

K9YA Telegraph

Robert F. Heytow Memorial Radio Club

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Autochenilles Across Asia

The 1931 Haardt-Citröen Trans-Asia Expedition

Philip Cala-Lazar, K9PL

The place names along the 13,500 mile route taken by the 1931 Haardt-Citröen Trans-Asia Expedition read like passages from *A Thousand and One Nights*: Hsinghsinghsa, Qomul, Karakoram, Sinkiang, Srinagar, Kashgar and Peiping.

Three years in the making, the expedition marked another bigger than life adventure where amateur radio operators served as the primary means of communication. The third of three André Citroën-sponsored treks to Africa and Asia, it comprised 40 men, 14 trailer-towing machines and expedition leader, Georges-Marie Haardt's dog, Flossie.

The Haardt-Citröen Expedition (*La Croisière Jaune*) was an ambitious enterprise that aimed, over a yearlong period, to cross the Asian continent on a course paralleling the legendary Silk Road. The expedition's staff included cinematographers, artists, and scientists of many disciplines including famed anthropologist Teilhard de Chardin, filmmaker Georges Specht, and ethnographer, artist, Alexandre Iacovleff. Along their routes, whether traversing the Gobi Desert or picking their way along boulder-blocked Himalayan Mountain passes, they faced extremes of temperature and terrain, insurgencies, hostage taking, wary natives and equipment failures.

As planned, the expedition would travel as a single group, eastward, along the route taken by Marco Polo across Asia. All that changed when the Soviet Union denied passage through its territory including Russian Turkistan and civil unrest in Afghanistan made travel in that country uncertain and hazardous. The decision was then made to split into two groups: Lt. Com.

Victor Point led the China group, headed west, from Tientsin on April 6, 1931. The Pamir group, led by Haardt, departed Beirut headed east on April 14, 1931, both groups to eventually meet in Kashgar, Chinese Turkistan.

Autochenille

The 14 vehicles deployed were Citroën P14, P17 and P21 *autochenille*—half-track-type—trucks equipped with the Kegresse system of tracked propulsion. Adolphe Kegresse's design employed tracks constructed of canvas and rubber powered by rear axle-mounted bogies. A large roller mounted ahead of the *autochenille's* front bumper kept it from bogging down on soft terrain and when ascending slopes. The Pamir group's P14 and P17 vehicles were equipped with 1,628 cc four-cylinder, 30 hp engines while the China group's P21 vehicles boasted 2,442 cc six-cylinder, 42 hp engines. All vehicles were equipped with winches and solid, puncture-proof tires. Unladen, the P17 weighed approximately 4,300 lbs.

"A Thousand and One Nights"

Radio to the Rescue

Roger Kervizic, the group's radio operator, traveled in an auxiliary generator-equipped P21 that also

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Paul W. Ross, W3FIS



The words cryptography and security brings to mind scenes out of the Second World War of spies, clandestine operations and the OSS. In practice, cryptography, in its modern form, is an essential element of current e-commerce and basic privacy enhancement. It is an area of technology that many of us either take for granted, or ignore because of its apparent complexity. Indeed, some of it is quite complex, but a good understanding of some

essential concepts will go a long way toward making you less vulnerable to hackers, snoopers and people who have no business knowing your business. Keep in mind that “Part 97” of the FCC requirements does prohibit us from sending encrypted information, but knowing how it works is interesting, nevertheless.

What makes cryptography and security such interesting topics? Perhaps it is the aspect of the unknown, or their apparent difficulty and complexity. The technical internals of cryptography can indeed be complex—modern cryptography makes use of some of the most profound mathematical ideas yet discovered. On the other hand, the ideas back of cryptography and security, and how these ideas can be used to protect your vital data, ensure privacy, and discourage tampering, are quite simple. And, it is important to know these technologies’ limitations—they are not a magical “cure all” for carelessness or inattention on your part.

