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History Rocks

Posted by [REDACTED] @ 2009-05-15 10:08:34

Tags: tolkien, cryptologic almanac

Mood: cheerful

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(U) CRYPTOLOGIC ALMANAC

(U) From Cypher to "Elvish": J.R.R. Tolkien, Signal Officer and Cryptographer

(U//~~FOUO~~) By Robert J. Hanyok

(U) John Ronald Reul (J.R.R.) Tolkien's chronicles of the history of Middle Earth -- which include the *Lord of the Rings* trilogy, *The Hobbit*, and the prehistories known as the *Silmarillion* and *The Book of the Lost Tales* -- have fascinated millions of readers ever since their publication beginning in the 1920s and concluding in the early 1950s. Tolkien, an etymologist and scholar of ancient and medieval Teutonic, Scandinavian, and Icelandic literature, poured a depth of linguistic, mythological, and cultural context into his stories that added a fullness and verisimilitude that was lacking in most previous modern epics of fantasy and myth, as well as most successors.

(U) What fans of his books do not know generally is that there is a cryptologic side to the life of J.R.R. Tolkien -- a childhood interest in cryptography that translated into a brief career as a signal officer in the British Army during the Battle of the Somme from July to November 1916. As a battalion signal officer with the 11th Lancashire Fusiliers of the 25th Division, Tolkien was responsible for communications and cryptographic affairs for his unit. As such, he found himself immersed in perhaps the bloodiest battle in the history of British arms in which the British army, or "Kitchener's mob," as it was popularly termed, suffered some 420,000 casualties. Tolkien himself was one of those, a victim of "trench fever."

Approved for Release by NSA on 02-17-2026, FOIA Case # 64726

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(U) In late 1915, after completing his degree work at Oxford, Tolkien received a commission as an officer and joined the Royal Corps of Signals. His choice to join the signals corps was a matter of personal taste: its work with communications and cryptography was personally interesting. In a small way, too, the choice increased his chances for survival. Signal officers served in the trenches, but stayed behind to man the communications for the unit commanders. Another veteran signal officer was A.A. Milne, the creator of Winnie the Pooh. He referred to signaling "as much the most interesting work in the infantry."

(U) Tolkien joined the 13th Lancashire Fusiliers of the 25th Infantry Division at Brocton Camp, in the industrial heart of England, in December 1915. There he received training in the various methods of encrypting and encoding tactical messages and the techniques for transmitting them. In the days before tactical radios, there were a number of ways to transmit a message; most still harkened back to the 19th century and earlier. For example, signal officers had to learn how to use semaphore flags during the day. In addition, he had to learn how to send messages with a heliograph, a device developed during the Napoleonic wars, which involved "dot" and "dash" equivalents of the letters of the alphabet. At night, signal lamps were used. He also had to learn how to use signal rockets and carrier pigeons.

(U) The most important instruments that signal officers used were the field telephone and a variety of buzzer telegraph devices. These were clumsy devices to use. These landline telegraphy devices used a single wire and were grounded in the earth. More critically, they were incredibly "leaky," that is, the signal they emitted traveled in all directions and was easily heard by the Germans in the porous soil using "induction stakes," pieces of metal driven into the ground – sometimes as far from British lines as three hundred yards. In mid-1915, the Germans appeared to be quite aware of British military plans. Espionage, as usual, was suspected, but on the first day of the battle of the Somme, British troops, upon capturing a German trench, found a verbatim transcript of the British order to attack that had been intercepted by Germans monitoring the buzzer telegraph lines.

(U) In March 1916, Tolkien was sent to Farnley Park near Yorkshire for further training. He was mediocre at best with the signal lamps, achieving a speed of about six words a minute. But he excelled in the written test and map reading and was issued a certificate that permitted him to teach army signalers. In May he was reassigned to the 11th Lancashire Fusiliers as a battalion signal officer. By the middle of June, the 25th Division was shipped to France for the big offensive.

(U) On 1 July the British launched the Battle of the Somme. Massive preparations and artillery barrages failed to hurt the German defenders. The British suffered 57,000 casualties on the first day. Tolkien's division was committed to the fight on 5 July. Throughout the next three and a half months, Tolkien would perform the duties of a battalion, brigade, and division signal officer. His duties were numerous. Besides overseeing the transmittal and reception of messages, he had to supervise the laying of communications wire from command posts to forward positions, and ensure that codes, ciphers, and signaling instructions (callsigns, schedules, etc.) were current. As a signal officer, he had to know where every unit was – no small feat in the chaos of trench fighting. In fact, because of this knowledge, some signal

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officers filled in as temporary unit commanders in place of those killed or wounded. Although he never participated in any "over the top" attack, Tolkien spent much time in newly captured German trenches and endured a number of German artillery barrages.

