Book Review

Tuxedo Park, by Jennet Conant (Simon & Schuster, 2002), 330 pp., ISBN 0684872870, $26.00

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In the early chapters of this book, Jennet Conant, granddaughter of James Conant former President of Harvard and esteemed scientist, describes brilliantly the life of Alfred Lee Loomis, philanthropist, scientist and Wall Street tycoon. Prompted by the mysterious circumstances surrounding the suicide of her granduncle, William Richards, son of Nobel laureate Theodore William Richards, Jennet using her granduncles' notes and letters, wrote this biography, which is a small but significant chapter in the history of American science.

Her accounts of Loomis depict his relationships with many Nobel Laureates in science and also detail an illicit love affair Loomis had with Manette Hobart, the wife of Garrett A. Hobart III, his protégé and secretary at Tuxedo Park. The setting for most of the book is the region of Tuxedo Park in Orange County, New York where Loomis established a research laboratory, funded solely by his personal fortune. Very important discoveries in radar detection, atomic fission, and other wartime inventions that led the allies to victory over the Germans were made there.

Because the circumstances surrounding her granduncle's death and the hush-up carried out by her family were indicative of the gentry at that time, Ms. Conant was prompted to reveal in her novel the relationship her granduncle had with Loomis in Tuxedo Park. From his papers and letters, she describes how Richards and his friend at Princeton, George Kistiakowsky, came to work at Tuxedo Park, often referring to it as a private scientific playground in the Ramapo Mountains. This area known as "Tuxedo Park" was originally developed by Pierre Lorillard, the tobacco king as a private lakefront where the rich and famous came to vacation in the forty-room cottages. Alfred Loomis owned several houses near the lake. As an eccentric and, in general, a socialite misfit, Loomis bought one stone mansion, known as Tower House and there set up his elaborate laboratory in 1926. Here, he was free to pursue his avocation in physics, chemistry, psychology and many other ventures while he entertained and invited many eminent scientists of the day to spend long weekends, holidays, and summers as his guests. During that time Loomis and his guests, the most remarkable group of young scientists,

developed and transformed their fields of science in ways that would alter the course of the war with Germany.

We are drawn into the life of Loomis who was educated in fine institutions, St. Matthew's Academy and Phillips Academy in Andover. Conant paints a picture revealing how by the age of nine he was a chess champion and could play "mental" chess without a board or pieces in two games simultaneously. After high school he entered Yale, majored in math, and made his mark as a brilliant thinker. After the death of his father, he built a close relationship with a cousin twenty years his senior, Henry Stimpson who advised him to enroll at Harvard Law School. After passing the bar, he went to work as a clerk at the law firm of Wallace and Stimpson; then, in 1912 married a wealthy Brahmin, Ellen Farnsworth of Boston. Loomis and his young bride moved to Tuxedo Park and thus began his ventures into the world of science. Shortly after the outbreak of WW I Loomis entered officers' training corps and then spent the remaining time in the Aberdeen Proving grounds in Maryland where he worked with physicists and astronomers making and testing new weapons for warfare. Here, Loomis displayed inventiveness of mind by designing a new method for determining the velocity of projectiles, know as the Loomis chronograph. This device became "a remarkably efficient invention" and the standard for the US Army and Navy equipment. While at Aberdeen, Loomis befriended Robert Wood of Johns Hopkins, considered to be the most brilliant American physicist of the time. Somewhat eccentric himself, Wood never completed his Ph.D., but became well known for his work in infrared and ultraviolet radiation that was used during the war for signaling purpose.

After returning from war, Loomis became disenchanted with life as a lawyer and left the law firm to work in his laboratory at Tuxedo Park. Knowing that he needed money to fund his science, he went to an old respected investment house, Bonbright and Co., where he met the young Landon Ketchum Thorne, also a Yale graduate, and bond salesman. Between the two of them they gathered enough money to buy the majority of shares of Bonbright, took control of the business and began specializing in public utility issues and quickly emerged as leaders in both financing and developing the electric power industry. Because of the connections Loomis made at Aberdeen where he met top scientists working on the development of new technologies for the utility business, including bigger and better transmissions lines, Loomis knew that was fertile arena for making money. Using the concept of holding companies, Loomis made way for smaller operators to be bundled into larger integrated systems with now more power to secure loans and issue bonds. Thus, Bonbright and Co. grew from a company near bankruptcy to be one of the leading private investment houses and a Wall Street legend. The Securities and Exchange Commission eventually adopted his concept of holding companies and other ideas.

In a matter of a few short years, Loomis and his new brother-in-law became very powerful and very prosperous and owned nearly all of Hilton Head Island. At Hilton Head, Loomis spent his vacations riding horseback and classifying wildlife and drawing maps to illustrate the numerous plantations on the island. In a short period of time Loomis then tired of Wall Street, went back to Tuxedo Park and there began a life-long relationship with Wood. Together they would redesign and develop a more powerful oscilloscope than that already on the market, which produced "super-sound waves" with a variety of applications. The results of their findings were published in many journals in the US, Britain and the Continent. What once were the exclusive stomping grounds for the Astors, Juillards and the like, now became a private club for many of the world famous scientists.