Basic security issues can easily hang on these three major ideas:

- Something you have—a physical key, an ID card, a security dongle, or the like.
- Something you know—a password or a secret handshake. Your mother’s maiden name, or your dog’s name are often used. You favorite beverage perhaps? You want something not easily guessed by others.

- Something you are—your appearance, your fingerprints, your voice, or if you want something exotic, your retina patterns.

If we satisfy two of these concepts at the same time, we have a very strong mechanism for developing a secure system. In this article we will examine the issues primarily associated with “something you know.” We will exclude messy discussions on “rubber hose” cryptography, where you are hauled into a back alley and forced to give up the password!

PIN

Let’s look at a common and apparently innocent problem. A good place to start is the simple security issue of accessing a computer system with something as simple as the PIN number for your bankcard. The PIN number, in the case of the bankcard, or your password, in the case of accessing your computer system is what we call a key or password.

This is a piece of information known (hopefully), only to you. It is quite analogous to the keys you carry in your pocket for your car and house. As long as you are the only one who has them, then the security of your house, barring a burglary or major break-in, is relatively safe. By analogy, as long as only you know the PIN number or password, then unauthorized access to your bank account or computer system is relatively difficult for others. Let’s

see where the dangers to security lie in these simple systems above.

The PIN number for a bankcard is typically only four digits in length. That means that there are only 10,000 possible combinations—the numbers 0000 through 9999. An exhaustive search (trying all possibilities) is prevented in systems like bank machines by confiscating your card after three false tries.

We are actually more vulnerable. How do we disseminate a password or key in a secure manner? At a minimum, it has to be sent to you by something like the U.S. Postal Service. You could also go and get it in person, but you must be able to prove that you are indeed who you say you are. Some simple things in combination, such as your ZIP code, Social Security number and your

“...not a magical
‘cure all’...”



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mother's maiden name have been used with success to make impersonation more difficult—at least enough to dissuade the casual “hacker.”

Small Secret

Let's digress a little and consider what cryptography is. Cryptography is the art of using “a small secret” to hide a “large secret.” In this case, the key or password you have is the “small secret,” and the “large secret” is the document, e-mail message or VISA® card number you wish to hide from prying eyes. With a single key, used to both encrypt and decrypt the message, we face these problems:

- Security of the key dissemination process.
- Compromise of the key by unauthorized parties.

In addition, what about the encryption and decryption methodologies employed? A simple one-for-one substitution strategy (Captain Midnight Code Ring to people from my generation!) doesn't change the statistics of the message—see how easy the “jumbles” puzzles in the newspaper are to crack. A few good guesses and the knowledge that “t” and “e” are the most frequent letters in the English language, and their solution is trivial.

Any encryption technique should make the resulting encrypted message look like “noise”—all characters or letters are equally likely, and there is no apparent pattern to the sequence of letters. A fairly reasonable solution and standard approach is the NES—National Encryption Standard. However, with modern computer systems, these codes can be broken in a fairly short period of time (hours). The NES is being replaced by AES—Advanced Encryption Standard, as of the fall of 2000. This method uses a slightly different algorithm, and holds off the “evil day” with better results.

With one known exception, encryption strategies can be broken. What you are doing is using a simple mechanism to encrypt and decrypt the message (from your viewpoint), but is providing what we call a “hard” problem for the person who intercepts the message—they will have to put in substantial work and resources to break the code. By the time they break the code, this information will no longer be useful. Consider that a two-week-old copy of the Wall Street Journal is ancient history. The Wall Street Journal for the day after tomorrow would be quite another thing—there was once a cool science fiction story along these lines!

What can we do about the key exchange problem? This problem was well understood by the early 1970s, but

no satisfactory solution was known. The current best answer to this is known as the RSA—Rivest Shamir Adleman algorithm. It uses some very elegant ideas from number theory to create a “split” or two-part key system.

Public & Private Keys

If one part of the key (known as the public key) is used to encrypt the message, then it may only be decrypted by the holder of the matching “private” key. Simply put, I publish my public key – you use it to encrypt a message to me, and I use the private key, known only to me—to decrypt the message.

