


 The IEEE news source

[TECH TOPICS \(/TECHNOLOGY-TOPICS\)](#) [TECH HISTORY \(/TECH-HISTORY\)](#) [BLOG \(/BLOGS\)](#) [SPECIAL REPORTS \(/SPECIAL-REPORTS\)](#)

[Sign up for newsletter \(/static/email-alert\)](#)

[MEMBERS \(/MEMBERS\)](#) [CAREER & EDUCATION \(/CAREER-AND-EDUCATION\)](#) [RESOURCES \(/RESOURCES\)](#)  (#)

[HOME \(/\)](#) / [TECH TOPICS \(/TECHNOLOGY-TOPICS\)](#) / [CYBERSECURITY \(/TECHNOLOGY-TOPICS/CYBERSECURITY\)](#)

## A History of Hacking

People have been breaking into systems electronically for more than a century

By [AMANDA DAVIS \(/author/davis-amanda\)](#) 6 March 2015

This article is part of our March 2015 special report on [cybersecurity \(/static/special-report-cybersecurity\)](#), which highlights IEEE's efforts to help engineers defend systems against security and privacy threats.

Though hackers have gained notoriety in recent years, few may realize that the first hack occurred more than a century ago. Throughout history, hackers tampered with telegraphs and census machines before turning to the Internet. Although hackers are known today for causing widespread damage, some of their exploits saved lives and led to better system security.

### TAMPERING WITH MARCONI'S TELEGRAPH

In the early 1900s, Italian physicist [Guglielmo Marconi \(http://www.ieeeahn.org/wiki/index.php/Guglielmo\\_Marconi\)](#) developed a [wireless telegraph \(http://ieeeghn.org/wiki/index.php/Milestones:Marconi%27s\\_Early\\_Experiments\\_in\\_Wireless\\_Telegraphy\\_1895\)](#) that could broadcast radio-telegraphic messages on a specific wavelength to establish private communications channels.

Marconi's invention posed a threat to the wired-telegraph industry. In response, the Eastern Telegraph Co. hired John Nevil Maskelyne, a British magician and inventor who had experimented with wireless technologies, to monitor Marconi's work. According to an [article \(http://www.newscientist.com/article/mg21228440.700-dotdashdiss-the-gentleman-hackers-1903-lulz.html?full=true#\\_VN0Z-0tmmjc\)](#) in *New Scientist*, Maskelyne was able to build broadband receivers capable of intercepting Marconi's so-called secure transmissions without knowing their frequencies.

John Nevil Maskelyne  
Photo: Wikipedia

In June 1903 Marconi held a public demonstration in London to show how his device could receive a message from a station nearly 500 kilometers away. But before he could receive the message, an intruder delivered this to Marconi's receiver:

*Rats rats rats rats.*

*There was a young fellow of Italy,*

*who diddled the public quite prettily.*

The message went on to further mock and insult Marconi.

The inventor wrote a letter to the *The Times*, of London, dubbing the hack "scientific hooliganism" and asked the newspaper's readers to help him find the culprit. Four days later, the newspaper published a letter from Maskelyne in which he confessed to transmitting the message to Marconi's device and said he did so to demonstrate its security flaws.

This hack revealed that the wireless telegraph was not as secure as Marconi claimed. And if others could transmit messages to his receiver, nothing would prevent them from intercepting the messages as well.

### HACKING TO SAVE LIVES

When the Nazis invaded and occupied France in 1940, René Carmille seized an opportunity to save the lives of French Jews. He was a punched-card computer expert and comptroller general of the French Army as well as an agent for the French Resistance. He also owned and managed the Demographics Department in Vichy, France, which housed information-processing machines for census forms.

After the invasion, the pro-Nazi Vichy government ordered a nationwide census. Carmille requested the assignment of compiling data from the census forms onto tabulator cards for analysis. His group transferred the data, including information from Column 11—where citizens were asked to indicate their religion—onto tabulator cards. They were instructed by the Nazis to sort the cards and print a list of all Jews living in France so that they could be located and sent to concentration camps.

René Carmille  
Photo: Julien Demade/Wikipedia

Over the course of two years, Carmille and his group purposely delayed the process by mishandling the punch cards. He also hacked his own machines, reprogramming them so that they'd never punch information from Column 11 onto any census card. Instead, Carmille's groups spent most of their time using the information on the cards to find and recruit former French soldiers for the French Resistance.

Carmille successfully sabotaged the assignment until 1944, when the Nazis discovered what he was doing. He was arrested, tortured, and sent to the concentration camp in Dachau, Germany, where he died the following year. Despite his tragic end, Carmille saved an untold number of lives.