(U) On 25 August, all of the 25th Division's signal officers were recalled to the rear for a week of instruction that emphasized security lapses revealed by the captured German transcripts. Messages were shortened. Telephone calls were cut down. Their signal posts were not hidden well enough and were subject to artillery strikes. Too much reliance was placed on runners and too little on pigeons. The signal officers probably were chided for slow communications as well. Many units were not getting orders on time, while requests for supplies, reinforcements, and artillery support often were tardy.

(U) Tolkien returned to the 11th Lancashire Fusiliers in early September. The unit moved forward to occupy a position the Germans had abandoned earlier. By this time, the late summer rains began to fall and the battlefield turned to miserable ooze that hindered movement and wore down the troops' morale.

(U) In September Tolkien was introduced to a new device, the "Fullerphone," which was the answer to the insecurity of British trench communications. Invented by Captain A.C. Fuller, it was a small direct-current Morse telegraph device. It had the advantage of having a simultaneous send/receive capability. But the most important aspect of it was that it produced a current of only 0.5 microampere (one-half of one millionth of an ampere), much too low to be heard by the Germans unless a direct tap was put on the line. The Fullerphone also had a range of 25 to 30 miles on landline without a repeater. Fuller introduced an interrupter to the signal that changed the steady direct current to an interrupted one, producing a tone of that eased reception at the other end.

(U) By October, the weather had turned colder. Frost now appeared on the ground. Tolkien's unit took over a position in the trenches known as the "Mucky Farm." An attack on German position on 19 October resulted in the capture of almost 700 Germans. Tolkien "flashed" news of this victory to divisional headquarters by carrier pigeon. On 22 October the Fusiliers were relieved and sent to the rear, having suffered close to 25 percent losses. Tolkien had lost one signaller in the fight; while another received a medal for hauling the cages of pigeons through German gunfire. On 27 October Tolkien reported to the medics with a fever of 103 degrees. He had contracted trench fever by the transfer from body lice of the bacterium *Rickettsia quintana*. Within a few days he was sent to a hospital in England. For Tolkien, the war would be over. He would never recover sufficient strength and was mustered out near the end of the war. For fans of Tolkien's work, contrary to popular opinion, he took little from the battle into his books. This idea was "all spoof," as he noted decades later. He said that "You might scribble down something on the back of an envelope and shove into your back pocket," but there was little time for writing during the battle.

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(U) In 1939 Tolkien was invited by the Government Code & Cypher School to a week-long refresher course for "professorial types." On the class roster, it was noted that his attitude was "keen," and that he had aptitude for Spanish and Scandinavian languages. But he never joined GC&CS. Tolkien had long left behind the world of codes and ciphers for that of myth and ancient literature. In these years would appear the chronicles of elves, hobbits, and Middle Earth. British cryptology's minor loss would be world literature's great gain.

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2385 [redacted] @ 2009-05-15 10:45:11

hqw to pronouce "POS"

(U) I never heard it as "pause"; it was always "poz".

2386 [redacted] @ 2009-05-15 11:42:50

Perhaps "pause" and "poz" are pronounced the same, where the author grew up.

When I began working here I had to get used to people pronouncing "Mary," "marry," and "merry" exactly the same. (In my home, all these words were pronounced quite differently). Lots of people at NSA say what sounds to me like "git merried," for "get married."

2387 [redacted] @ 2009-05-15 12:12:48

(U) *ENLIGHTEN isn't completely dead ...*

(U) ... it's just mostly dead.

(U) All ESS streams are cross-posted to ENLIGHTEN. ESS 1364 is one of the handful whose distro didn't get hoised maybe a year ago. You can find it in pubs.history.

2388 re 2387 [redacted] @ 2009-05-15 12:28:06

Re: (U) ENLIGHTEN isn't completely dead ...

(U) Good point. I check ENLIGHTEN about once a week and it certainly feels as if it is on its last legs. :)

2389 [redacted] @ 2009-05-15 13:08:17

(U) Thanks for posting! What a neat story. :-) It's cool to know that two of my favorite artists (Tolkien and Tom Lehrer) were cryptologists!

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2390 re 2389 [REDACTED] @ 2009-05-15 13:18:31

(U) I must admit when I saw the reference to Elvish yesterday I thought of you!

2391 re 2385 [REDACTED] @ 2009-05-15 13:55:16

Re: how to pronounce "POS"

Pahz, yes. Not "pause."