What makes this especially effective is that I have a computer program to create the keys, public and private, in the first place, so I don't have to go anyplace, or communicate to anyone to generate my public/private key pair. There are some subtle problems with possible authentication and impersonation issues, but the RSA algorithm provides a very strong system, removing the major problems of key dissemination, interception and compromise that we have discussed. The RSA algorithm has become quite popular. It is currently used in secure mail systems, such as Zimmerman's PGP – Pretty Good Privacy, and secure web servers, such as are used for on-line ordering where private information, such as your VISA® card number must be transmitted. Just think of the consequences if your customer's vital financial information were to be compromised – you would be out of business faster than you could say “Rivest Shamir and Adleman”!

For an excellent discussion of cryptography, sources of information, and useful links, check out www.counterpane.com. This is the firm of Bruce Schneier, one of the major authorities in cryptography and network security. This is a “must read” for those of you who would like to explore the ramifications of these problems.

In the second part of this series, I'll discuss some of the other interesting aspects of security, such as password protection, physical security and secure network protocols. ■



Enigma Machine

“...Rivest
Shamir Adleman
algorithm.”



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The Memory of My First CW Contact

In Memory of a Radio Gentleman

Anthony Catalano, WW2W



Nowadays many new hams get their start on the VHF and UHF repeaters as soon as they get hold of an HT. Getting on HF for the first time, at least for me, was a big deal and I'm sure it still is for many hams.

The idea of live CW operation was one of terror to me. So here I was, by choice, about to operate CW from my station with my "ticket" on the wall as per the law. I had half a telephone book's

pages of paper-practice under my belt and had passed the Novice and Tech with 5-wpm in one sitting. I also had zero experience of actual contact via live, International Morse code communication. In front of me was my fresh, just out-of-the-box, ICOM 735 and its matching power supply—at the ready. The key was one of those cheap, gold-color Radio Shack straight keys screwed to a thin slab of wood double-taped to the desk. I had just nervously practiced a little off-the-air "sending" using the rig's sidetone. Also in front of me were all the possible particulars and all the possible permutations of a simple QSO written on two pages of ruled loose-leaf; or so I thought. I tuned up by finding a clear frequency and sending QRL? a few times. I waited and repeated. I then sent a few short "vees" and transmitted a key-down of maybe ten seconds concluding with DE N2HRJ—my old callsign. Just doing this made me nervous because I now felt "committed."

I was tuned to the CW portion of the Novice band on 40-meters. It may have been just above 7.112MHz. It was on a late Sunday afternoon in January 1988. I got up and down, went to the fridge for some juice. My brother asked if I was okay. I must have looked pasty, fidgety and ghostlike. You know the feeling. I just went back to The Chair and started to tap out CQ CQ CQ DE N2HRJ

N2HRJ N2HRJ K at a spastic 3- to 7-wpm. I was relieved when nobody answered, of course. I did it again and again—nothing. I was surely asking for trouble. Another sigh of relief. The fourth time being a charm with me, I heard something. Did I step on the return signal of somebody's QSO? Am I a LID? I'm such an idiot! I was not writing anything down. I then heard a familiar pattern. Holy Moley, it was my own call echoing back from that disproved stuff called The Ether! He did it again twice and I somehow managed to get his callsign down the same way twice. It was some W1BNW station calling Me. Me! We exchanged the basic information and this gentleman, by the name of Chad, took me under his CW wing and we had a fine chat that lasted for over forty minutes. I missed maybe fifteen percent of the words, but I was able to get the gist of his communications and I was able to back-fill the missing stuff later. I knew his callsign was an old type and that he probably could send ten words for each one of mine, but he automatically "QRS'd" for me with perfection.

*"Age is 82 years.
Ham 62 years."*

My fingertips were becoming numb. I was sweating ice-cold in a New York January. We both signed with a CUL although it was never meant to be. I was so happy to send an actual 73 OM to another ham whose QTH was many hours away by car. It felt like getting a late Christmas present in January.

