be something else. After substituting the letters B, D, E G, P, T, V, and



Sonoran Desert

"...I heard many things that were never said."



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CONTINUED - BEEN THERE DONE THAT ON PAGE 8

QRP Redux—Back to the Future

When You Care to Send the Very Least...

Paul W. Ross, W3FIS



Hendricks DCxxB

Long ago, and far away, when I first got my ham radio license, KN2VZY, in the days of the Novice license, we were limited on HF to low power, CW and crystal control. The idea was to get our skills up to snuff, before they let us run amok on the bands with “full gallons,” and voice. My first transmitter was a cathode-keyed 6AG7 on 80-meters, with a switched tap on the pi tank so that I could run it as an oscillator doubler on 40-meters. I

suspect that the horrid combination of chirp and key clicks generated would not cut it in our current environment!

Probably the most interesting part of the issue was that of crystal control, or as it was called, being “rock bound.” The QSO strategy was to send a CQ, then tune a small amount around your crystal frequency looking for a response. Alternatively, you found a caller near your crystal frequency, called back, and hoped for the best. You might have had enough cash to pony up funds for a few different crystals, but then, as now, custom crystals were a pricey commodity.

Flash forward some 50 years. In recent years, I have explored the paths of QRP radios, building almost every kit available. My shack is fitted out with at least four QRP rigs, not counting a commercial Yaesu FT-817ND. What new worlds to conquer?

On the 40-meter band, the majority of QRP activity is around 7,030 or 7,040 kHz. When things get crowded action seeps to either side of these “watering holes.” Well, what is going to happen if you simply have a crystal-controlled transceiver that *only* works on one or both of these frequencies? I built a “Pixie II” transceiver for 7,030 kHz with somewhat indifferent results. There is a serious problem in its design

with signals from an AM transmitter about 10 miles away. Also, all the wall-warts and TV sets in the house seem to generate enough spurious EMI and RFI to seriously compromise reception by such a simple rig.

The VFO controlled Wilderness Radio NorCal 40A and similar radios are much more sophisticated designs, but often more expensive. Prowling through the Internet, I came across a really interesting transceiver kit marketed by Hendricks QRP Kits. www.qrpkits.com This is their DCxxB crystal-controlled direct conversion transceiver. You can't beat the price at \$30, plus shipping. At that price, it was worth a try.

A while later arrives a nice little box in the mail containing a really pretty PC board and a couple of bags of parts. The rig can be ordered for 20-, 30-, or 40-meters. I opted for the 40-meter version, as that has generally been my band of preference for QRP work. The band specific issues concern a few different capacitors, inductors (toroids to be wound here!), and

an appropriate crystal. The stock crystal is 7,040 kHz. There is a kit for a “U” shaped chassis, connectors and a 7,030 kHz crystal is available. I opted not to use this, as I both had some 7,030 kHz crystals in the junk box and I wanted to mount the rig in an enclosed chassis for shielding and safer operation in the field.

So, what do you get for your \$30? The design is pretty straightforward. The receiver input side has a simple tuned circuit. This should go a long way to dealing with overload from strong AM stations. I fitted the rig with a DPDT toggle switch to switch between the 7,030 and 7,040 crystals, as I mentioned. A bench test during construction showed I was definitely going to need the shielded enclosure, as my friendly AM radio station came roaring through.

The most interesting feature of the rig is the embedded microprocessor to provide a full-function keyer with adjustable keying speeds, two memories, and most important to me, a beacon mode. With the beacon mode, I can do some simple propagation and antenna pattern studies.

“What new worlds to conquer?”



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Petr Hlozek, OK2CQR

What is HamQTH.com?

In a nutshell, it is a free ham radio callsign database with many useful functions. You can create your own profile with photos, biography, QSL information and more. The Web site includes a log search function, propagation, a map, and a list of the station's recent activity. HamQTH.com runs on an Ubuntu 12.04 server with 28GB RAM and uses MariaDB for the database, replicated to another location.

