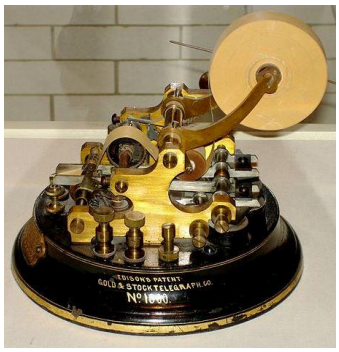
Dec. 29th

Brokerage Ticker

Dec. 29, 1867

Edward Augustin Calahan invented the ticker tape and stock ticker while working as chief telegrapher in the Western Union's New York office. At the time, stock prices and other information were transported on little slips of paper by "pad shovers" who would run between the exchange and the brokerage houses.



An Edison Stock Telegraph Ticker, Photo by H. Zimmer. CC BY 3.0.

The first stock ticker was installed in the brokerage office of David Groesbeck on this day. It output Morse code, [Oct 19] but later devices printed text, and one of the earliest practical machines, the Universal Stock Ticker developed by Thomas Edison [Feb 11] in 1869, could print at speeds of around one character per second.

By the 1880s, there were about a thousand stock tickers installed in New York banks and brokerage firms. The last mechanical ticker was made in 1960 after which computerized devices [May 10] held sway.

Psychic Energy

Dec. 29, 1891

Towards the end of 1875, while experimenting with telegraphy, Thomas Edison [Feb 11] noticed that a rapidly vibrating spark produced a spark in an adjacent but unconnected relay. Further tests showed that the phenomenon could occur over distances of several feet without the need for interconnecting cables. Edison termed this an "etheric force", announcing it to the press on Nov. 28. Unfortunately, he discontinued the research after various engineers ridiculed the idea, comparing it unfavorably to "psychic" energy. It wasn't really such a crazy notion since Edison had discovered the basics of radio communication.

Edison returned to the idea in 1885 while he was working on a railway telegraph system, and was able to transmit data over several hundred feet. He thought the technology might be suitable for ship-to-ship and ship-to-shore communication, and filed a patent which was granted on this day. Even then he didn't pursue the work commercially, and eventually sold the patent to Guglielmo Marconi [Dec 11].

Shockley's Note

Dec. 29, 1939

Next: [Dec 15]

William Shockley [Feb 13] jotted down in his lab notebook the possibility of replacing vacuum tubes with semiconductors. He believed there might be a way to get a common semiconductor, such as copper oxide, to amplify a current. Walter Brattain [Feb 10] built a couple of tests units to Shockley's specifications in early 1940, but the results were disappointing.

Success took another eight years: on [Dec 16] 1947 John Bardeen [May 23] and Brattain got the first point-contact transistor to work. The key change was that they decided to focus on silicon and germanium, rather than copper oxide. This was due to wartime advances in controlling the levels of impurities in those substances.

Shockley was unaware of earlier semiconductor experiments by Julius E. Lilienfeld [Oct 8]. His patents only came to light when Bardeen, Brattain and Shockley tried to patent their transistor.

What?

Dec. 29, 1952

The release of the first transistorized hearing aid, the Sonotone model 1010, also marked the first commercial product of any kind to use transistors. It easily beat the first transistorized radio, the Regency TR-1, which appeared some two years later, on [Oct 15] 1954. The first fully transistorized computer was either the Manchester TC ([Nov 16] 1953) or Bell Labs' TRADIC ([March 14] 1955).

The 1010 weighed 3.1 oz. (without batteries), measured 3 x 2.75 x 0.5 inches, and cost $229.50. It wasn't fully transistorized because it used two miniature vacuum tubes along with its single transistor. The tubes had a superior signal-to-noise ratio compared to early junction transistors, but even using just one transistor meant that the device's battery life was extended considerably.

The Maico Model O "Transist-Ear" holds the honor of being the first all-transistor hearing aid. It came out in early Jan. 1953, but could have been released before the 1010. However, Maico decided to do more testing first since it employed three transistors.

There's Plenty of Room at the Bottom

Dec. 29, 1959

Richard Feynman gave a lecture entitled "There's Plenty of Room at the Bottom" at an American Physical Society meeting at Caltech. He suggested it would eventually be possible to make nanoscale machines that could manipulate atoms, opening the doors to many new uses,

including smaller and denser computer circuitry.

His lecture is now considered to the birth of nanotechnology, although it went largely unnoticed at the time. Nanotechnology advocates only started citing the talk in the 1990's, probably as a result of a reference to it in K. Eric Drexler's popular 1986 book, “Engines of Creation”

For Feynman and quantum computers, see [May 2].