"Man, all this junk actually works!" I exclaimed. I was elated for hours if not days. My walk had a bounce in it for I was now an actual ham. I had a few short QSOs after, but the first QSO was the best. About two months later after receiving my card, I was gifted with his. On the back of his card he kindly wrote the following:

Hi Tony, thanks for the QSL card. Yes it is a great hobby and you will enjoy more every day. Rig is a Kenwood 940S. Ant is a dipole. Age is 82 years. Ham 62 years. Happy New Year.

73 Chet

It dawned on me many "Happy New Years" later, as I looked at the card, that this old timer was hanging



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out on the Novice portion of the band just to greet newcomers to ham radio. I now think to myself, "Wow, isn't that a great way to put a positive face on The Hobby: An open-arms welcoming pat on the back in code from a true Radio Gentleman.

Someone else now has Chet's call sign, which saddens me because of what that likely must mean. 1988 minus 62 is 1926 so Chad may have been licensed originally as 1BNW for all I know. I had been communicating with someone right out of a page of ham radio history!

An actual SPARK ham perhaps and very likely so! I appreciate that it is extremely unlikely to be able to do that in 2009—I think you'd have to find a ham well over 100 years old. Our tiny windows of life overlapped just enough to be able to say hello to each other. This is the true magic of radio. I became absolutely sure of that.

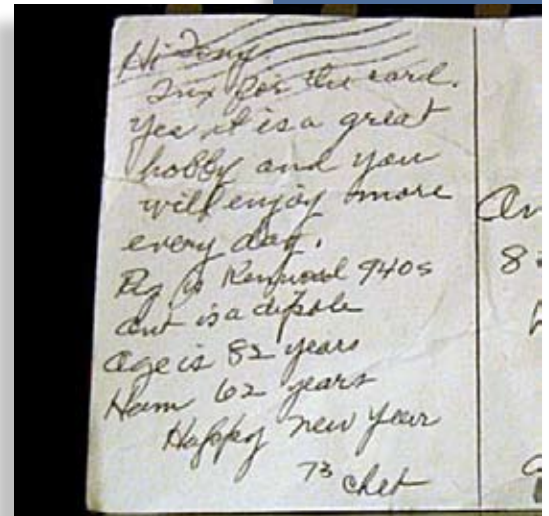
Chet's card placed him in Osterville, Massachusetts at the time. I recently did a search on the Internet and found out he is listed as a Silent Key on the Old, Old Timers Club list. It was on that list I found out he had passed away only three months after our wonderful conversation.

W1BNW became a Silent Key on the 27th of April, 1988. A shadow crossed my heart. I grieved as only a ham could grieve for someone he had never met

in person and never will meet that way again. Not long ago, in the midst of sending my normal CQs, I found myself calling Chet just one time near "our" frequency on CW knowing he'd never reply. I listened with a sorrowful stillness, surrounded by the awful reply of empty static for a few eternal moments. I then resumed my normal calling of CQ and listened for them as well, trying my best to treat them as warmly as Chet would have.

The Old, Old Timers Club list of radio gentlemen and gentle ladies, can be found at <http://www.ootc.us/> It was there I found out Chet Crosby, W1BNW, was born on the 28th of August, 1896. He was first licensed as 1BQW in 1921. His Spark Op number was and always will be #1897 and he passed away on the date stated above. It's funny how we learn to cherish something even more later. Not that it was no big deal then! I feel honored to have met you via radio, good, gentle Sir!

CUL 73 OM W1BNW DE WW2W EX-N2HRJ ■



Nathan B. Stubblefield, American Inventor

By Bob Ballantine, W8SU

The major battles declaring wireless's inventor ended long ago. Yet, today, in 2010, the status of Nathan B. Stubblefield (1860-1928), American inventor and Kentucky melon farmer, remains unresolved.

