The Victorian Internet: The Remarkable Story of the Telegraph and the Nineteenth Century's On-line Pioneers. By Tom Standage. (A Berkley Book: The Berkley Publishing Group, a division of Penguin Putnam Inc., 375 Hudson Street New York, New York 10014, 1998. Pp. vii + 213. Preface, epilogue, illustrations. $12.)

The Victorian Internet is about the world wide web of the late nineteenth century: the telegraph. Tom Standage is a journalist who is currently the science writer at The Economist in London. In the past he has written about science and technology for many newspapers and magazines. This was his first book.

The Victorian Internet starts off in the preface explaining what the entire nineteenth century world lacked. Standage mentions things like airplanes and televisions. He then goes on to describe an emerging technological breakthrough and the implications it had on society. The hype he uses sounds just like that of the present day public towards the internet. This is the point Standage is trying to make: that none of the joys and problems society is having with the shrinking world is necessarily new. This first and most dramatic shrinking of the globe would have lasting effects.

Standage begins with a story of electricity; a mile long mass electric shocking of monks to be exact. It is from this experiment that the story of the telegraph begins. The first few chapters are used to provide a history of the idea of a network. The inventors, the politicians, the war strategist, and the government all have something to gain if an efficient means of communication over a long distance quickly can be achieved. Standage follows the theories from the basic ideas on the worktables or everyday people too the practice of installing and using their systems.

Once the idea is off the ground (quite literally as some primitive forms of telegraph were large arms installed on the tops of buildings) then came a flood of improvements as well as a flood of ways to use the system. Even with the best

mechanics the system is useless without the person on the other end knowing what you are trying to tell them. Standage also follows the birth of codes. He details how movements or series of colors were described in a codebook and those books distributed to those working the early telegraph systems.

Standage uses this timeline of codes to introduce one of the key players in The Victorian Internet, Samuel Morse. Morse's life is followed from the time he takes up his obsession with the telegraph throughout his years of perfecting his "dot" and "dash" system, until his final "sign-off" on the vast interconnected systems that was the world in the late nineteenth century. Morse is also used as the American comparison to one, William Cooke, the inventor of the electric telegraph (Independently of Morse, across the Atlantic Ocean).

Through the stories of Morse and Cooke, the parallels and differences are illustrated in both men's home governments. Both were looking for financial backers and that "Holy Grail" that is a government contract. Standage shows the reluctance of the British Government to get involved with the telegraph at first. He even tells of how Morse had to repeatedly prove to Congress the machines worth before they would give him the money to install his system on a larger scale. Where Standage finds common ground is with another nineteenth century booming technology—the railroad. In both countries the railroads were used as the first routes, and the first customers of the telegraph. Most, as payment for using their right-of-ways, got to send and receive messages for free.

Standage follows the new enterprise from the train routes in both countries separately to the ambitious project to connect them together. There are many personal

and professional problems involved in the laying of the Trans-Atlantic cable. Professional reputations are lost, personal relationships are dissolved, and a massive amount of money is spent. But once everything is in place and working some what smoothly the world is a very different place. Standage's "lighter side" of these mishaps includes stories of simple people wanting to physically send money, or in one instance a pie, over the telegraph lines.

The last half of the book deals with the social, financial, and economic implications or a world wide system. From "Love on the Wires" (Chapter 8), to the "Information Overload" (Chapter 10), the telegraph would experience immeasurable growing pains. Standage details the new ways to handle too much information on one cable. Pneumatic tubes were installed in cities, which had their own problems. Many inventors tinkered and came up with ways of sending multiple messages along the same line. The Stock Market would be updated so often that brokers could never really leave their jobs. Many of the leaders of stock and trading companies even had telegraphs installed in their homes. The Victorian Internet also follows the rise of one of the first business monopolies: Western Union.

It is at this zenith in its life that the telegraph starts its demise. Standage's last pages are filled with inventor's adding to the efficiency of the telegraph. People like Elisha Gray and Thomas Edison are mentioned. But it is a young man that Standage points out who helped nail the lid on the telegraph's coffin. Alexander Graham Bell was working on inventing a harmonic telegraph when he invented the telephone.

Standage gives a few statistics on the phone: "By the end of June 1877, there were 230 telephones… By 1880 there were 30,000"but that is all the fame this book gives the

telephone. Standage briefly discusses electricity and its pioneers, and then delves into the

legacy of the telegraph: The Internet. The position that Standage has chosen is that all

the hype and fear of the internet was once shared by people of the late nineteenth century.

He discusses all the social similarities, as well ass some of the technical ones. The binary

being compared to the dots and dashes or Morse's code. Throughout the entire book the

telegraph was seen as the technology that would harbor in the "age of peace", that a

global village was a peaceful one. It is Standage's view that the idea was a farce then,

and that it is a farce now.