MY MENTOR: DR. STEWART ALEXANDER

(Talk to Pascack Historical Society, Park Ridge, May 6, 2018)

My colleague, friend and mentor Dr. Stewart Alexander was born in Park Ridge in 1914, lived and worked there for most of his life and died in 1991 at age 77. I came to know him in 1968 when I moved my family to the Pascack Valley to begin medical practice. He was a well-respected internist, widely known as both a professional and a civic leader and, as I later learned, he especially enjoyed encouraging young people to enter the profession he loved – be they college pre-meds, medical students or greenhorns like me who were just starting out.

Stewart and I often ran into each other when making rounds at Pascack Valley Hospital and when we did, he always seemed to have a fascinating story to tell about the old days – and I couldn't get enough of them. Some had to do with his experiences as a medical officer on Gen. Eisenhower's staff in North Africa during World War II but others concerned his father medical practice. Samuel Alexander came to Park Ridge, via Brooklyn and then Hackensack, in about 1910 when he took over for the area's first doctor Henry Neer who by then was approaching the finish line after some 45 years.

When Neer came to what then was called "Pascack" just after the Civil War ended, not only was he the area's first trained physician, he was the only dentist, pharmacist and veterinarian. In his spare time he served as president of the county medical society, was the town's first mayor, led the church choir - and, in order to help feed his large family, he sold pianos on the side. By the time Stewart Alexander retired during the 1980s, that three generation practice, run by three remarkable men, spanned 117 years - and it seemed to me that they never threw anything out.

Sometimes Stewart would show me his father's and Dr. Neer's old medical records and equipment and photographs – and each had an interesting story to go with it. I once asked why he hadn't written a book about them? He laughed and said that he was too busy – that I should do it! Of course I wasn't as busy as he, but what did I know? Yet, curiously enough, that's exactly what happened. I did write a medical history book – and over the next three decades a dozen more. Ordinarily, when you have a long story to tell it's a good idea to begin at the beginning - but something happened several months ago that caused me to change my plans and will start at the end

The reason was that several months ago I received an e-mail from a historian by the name of Jennet Conant who explained that she's writing a book about Stewart Alexander.**** She'd been advised that I knew a great deal about him and I admitted that was true. In fact, I've always considered Stewart to be my medical mentor because he was influential at several times in my professional career. Beyond the Pascack Valley, he was a relatively unknown doctor who had died more than a quarter century ago so I was surprised by her interest, but Conant explained that she's already spent nearly four years researching him and the reason for her interest has to do with gas - poison gas!

Jennet Conant has written five books each of which has focused on individuals who played an important role during World War II. Among her subjects have been the likes of Julia and Paul Child and their work with the OSS - did you know that? And also Roald Dahl - the author of Charley and the Chocolate Factory - who worked for British intelligence. Another book was about J. Robert Oppenheimer and his work on the atomic bomb at Los Alamos and her fifth book, published just last year, was about her grandfather James Conant who for twenty years was the president of Harvard and also was the administrative director of the Manhattan Project. I suspected that it was Jenny's first book *Tuxedo Park*, that was published about sixteen years ago, that explains how and why she became aware of Stewart Alexander.

The day after I received Jenny Conant's e-mail, there was a program shown on PBS, on *The American Experience*, that was based on her book about Tuxedo Park. Both her book and the documentary were about a little known Wall Street wizard by the name of Alfred Loomis who lived in Tuxedo Park during the 1920s and 30s. As you probably know it was an exclusive enclave of tycoons who famously called their formal party clothes "tuxedos." The place originally was used as a hunting and fishing retreat for the wealthy friends of the tobacco mogul Pierre Lorillard and even now it's still gated to keep out the *hoi polloi*.

Alfred Loomis was an eccentric multi-millionaire. He was reclusive, shunned publicity and was passionate about - of all unlikely things for a financier - experimental physics. As a gentleman scientist, Loomis built a private laboratory on his estate in Tuxedo Park where during '20s and '30s he housed many brilliant young scientists. As a result of their work came such inventions as electroencephalograms and ultrasound, but during World War II the Loomis lab with most of the scientists were transplanted to MIT where they developed radar - some claimed that radar *won* the War while the bomb only *ended* it.

So what does any of that have to do with Stewart Alexander? Be patient. I'm getting there. Jenny's family included a number of brilliant but psychologically flawed individuals. Her great grandfather on her mother's side was a Nobel Prize winning chemist at Harvard and her grandfather, the brilliant chemist James Conant worked for him - and then married the boss's daughter. Jenny explained that although her grandfather was born on the wrong side of the tracks in Boston, he rose above the haughty Brahmins and transformed Harvard into the academic powerhouse that we know. But it seems that there was a hereditary taint of bipolar disease on her mother's side and one of Jenny's great uncles who worked for Alfred Loomis at Tuxedo Park committed suicide there. The plot thickens.

Jennet Conant had access to unpublished diaries and many records of her grandfather and granduncle, but while she was doing research in Tuxedo Park she seems to have met Diane Sudgen who is one of Stewart Alexander's daughters and lives there. Diane told Jenny what she knew about her father's World War II experience and suggested that she contact Dr. Michael Nevins who might know some more. Jenny seems to have done her homework and even had read some of my books in which I've sometimes written about Dr. Alexander. So we arranged to meet at my apartment in Piermont, spent about three hours together and since then have continued to correspond.