Nothing is sacred, it seems: Marconi, Tesla, Fessenden, deForest; all have been discredited by one group or another while claiming primacy for their particular hero.

Is it too late for the Nathan B. Stubblefield? Not for the city of Murray, Kentucky and Murray State University, both claim him as their local visionary.

WNBS in Murray uses Stubblefield's initials in their AM radio call sign and Murray State University's physics club is named in his memory. Two monuments exist in Stubblefield's honor, one on the lawn of the Murray courthouse and the other erected in 1930 on the Murray State College campus.

Nathan was the second of seven sons of lawyer William "Capt. Billy" Jefferson Stubblefield and Victoria Bowman Stubblefield of Murray. Orphaned in 1874, Nathan was tutored by a governess and later attended the Male and Female Institute, a boarding school in Farmington, until his father died.

Nathan furthered his technical knowledge by reading the popular publications of the day including *Electrical World* and *Scientific American*. He married Ada Mae Buchanan in 1881; they had nine children, three of whom died in infancy. His son, Bernard, was primary assistant in the wireless telephone experiments.

In 1892 our Kentucky farmer and inventor publicly demonstrated wireless including the transmission of voice and music. In 1898, according to the St. Louis



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The Shortest NTS Message Ever Sent

A Dit in Time

Bob Dillon, WB9LTN



The Author, WB9LTN, a Few Days Before Operating Field Day from Ocean View, Big Island, HI.

I don't have much ham wallpaper in my shack. I haven't worked 350 countries, I am not in the A-1 Operator Club, and I've never saved a life by handling an SOS call. I may have cured a few cases of insomnia (I'm sure I've had hams fall asleep during our QSO's!). But I think I hold the record for sending the shortest NTS message ever sent.

Back in the mid-1970's, I lived in Indiana, and often checked into the Indiana CW Section

Net of the ARRL National Traffic Service (NTS). It was a friendly group, and provided several learning experiences for its members (perhaps not the least of which was learning to copy one of the worst fists in hamdom, it was said you weren't a real ham until you had copied (name withheld—he may still be alive) sending the word “banana.” It came out “bppa” which does not sound much like an edible fruit, but I digress.

It was common for a few of us to hang around the frequency for a few minutes after the late session to ragchew. On one of these gatherings there were four participants: myself; Peggy, W9JUI (one of the premier traffic handlers of all time); Wade, W9JMW; and Lynn, WB9KTR (now W9FC). After about 20 minutes of a roundtable CW discussion, Peggy suggested it might be time to sign off and get some sleep. The other three of us agreed in turn, and after the last member signed, someone sent the obligatory “double E” (dit dit) which is often used in CW QSO's as a way of indicating that one is still awake after the other party or parties has finished with their final transmission.

I'm not sure if some of us had imbibed too many 807's, but this led to all four of us sending “double E's” for probably about a minute. It was finally obvious that Wade and Peggy had given up on the tomfoolery and gone to bed (Lynn was just slightly off frequency, so

I could recognize his signal, even from just the two dits). Eventually Lynn had the brilliant idea of changing the exchange to a single dit instead of two dits. I responded in kind. Then Lynn, ever the creative one, began to stretch out the length of time between my single dit and his response. Somewhat intrigued by this development, I followed suit, and soon was using my watch to add 10 seconds to the time between my previous dit and Lynn's. It became obvious Lynn was doing the same. We finally got this stretched out to where Lynn's response was over three minutes after mine. I added ten seconds to that, sent my final dit, turned off the rig and went to bed. I was 100% sure that after an interval 10 seconds longer than mine, a single dit pierced the airwaves heard by no one. But I wasn't yet finished!