History

Everything started on June 2011 when I decided to write my own call book database. It took about 14 very long nights to develop its basic functions like adding addresses and photos. At first the database utilized only a few call books available on the Internet including data from the FCC. The new call book was released on 29 June 2009. I received much e-mail and, most importantly, many additional call book databases from hams wishing me good luck with my new endeavor. It took some time, but after a month or so we had over 1,300,000 callsigns in the database. Later, I added Google maps support, XML interface for application developers, recent activity and other very useful functions. This year, we celebrate our two-year anniversary.

What Does HamQTH.com Offer?

HamQTH.com offers many interesting functions. After you create your profile with your nickname (name used on the air), QTH and country, you can enter your QSL card address. This address can be completely different from your country and QTH. You can also enter additional information like CQ zone, ITU zone, latitude and longitude, IOTA, state, county and oblast (of Russian stations).

Tabs index your profile page. In the first tab, you can have information about you, your gear and antennas. The second tab shows a map with your location and the location of station you are seeking. Also provided are sunrise and sunset times at your QTH and the other station's QTH. Very useful!

The third tab indicates a station's recent activity. I've written a small program, which collects data from the Reverse Beacon Network and DX cluster. This data is stored in the

database. The last 100 records are available and over six million records in total are stored. It is a very nice feature if you want to know how often and where a station is mostly active.

The fourth tab is log search function. It is available only to operators using this function and who want their log information available worldwide. It can show basic statistics: QSO count, first and last QSO and a list of recent QSOs. All this is configurable including visible fields: QSO date, time on, reports, QTH, name, county and power. Graphical statistics: QSOs per band, mode, year and continent are shown. DXCC statistics from your QSO will soon be available. You can add this log search function to your personal Web site.

The fifth tab is a propagation prediction calculated from your position and the position of the station you are looking for. This is possible thanks to the VOACAP Web site.

HamQTH.com offers a DX cluster with a Web interface and Telnet access.

Uniquely, you can color your spots according to the QSOs you have uploaded to HamQTH.com. New countries are marked in red, new band in blue and new mode is green. All are configurable.

HamQTH.com can do even more, check my profile at: <http://hamqth.com/ok2cqr> where all features are enabled.

How About Application Developers?

Almost all HamQTH.com functions are available to application developers through XML: callsign search, recent activity, real-time log interface and DXCC search. DX cluster feed is available in CSV format. HamQTH is currently supported by many logging programs including: Logger32, UR5EQF log, Xmllog, MacLoggerDX, Win-EQF and more. A list of all apps is available at: http://hamqth.com/app_support.php ■



Petr, OK2CQR

"Very useful!"



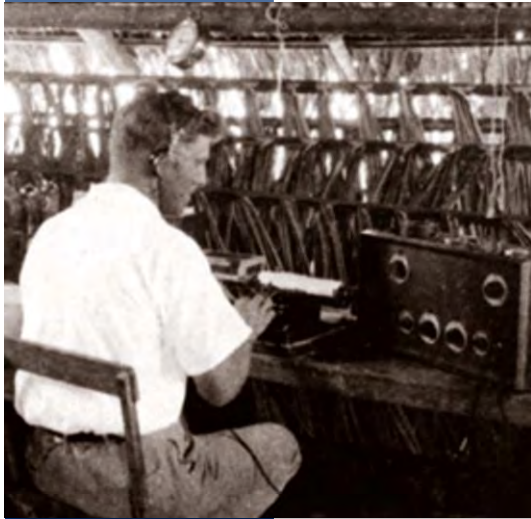
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Harvard Magazine

May-June 1988

"Rivers became [Rice's] specialty... On seven expeditions to South America he... explored some 500,000 square miles of the Amazon basin. On his last trip, in 1924-25, he... ascended the Orinoco River to



John W. Swanson
at Boa Vista

its headwaters, traversed the natural Casiquiare Canal, and descended the Rio Branco to the Amazon at Manaus [Manaus]. It was the first expedition to use aerial photography and shortwave radio." A map resulted, ... "the first map, [it was believed], of a large area that was ever made from the air." [In 1919 the U.S. Coast and Geodetic Service, in cooperation with the U.S. Army and Navy Air Services, used aerial photographs "to revise nautical and

aeronautical charts."]

