

# Nyquist was just an alias

Sampling theory, most people believe, says that you must take samples at more than two times the highest frequency of interest... This is not really what Nyquist said, however. You need to obey this rule only if you want to avoid **aliasing**. (And by the way, telecommunications pioneer **Harry Nyquist's name is itself an alias**. His family name was Jonsson, but Harry's father, Lars, changed it, because another Lars Jonsson lived just down the road, and mail delivery became a real problem.)

<http://www.reed-electronics.com/tmworld/article/CA528048.html>

## The Sweden years

Harry Nyquist's parents Lars Jonsson and Katarina Eriksdotter got married 1879. The year after they bought a farm in Tomthult together with Olof Jonsson a brother to Lars. The farm is called "Där Sör" and is situated 40 kilometers north of Karlstad, the main town in this region called "Värmland". In 1894 the couple released Olof from the farm. An interesting fact is that the family was baptists when the Swedish church is Lutheranian. The name Jonsson had to be changed because just hundred meters away there lived another Lars Jonsson and there was huge problem with the mail delivery. Therefore they agreed to change names, which not was a rare thing to do at this time. **Harry's father changed the name to Nyquist**. Harry was the fourth child of eight and was born on 7 February 1889 in Nilsby, Sweden.

Nyquist moved to the United States in 1907.

<http://www.geocities.com/bioelectrochemistry/nyquist.htm>

**Harry Nyquist** (A'39-M'47-F'52) was born on 7 February **1889** in Nilsby, Sweden. He attended the University of North Dakota, Grand Forks, from 1912 to 1915 and received the B.S. and M.S. degrees in electrical engineering in 1914 and 1915, respectively. He attended Yale University, New Haven, Conn., from 1915 to 1917, and was awarded the Ph.D. degree in 1917.

From 1917 to 1934 Nyquist was employed by the American Telephone and Telegraph Company in the Department of Development and Research Transmission, where he was concerned with studies on telegraph picture and voice transmission. From 1934 to 1954 he was with the Bell Telephone Laboratories, Inc., where he continued in the work of communications engineering, especially in transmission engineering and systems engineering. At the time of his retirement from Bell Telephone Laboratories in 1954, Nyquist was Assistant Director of Systems Studies.

During his 37 years of service with the Bell System, he received 138 U. S. patents and published twelve technical articles. His many important contributions to the radio art include the first quantitative explanation of thermal noise, signal transmission studies which laid the foundation for modern information theory and data transmission, the invention of the vestigial sideband transmission system now widely-used in television broadcasting, and the well-known Nyquist diagram for determining the stability of feedback systems.

After his retirement, Nyquist was employed as a part time consultant engineer on communication matters by the Department of Defense, Stavid Engineering Inc., and the W. L. Maxson Corporation.

Before his death in 1976 Nyquist received many honors for his outstanding work in communications. He was the fourth person to receive the National Academy of Engineer's Founder's Medal, "in recognition of his many fundamental contributions to engineering." In 1960, he received and the IRE Medal of Honor "For fundamental contributions to a quantitative understanding of thermal noise, data transmission and negative feedback." Nyquist was also awarded the Stuart Ballantine Medal of the Franklin Institute in 1960, and the Mervin J. Kelly award in 1961. He passed away on 4 April **1976**.

[http://www.ieee.org/organizations/history\\_center/legacies/nyquist.html](http://www.ieee.org/organizations/history_center/legacies/nyquist.html)