Lynn had told the net control that evening he would not be on the early net the next evening. So the next evening when I checked in, I told the net control I had traffic for KTR, and would not be able to check into the late session and requested that someone hold the traffic for Lynn. The net control asked an operator who was not one of the group that hung around after the late session if he could hold the traffic, and he replied that he could, so net control sent the two of us off frequency to pass the traffic. For those of you who are not familiar with traffic,

there is a specific form for sending it that contains a preamble with information on the originator, the origination location, message number, check (number of words) and origination date. BT, then the address of the recipient, another BT, the text of the message, a third BT, and the signature follow this. So my message went like this:

NR 201 R WB9LTN 1 HUNTINGTON IN AUG 17
BT WB9KTR BT E BT BOB WB9LTN AR N.

There was a pause, and the receiving station sent? Text? To which I sent: TEXT BT E BT.

After another pause while the receiving station digested the fact that the text consisted of a single letter (indeed,

“dit dit”



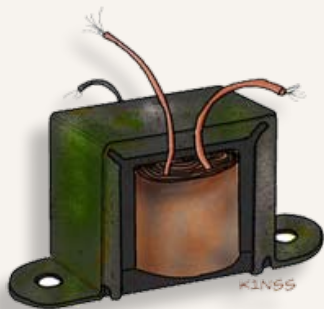
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The Moment

By Erwin R Gaines, W50TP



I never had an elmer. I learned code with a hand-wound Instructograph. Took the class "C" exam in November 1941, and due to a little unpleasantness received my operator's (only) license in February 1942.

Finally received my station license in 1946 and built my first station using iron chassis and bored the holes for tubes with a brace and fly cutter. The rack was made from 2x4s. A pair of 811s modulated the PP 812s. I particularly enjoyed the 40-meter band, which was CW only. Years later I fired up the modulator section as by that time I had a class "A" ticket. I do not remember my first amateur contact as I had operated AACS stations in India and Ceylon during WWII. Living in west Texas I felt less isolated with a ham station to operate. ■

Call for Articles

Have a story to share? An experience to relate? Some gear to review? A technical tip to dispense? Feeling didactic or pedantic? Write it up, add a couple of appropriate photographs and send them off to the *K9YA Telegraph*. Hams worldwide will thank you, and so will we.

Here's the place to start:

http://www.k9ya.org/write_for_us.htm

Rod Newkirk, VA3ZBB/W9BRD

Rod and Betty Newkirk would like to thank everyone who sent their get well wishes. Rod continues to improve while undergoing rehabilitation following a mini-stroke.

Please join us in our prayers for Rod's rapid recovery and return to his favorite pursuits.

You may send your get well soon wishes to Rod via the *K9YA Telegraph* at: telegraph@k9ya.org

Dispatch, the signals spanned a documented distance of 500 yards. In March of 1902 he demonstrated a ship-to-shore broadcast on the Potomac River in Washington, D.C., and then received patent 887,357 for a wireless telephone dated 12 May 1908.

Stubblefield feared someone would steal his invention, so he sheltered it from everyone. He had been offered a half-million dollars for his invention, but turned it down because he felt it was worth more. In later years of his self-imposed isolation in a crude shelter near Alamo, Kentucky, Nathan reportedly expired of malnutrition in 1928. He rests at Bowman Cemetery in Murray. Stubblefield's melon farmland of 85 acres now comprises the Murray State University campus.

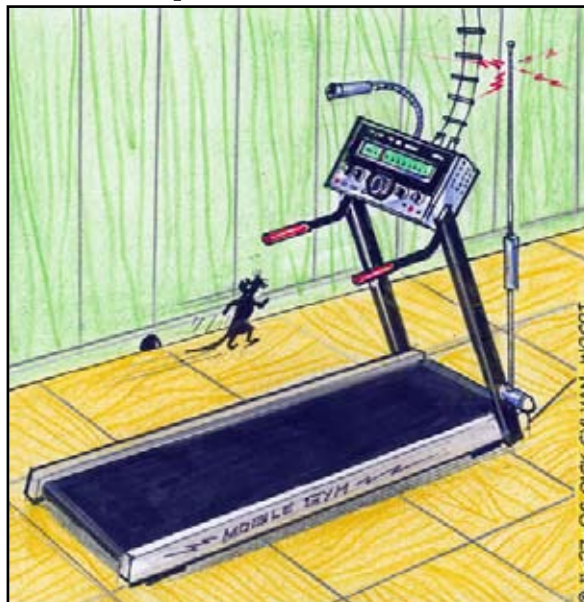
In 1943 the U.S. Supreme Court ruled Nikolai Tesla was "The Father of Radio." Stubblefield made a comment before his death, "I've lived 50 years before my time." ■