New York Times

August 12, 1924

EXPLORER TO SEEK ORINOCO'S SOURCE;
Dr. Alexander Hamilton Rice Is Now at
Para With His Wife and Flier Hinton.

VOYAGE TO TAKE 2 YEARS

Seaplane and Radio Will Be Used to
Penetrate Hitherto Uncharted Region.

Dr. Rice, departed the U.S. in March on his attempt to reach the headwaters of the Orinoco and arrived in Para, Brazil, where other members of his party awaited him. "On this, his seventh trip to the Amazon Basin, Dr. Rice [will perform] research for the American and Royal Geographical Societies."

The Hydroplane

A major advancement in carrying out the massive task of surveying the upper Amazon River basin was a custom built Curtiss Seagull flying boat (hydroplane). Christened *Eleanor III*, it was named for Dr. Rice's wife, Eleanor Elkins Widener, a survivor of the *Titanic* disaster. Eleanor's first husband, "Philadelphia tycoon" George Dunton Widener, and son, Harry Elkins Widener, also aboard the doomed vessel, did not survive. *Eleanor III*'s pilot was Lieut. Walter Hinton, renowned for piloting the U.S. Navy's Curtiss NC-4 flying boat during the first transatlantic flight from

New York to Lisbon, Portugal during May 1919—on a 19-day, multi-stop, journey.

For drawing maps and charts the Rice Expedition plunged into the new science of photogrammetry (measuring and drawing from photographs) using a Fairchild aerial camera. Every morning, before setting out, the camera was warmed before a campfire to evaporate the lens-clouding moisture endemic to the high humidity environment.

Photographer and balloonist, Captain Albert W. Stevens of the U.S. Army Air Service operated the large and heavy camera within the Seagull's narrow confines. The aircraft was flown for approximately three hours early every morning before the rising ambient temperature could induce engine overheating. That was after the aircraft was "swept clean of ants and termites and spider webs, which covered the control panel and cockpit like volcanic ash" and the "poisonous reptiles" that dropped into the cockpit overnight from overhanging riparian foliage.

The fragile, thin-shelled, *Eleanor III*, "shifted the human vantage point in the Amazon from below the canopy to above, tilting the balance of power that had always favored the jungle over its trespassers."

Radio Operators

John W. Swanson, sole radio operator on Rice's 1916-1917 and 1919-1920 expeditions, was named chief radio operator. To participate, Swanson was granted a leave of absence from his position as United States Government radio inspector of New York City. In the U.S. Navy, WWI, he served as a radio inspector with the rank of ensign. No transmitting equipment was used on the two earlier Rice expeditions, only receivers to intercept

time signals—for determining longitude—and news bulletins. Those receivers were constructed by Paul Godley, 2ZE, one of the amateurs involved in the famed Trans-Oceanic/Trans-Atlantic Tests of 1921.

Thomas S. McCaleb was selected as assistant radio operator. McCaleb's previous work experience included the position of radio laboratorian, at the U.S. Navy Yard, Norfolk, Virginia and inspector for the Independent Telegraph Company of New York. Dr. Rice described them in a June 1926 *National Geographic Magazine* article as "radio-telegraphists."

Swanson and McCaleb assembled the expedition's radio gear into three units. The largest unit, a 400-watt (also described as ½ KW) transmitter and receiver,

"...ants and
termites and
spider webs..."



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was installed at the Boa Vista base of operations; a small 10-watt transmitter/receiver destined for the Curtiss hydroplane; and a lightweight, portable, 25-watt unit for the survey party.

In a test, the hydroplane successfully established radio contact with the Boa Vista station. However, the set plus radio operator proved too great a burden on the 160 hp (some sources cite 100 hp), six-cylinder, aircraft and was removed.

Radio Gear

Equipment of the Rice Expedition station WJS extracted from the report, "The Radio-Telegraphy of the Hamilton Rice Expedition, 1924-25" by John W. Swanson.