### AN EARLY WORM

A 23-year-old graduate student from Cornell wrote the code for the first computer worm to be distributed through the Internet. It disabled 10 percent of the computers connected to the Internet at the time. The worm worked by infecting computers with malware—and once the malware took hold, it would continue to replicate itself like a virus until the machines slowed and eventually shut down.

Robert T. Morris

Robert T. Morris released 99 lines of code on 2 November 1988 from computers at MIT to disguise the fact that the worm originated at Cornell. The now-infamous Morris Worm infected roughly 6,000 computers, rendering them useless. The worm, which infected computer systems at U.S. universities, research centers, and military bases, caused an estimated US \$10 million worth of damage (equivalent to about twice that amount in today's dollars).

Photo: Intel Free Press

The attack prompted the Defense Advanced Research Projects Agency to fund the establishment of CERT, a computer emergency response team for dealing with Internet security incidents, at Carnegie Mellon University, in Pittsburgh.

On 26 June 1989 Morris was the first person to be indicted under the Computer Fraud and Abuse Act, enacted by Congress three years earlier to address the distribution of malicious code and denial-of-service attacks. He was sentenced to three years probation and fined \$10,050. It would prove to be only a small setback for Morris, who went on to cofound Viaweb, one of the first web-based applications that allowed users to build and host their own online stores. He sold the company to Yahoo in 2005 for \$49 million, according to an [article \(http://www.washingtonpost.com/blogs/the-switch/wp/2013/11/01/how-a-grad-student-trying-to-build-the-first-hotnet-brought-the-internet-to-its-knees/\)](http://www.washingtonpost.com/blogs/the-switch/wp/2013/11/01/how-a-grad-student-trying-to-build-the-first-hotnet-brought-the-internet-to-its-knees/) in the *Washington Post*, and is now a professor of electrical engineering and computer science at MIT.

*IEEE membership offers a wide range of **benefits and opportunities** (<https://www.ieee.org/membership/benefits/>) for those who share a common interest in technology. If you are not already a member, consider joining IEEE and becoming part of a worldwide network of more than 400,000 students and professionals.*

**[Join IEEE \(/static/enhance-your-the-institute-experience-become-an-ieee-member\)](/static/enhance-your-the-institute-experience-become-an-ieee-member)**

## RELATED

</tech-history/technology-history/ieee-milestone-honors-polands-world-war-ii-code-breakers>  
**IEEE Milestone Honors Poland's World War II Code Breakers (/tech-history/technology-history/ieee-milestone-honors-polands-world-war-ii-code-breakers)**  
A trio of mathematicians was the first to crack Germany's Enigma code

</tech-history/technology-history/did-you-know-us-presidents-have-secretly-recorded-conversations-since-1940>  
**Did You Know? U.S. Presidents Have Secretly Recorded Conversations Since 1940 (/tech-history/technology-history/did-you-know-us-presidents-have-secretly-recorded-conversations-since-1940)**  
Unauthorized recordings provide insight into the history of presidential leadership

[LEARN MORE COMPUTER SCIENCE \(/TAG/COMPUTER+SCIENCE\)](#) [CYBERSECURITY \(/TAG/CYBERSECURITY\)](#) [HACKING \(/TAG/HACKING\)](#) [TECH HISTORY \(/TAG/TECH+HISTORY\)](#) [TELEGRAPH \(/TAG/TELEGRAPH\)](#)

[Home \(/\)](#) [Contact & Support \(/static/help\)](#) [IEEE Newsletters \(/static/ieee-newsletters\)](#) [Privacy & Opting-Out of Cookies \(http://www.ieee.org/privacy\)](#) [Terms & Conditions \(http://www.ieee.org/terms\)](#) [Nondiscrimination Policy \(http://www.ieee.org/nondiscrimination\)](#) [Advertising \(http://advertise.ieee.org\)](#) [Copyright \(http://www.ieee.org/publications\\_standards/publications/rights/copyrightpolicy.html\)](#) [Browser Policy \(/static/browser-policy\)](#)

© Copyright 2018 IEEE – All rights reserved. Use of this website signifies your agreement to the IEEE Terms and Conditions.  
A not-for-profit organization, IEEE is the world's largest technical professional organization dedicated to advancing technology for the benefit of humanity.

CONNECT WITH US: <http://www.linkedin.com/groups/IEEE-INSTITUTE-3968449?HOME=6&ID=3968449> <https://www.facebook.com/IEEEINSTITUTE> <http://twitter.com/IEEEINSTITUTE> </static/rss>

<http://www.ieee.org>

ADVERTISEMENT