CONTINUED - NTS MESSAGE FROM PAGE 6

a single dit), he sent QSL, and we returned to the net frequency. Now, of course, I was listening to the late session even though I did not check in or give away my presence. Lynn checked in and was sent off frequency with the station holding my message. After Lynn sent several HI's (CW laughter), he QSL'd the message, and of course replied with his own single digit message (originated on another net in hopes I would be as surprised as he was), but I decided at that point that the foolishness had progressed far enough and let the issue rest. After all, I was FIRST! ■

Ham Quips

DICK SYLVAN, W9CBT



AN END TO 'QSO-BESITY



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mounted the expedition's 500-watt transmitter and was assigned the callsign FPCF. Auxiliary radio stations located along the route provided an additional means to relay the expedition's dispatches. The July 1931 *QST* column "Finding the Expeditions" indicated the "Motor Car Station" was operating on 8,000 kc and 8,240 kc.

QST for October 1931 noted: *All news dispatches to the National Geographic Society from the Haardt Trans-Asia Expedition in Asia are being received and delivered to the Society by radio amateurs. The expedition relays its news releases from station FXC in Beyrouth, Syria on 8 mc. 2300 G.C.T. DAILY.*

In addition to the approximately 150 operators detailed by the ARRL to monitor the expedition, all hams were invited to send reception reports and messages copied from FXC to ARRL headquarters. The article lists the Washington, D.C.-area amateurs who handled the majority of the expedition's dispatches: W3BWT, W3CXL, W3BEG, W3CIC, W3NR and Jesse R. Clough (not yet licensed). Stations in Portsmouth, Virginia and Long Island, New York covered for the D.C. stations in case of poor conditions or other eventualities. In at least one instance, during an electrical storm over D.C., the outlying stations were able to copy that evening's dispatch and forward it to the National Geographic Society.

One contingent of the China group was detained and held hostages incommunicado for nearly five months in the city of Urumqi by Shu-Jen governor general (also described as "warlord") of Sin-Kiang province in northwest China. Eventually, the captive Frenchmen feigning to celebrate the "centenary of the Third Republic," erected a flagpole, a.k.a., disguised vertical antenna to hoist the French Tricolor. Now with a stealthy skyhook, the radio operator got a Morse message out to the Haardt group that eventually led to their rescue. The settlement leading to their release included supplying three, previously promised, P17s and furnishing a radio operator to assist Shu-Jen's army, insurgents having cut the region's telegraph lines.

Another radio communiqué related the dismantling and reassembly of two P17s in order to traverse the landslide blocked Burzil Pass, at 13,775 feet, between Srinagar and Gilgit.

The Haardt-Citröen Expedition was featured with accompanying black & white and pastel-hued color

photographs in a 1931-1932 series of articles in *The National Geographic Magazine*. And, in 1933, the French documentary film *La Croisière Jaune*, (comprising some of the more than 40,000 meters of film shot) co-directed by André Sauvage and Léon Poirier premiered to positive reviews and in 1936 earned a National Board of Review award. <http://www.youtube.com/watch?v=FI5AT5jaBGY&feature=related>

Completed on February 12, 1932, the Haardt-Citröen Trans-Asia Expedition must be considered a great success for the mass of scientific data, photographic and cinematographic images collected, and for its triumphal testing of men and machines. Contributing in no small measure to this victory were the amateur radio operators who provided a reliable news conduit and lifeline to men far distant from home.

On March 15, 1932 Georges-Marie Haardt, now in Hong Kong, died of pneumonia complicated by a preexisting bronchial condition. ■

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