Also, to me, "sitting pos" meant sitting on line in the collection center, "listening live," so to speak, as opposed to transcribing or doing SA off line. Nothing to do with the length of the intercept.

239 [REDACTED] @ 2009-05-15 14:16:32

Tolkien comes full circle

When I was stationed at [REDACTED] I took at University of Maryland literature course on Tolkien. One of my classmates, [REDACTED] For his final paper in the class he detailed the syntax of the Sindarin (High Elvish) language. The professor was impressed enough to get it published in the UMD monthly publication. Wish I could remember the name of the publication.

2393 re 2386 [REDACTED] @ 2009-05-15 18:28:18

(U) I do pronounce them almost if not entirely identically.

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2394 re 2385 [REDACTED] @ 2009-05-15 20:07:20

Re: how to pronounce "POS"

Right, pahz, like a New Englandah might say "pars." On the other hand I never heard or used "sitting pos." It was more like "I spent all night on the pos" or "sitting the pos" or "at/sitting the rack" (as opposed to "in the rack" which was bed). But then, those were my Navy days. Never heard it referred to as "pause" (like cats' feet). I also remember that sitting an HF SSB pos during a thunderstorm was always just a joy for both the op and the scribe who came along afterward. Sometimes you could tell who was dozing off by the randomly bobbing head as the lightning struck.

239 [REDACTED] @ 2009-05-18 13:36:33

Tolkien was also quite the linguist, of course.

While this article shows his involvement in crypto and signals -- including Morse code -- it only briefly mentions his facility with languages. Beside the various languages of his academic specialty, and the mentioned Spanish, he was also fluent in modern German and French, and in classical Latin, Greek and

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Hebrew.

In fact he did the translation for the book of Job in the English edition of the New Jerusalem Bible. This required translating from Hebrew into English, while referring to the French edition for guidance in style.

2396 re 2395 [REDACTED] @ 2009-05-18 19:50:37

Re: Tolkien was also quite the linguist, of course.

(U) Good point; I suspect [REDACTED] was trying to focus on the skills he used during his military service.

Thanks!

2399 re 2398 [REDACTED] @ 2009-05-19 12:27:15

Am I just dense?

I've read over this Tolkien article a couple of times and I'm not seeing where it talks about "POS" and it's pronunciation. Sorry, I often miss things that should be obvious.

2400 re 2399 [REDACTED] @ 2009-05-19 12:41:29

Re: Am I just dense?

(U) The "History Today" item for 15 May discussed the "POS" issue; I think folks were just commenting on that in that day's blog posting rather than making a new post.

(U) Maybe I should make a daily posting for comments on each day's History Today. Thoughts? I can test this for a few days before I go on leave and then resume when I return.

2401 re 2400 [REDACTED] @ 2009-05-19 12:48:39

Re: Am I just dense?

Gotcha. Thanks.

To me "pause", "POS", "paws", and "pahz" are all pronounced the same (in fact I'm having a hard time imagining how anyone would pronounce them differently, so I'm intrigued: If I heard them pronounced by someone who does distinguish them would my ear be able to detect the difference? I know there are phonemes in Portuguese that I have never been able to distinguish despite unremitting efforts on my part. Now I'm left wondering whether there are English phonemes that I can't distinguish.)

What I have had to get used to is "where" and "wear" being pronounced the same, or "whine" and "wine", "which" and "witch", "whether" and "weather". I pronounce them differently.

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2426 [redacted] @ 2009-05-21 06:16:14

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Very interesting story - I knew that JRR Tolkien was a linguist and in the war, but had no idea of the signals link.

[redacted]

Thanks!

2427 re 2426 [redacted] @ 2009-05-21 10:22:49

Re: Cryptologic Almanac

(U) [redacted] I'm going to pass your comment to Barry Carleen, head of our Publications effort. I believe he maintains a list of [redacted] who want to receive the Almanac.

2440 re 240 [redacted] @ 2009-05-22 13:45:56

Re: Am I just dense?

(U) (drawing on some very old recollections from a linguistics course): contrast Portuguese "a" ("paz") with Portuguese open "o" in a stressed syllable (póz). The former is close to the way I pronounce "pos"; the latter, "paws" or "pause". Does this make any sense?

Cheers,

2441 re 2440 [redacted] @ 2009-05-22 13:58:16

Re: Am I just dense?

Oh yes, that makes perfect sense. I guess that while I've accepted those as distinct phonemes in Portuguese, I never thought of them as distinct in English (I really don't use the Portuguese open o at all when speaking English). Thanks for the very helpful explanation.

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