In the later chapters, Ms Conant describes the business trips that often took Loomis to Europe; and, on one occasion, a scientific tour he took with Wood. On this tour, Wood introduced him to most of the German physicists of the time, including Walther Nernst and Max Planck. In Copenhagen he met Niels Bohr and in England, Sir Charles Vernon Boys, maker of sensitive instruments. Because Loomis had a fixation with exactness of time and knew about the famous Shortt free pendulum clock, which kept time to one-tenth of a second per year, he decided to buy three pendulum clocks from a famous clock maker E Hope-Jones. When the "Shortt-like clocks" arrived at Tuxedo Park, Loomis installed them in a vault excavated from the solid rock on the mountain on which the laboratory stood. Then with a crystal quartz clock purchased from Bell Laboratories and equipped with the most accurate and reliable and expensive clocks, he collected data by actually measuring infinitesimal fluctuations in time, and proved that there was no such thing as keeping perfect time.

Loomis' scientific investigations followed a pattern where he would set out in one direction only to be distracted and turn towards another. Yet, Who could have known then that it was fortunate that he would give his imagination such free rein from his earliest explorations of high frequency sound waves to his chronograph and experiments with quartz crystal clocks - for it would lead him into his research into the nascent field of radar, which would become critical in the coming war.

Early in 1929, Loomis had successfully engaged himself in many scientific inventions and kept a keen eye on Wall Street. He and his brother-in-law helped formulate many large holding companies for the utility industry and all the while unlike most other investment houses never carried large inventories of the securities it underwrote - which would be the undoing of many of the biggest promoters of the Bull market. Over a period of months, during the frenzy of the Bull market, Loomis and Thorne liquidated all remaining securities and on that fateful Black Thursday, Oct. 24, the two prudent financiers were caught with their pockets full of money. The mathematical charts similar

to the standard biological growth charts Loomis had devised to track the market - timing when to get in and when to get out - saved his fortune.

Shortly after the market crash, Loomis began to dabble into the theories of brain waves. Any visitor to Tuxedo Park was immediately fitted with electrodes and brain waves were measured. Sometimes, the visitor was asked to take a nap with the electrodes attached in a special room in the basement of Tuxedo Park. In these experiments, Loomis discovered that the brain has several levels on consciousness. Between 1937 and 1939 Loomis and Howard Davis, Professor at Harvard Medical School made major advances in EEG disturbance patterns. It was during this time that the illicit affair began with Hobart's young Belgian wife and it was Richards who began writing his novel about the affair while a guest at Tuxedo Park. Shortly after the novel's completion Richards was found dead, an apparent suicide.

It is doubtful that Loomis ever suffered any misgivings about his friend's death. He had already moved on. He had begun to distance himself from Tuxedo Park and the world events further added to this distance. He had now become obsessed with German artillery and machinery and knew that the Germans were working on nuclear physics. For Loomis this presented and opportunity to further his connections and, prompted by Compton, he began working on microwave technology that led to the development of radar systems. It was during this work that he began a long-term friendship with Ernest Lawrence that was responsible for helping Lawrence fund and build the cyclotron at Berkeley.

All the while, Hitler was invading the countries in Europe and the German scientist were working on nuclear physics. By the summer of 1940, German began its relentless air attacks on England. It was then that the British government decided to send Sir Henry Lizard to America on a scientific mission, the purpose of which was to share the secrets that both governments had in the scientific technological developments for use in warfare, but which lacked the final pieces to be of use. Realizing that pulse radar required the missing piece developed by the British, the first resonant cavity magnetron, a powerful source of microwaves for use in radar detection, Loomis met with a team of British scientists in Washington in order to complete the development of the radar system. Little did he know that when he left to meet with the British his days in Tuxedo Park were drawing to a close. By then too, Lawrence was caught up in the excitement as well.

During this time Vannevar Bush, Presidential Science Advisor, and close friend of Loomis, convinced Roosevelt to start the NDRC, where in a central laboratory government and civilian scientists would work together to carry out developments in radar. The site chosen was MIT called the Rad Lab. As an academic institution it would be a place to gather scientists without attracting attention and they could work faster

because the university would advance money for the research. Here they developed the radar systems capable of detecting U-boats, and of searching for and detecting airplanes for air-to air combat. Due to political tensions and constant disagreements at the Rad Lab, Loomis, knowing that the Germans might already be ahead of them, turned his efforts to nuclear fission. The final chapters of the book detail how Lawrence, Seaborg, McMillan, Segre, Compton, Fermi, and Oppenheimer worked collaboratively with little or no administrative roadblocks because of the power and influence Loomis had in Washington due to the presence of his cousin, Stimpson and Vannevar Bush. While a recent book review in the American Scientist (Nov-Dec 2002) has questioned the authenticity of the role that Loomis played in the development of nuclear power. The reviewer found Ms. Conantâs book an interesting story about the scientific work of Loomis and his important contributions to the world of science.

For those of us “sixty-somethings” who have pursued careers in science and have come to be lovers of history, this book from the outset gives us the opportunity to glimpse, at first-hand, individuals whose theories and developments we came to learn in our science courses, but whom we often knew little of their personal side. A great read for everyone!