(Grammar, punctuation, spelling and syntax as in the original.)

1. A supersensitive radio time signal receiver... wave-length range of 1000-2000 meters (300-150 kc)... loop antenna, 1 stage of radio frequency amplification, detector, and one stage of audio frequency amplification. The radio frequency transformer consisted of honeycomb coils... interchangeable for the various wave-lengths. The receiver was enclosed in a moisture-proof case constructed of brass, and could be submerged in water for hours without damage.

2. A portable radio station consisting of a ½-K.W. vacuum tube transmitter to operate on the wave-lengths of 95, 1500, 1950, and 2250 meters (3.1 Mc, 200 kc, 154 kc and 133 kc). This transmitter consisted of 8 UV 203 A R.C.A., V.T. tubes paralleled in a standard Hartley circuit.

The primary power plant for this transmitter was a 1 ½ K.W. Delco electric 110-volt system. A generator driven by an efficient kerosene motor arranged in a very compact unit charges 60 cells Exide storage battery, 100 ampere type. A standard dynamotor of the Electric Specialty Company 110 volts D.C. primary, 1200 volts D.C. secondary at 1 ampere, was used for supplying current to the plates of this transmitter. A 12-volt 210-ampere-hour battery supplied current to the filaments of the tubes.

3. A portable 25-watt V.T. transmitter to operate on a maximum wave-length of 100 meters (3 Mc), for use by the advance party in communicating with the base. This transmitter utilized two 50-watt UV 203 A R.C.A. vacuum tubes, arranged in a standard Hartley circuit. Two 6-volt 40-ampere-hour Exide storage batteries supplied current to the Electric Specialty Company dynamotor, 10 volts D.C. primary, 500 volts 3 amperes secondary. The complete equipment, exclusive of the battery-charging

unit, which consisted of an automobile generator bolted to a small gasoline engine, weighed but 50 lbs.

4. A 10-watt V.T. transmitter and radio receiver for the air-plane. This equipment including necessary accessories weighed 50 lbs.

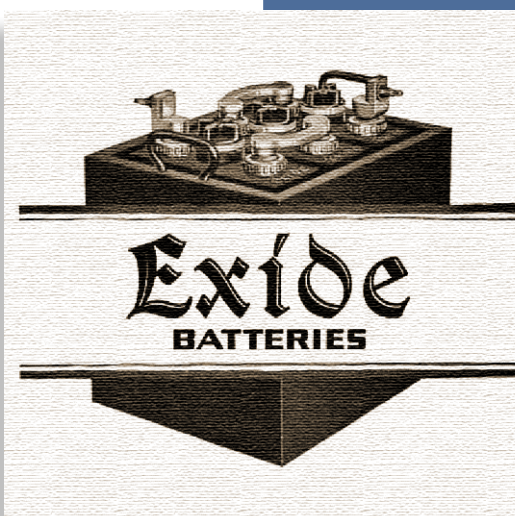
"B" batteries manufactured by the Burgess Battery Company, Madison, Wisconsin, were selected. The smallest size were connected into 45-volt units and placed into light wooden boxes made large enough to receive them and still allow the battery to be completely covered on all sides with pure paraffin. Packed thus, a battery will withstand considerable mishandling and have absolute protection against moisture, which is the chief cause of rapid deterioration of dry-cell life in the tropics.

The cost of this gear was \$6,000 (\$80,559.30 in 2012 dollars).

A common denominator running through many scientific and record-attempting activities of the time was their choice of Exide and Burgess radio batteries. Don Mix, 1TS, legendary ham and celebrated employee of the Burgess Battery Company was featured in many of their ads and is remembered as a pioneering avionics designer. (See: *K9YA Telegraph* July 2009, January 2007 and April 2008)

At Manaus the first transmission tests were made. There the 400-watt transmitter operating on 200 kc (1,500 meters) succeeded in raising Para, 850 miles distant.

Reception tests at Manaus were at first disappointing. After many nights only broadcasting stations KDKA, 920 kc (East Pittsburgh, Pa.) and WGY, 790 kc (Schenectady, N.Y.) were reliably heard. Both KDKA (Westinghouse Electric & Manufacturing Co.) and WGY (General Electric Co.) were designated Standard Frequency Stations by the Department of Commerce's Bureau of Navigation. Eventually a "lone code station," 8XI, licensed as a special land station located at Ohio State University in Columbus, Ohio was copied—poorly.



"... 'lone code station,' 8XI..."



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CONTINUED - HAMILTON RICE ON PAGE 8



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CONTINUED - HAMILTON RICE FROM PAGE 7

CONTINUED - QRP REDUX FROM PAGE 4

Rice's previous expeditions carried receiving equipment to receive time signals from WWV then located in Washington, D.C. For this expedition, time signals from NBA, located in Balboa, Canal Zone were used to check chronometer accuracy. "[T]ime is transmitted by Balboa... at 12.55 to 1 p.m. and at 4.55 to 5 a.m., seventy-fifth meridian time [Eastern Time Zone], on 7,000 meters (42.8 kc). Undamped waves are used, but so interrupted by a chopper as to be audible on a crystal detector." However, once on location it became evident, comparing NBA's signals to those from NSS, Annapolis, Md., that Balboa's signal gradually increased by three-tenths of a second over a period of two weeks.

Punctuating these early radio tests was a short-lived political revolution (Second Tenente Revolt) that threatened to prematurely end Dr. Rice's plans. The newly installed revolutionary government banned "ether communication" in Manaus. Antennas set up on the town's outskirts were explained to de facto government officials as "baited fish lines set to catch turkey buzzards" so their blood could be analyzed "by the medical branch of the party." ■

CONTINUED - BEEN THERE DONE THAT FROM PAGE 3

Z I decided Cal's call was Tango Whiskey rather than Charley Whiskey. And I rectified the situation.

Jim couldn't wait to find Jim on 20-meters to share my event with him.

BEEN THERE AND DONE THAT. WELCOME TO THE CLUB. HI HI ■

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Ham Lingo

DICK SYLVAN, W9CBT



HOMEBREW EQUIPMENT

If you want to run straight key, then close the paddles during power up. Pressing the small function key accesses various internal menus: messages, keying speed, and the like. A digest of the commands is provided as a download. I cemented a copy of this to the underside of the case for quick reference.

The output of my transceiver is slightly over one watt with a 12.8-volt power supply. A SLA gel cell could run it for a *very* long time. Since the beacon mode would result in about a 50% duty cycle on the final amplifier, I decided a heat sink would be a good idea. Some time back, I built the Ft. Tuthill 80-meter transceiver. It uses a pair of FETs in the final amplifier, with a piece of aluminum bar stock cemented with epoxy resin as a heat sink. This seemed like a good idea. A trip to my junk box turned up some 1/2" aluminum bar stock. A small piece now forms the heat sink. Maybe this is overkill, but there is no need to fry the finals if you do not have to! If it appears to have excessive heat buildup, I will drill some ventilation holes in the case.

The documentation suggests a good set of ear-phones will be necessary. A nice pair of "drugstore headphones" seems to work just fine. I also used an amplified computer speaker with good results, though the headphones make for better domestic tranquility. ■

The Backstory...

A story behind the build: When I was a kid I built a vacuum photocell-controlled relay. I was having problems with it. My dad, having friends who did electronics, took me to see one. The fellow took one look at my handiwork and terrible soldering skills and gave me a good dressing down.

Needless to say, though that was rough on a teenager, I took it to heart. Also, when I worked for EG&G, we were doing stuff that was shipped to our customers, along with our in-house development. I learned to take some pains with my work's appearance. It doesn't take that much longer to make it look good.

If you have read about Steve Jobs, you will know he was as concerned about the internal appearance of his devices as their outside appearance. I guess it is simply a matter of professional pride. It is the same deal with the people who paint the back of furniture, nobody sees it, but we know it is there.