Before I continue, let me digress to tell you a little about poison gas. During WW I, that formerly was called "the Great War," the Germans began using chlorine gas in flagrant violation of international conventions. In April 1915 the valves of 6,000 cylinders of pressurized liquid gas that had been secretly stored in trenches in Belgium were opened and within ten minutes a huge yellow cloud rolled down on the opposing French lines. The Allies were totally unprepared and more than a thousand soldiers were killed and four thousand more were disabled. During the war the Germans used twenty-eight different gases that caused more than a million deaths but mustard - which was described as "the king of battle gases" - was far more toxic than phosgene which was next worst.

Then during the summer of 1917, as the first American soldiers were arriving in France, the Germans launched another gas attack. Artillery shells containing mustard gas (which was known as "The Yellow Cross" because of the shell markings) landed with a soft "plop" and there were no immediate effects; but within a matter of hours there was blistering of skin, blindness, coughing and vomiting and many fatal outcomes. Of the war's 17 million deaths an estimated 90,000 were killed and a million left blind or disabled from gas.

In 1918 a secret poison gas factory was built at the Aberdeen Proving Ground in Maryland where more than 10,000 workers at the Edgewood Arsenal began churning out an average of thirty tons of mustard gas a day - and by the end of WWI, the United States was producing more gas than England, Germany and France combined. That operation was led by Jenny's grandfather James Conant who then was only 28 years old. Moreover, Harvard's future president was charged with developing an improved toxin derived from arsenic that would be cheaper and safer to manufacture than mustard and far more deadly. It was named "Lewisite" after the chemist (Winfred Lee Lewis) who led the work and it was expected to be "the great American gas which would win the War" - "the most terrible weapon ever devised by man." Three hundred tons of Lewisite was to be produced at a secret site near Cleveland but the armistice of November 11, 1918 ended the gas race.

It's not clear how much of this super-poison actually was produced. Accounts differed but one report (*NYT,* April 20, 1919) said that "ten tons a day" of Lewisite was being manufactured at the time the peace treaty was signed: The *NYTimes* reported,"Almost enough was on hand to destroy the entire people of the United States." After the war, the huge store of liquid Lewisite was packed in steel drums and either buried or dumped at sea, but Winfred Lewis predicted that "somewhere out in the undiscovered countries of science, there is a chemical weapon that will anesthetize whole armies."

Chemical warfare and the use of asphyxiating gases was specifically banned in the Geneva Protocols of 1925, but before long with another war looming, our War Department thought it was likely that the Germans would reintroduce chemical weapons. So a secret program was begun to find a countermeasure. In the research work use of the term "mustard gas" was prohibited so a code name "Substance X" was used.

Soon after World War II broke out, there were rumors that German researchers were developing powerful biological and chemical weapons and sophisticated delivery systems. Reportedly, they were shipping tanks of mustard gas to secret depots in Algeria and the Mediterranean region and, at the same time, German scientists were working on neurotoxins like sarin and a formulation of cyanide called Zyklon-B. In August 1943 President Roosevelt publicly warned Berlin of the consequences should they dare resort again to gas warfare:

> *As President of the United States and Commander-in-Chief of the American armed forces, I want to make clear beyond all doubt to any of our enemies contemplating*

resort to such desperate and barbarous methods that acts of this nature committed against any one of the United Nations will be regarded as having been committed against the United States itself and will be treated accordingly. We promise to any perpetrators of such crime full and swift retaliation in kind and I feel obliged now to warn the Axis armies….that the terrible consequence of any use of these inhumane methods on their part will be brought down swiftly and surely upon their own heads. Any use of poison gas by any Axis power, therefore, will immediately be followed by the fullest retaliation…

After FDR's warning, we set up chemical depots near Oran in North Africa and a 45 day reserve of more than 200,000 bombs filled with mustard or phosgene was to be stockpiled in Italy in dumps near an airport in Foggia on the Adriatic coast.

With all that as background, now let's fast forward to December 3, 1943 when the German Luftwaffe launched a surprise aerial attack on the Italian port at Bari which was packed with Allied supply ships. One of them was the American Liberty ship *John Harvey* which contained a secret cargo of 2,000 bombs - each was four feet long, weighed 100 pounds and was filled with mustard gas. The bombs had been manufactured in Maryland, loaded in the ship's hold and after stops in Algiers and Sicily, now were waiting to be unloaded in Bari. The damage from the Luftwaffe attack was devastating. Seventeen ships sunk to the bottom and more than 1000 military personnel lost their lives. Burns and blindness were almost immediate, deaths came hours or days later. In all there were 617 known mustard casualties from the Bari raid and untold more Italian citizens who never learned what hit them (nearly 14% of the casualties were fatal.)

During the summer of 1942 General Eisenhower had wired chief of staff George C. Marshall that he needed an expert in the medical aspects of chemical warfare and the man selected for the job was our hero 28 year old Lt. Colonel Stewart Alexander. He had graduated from Dartmouth in 1934 and spent the first two years of medical school there before transferring to Columbia P&S where he received his medical degree in 1937. While interning at NYU he joined the Medical Corps Reserve and toward the end of 1940 was called to active duty. Because he was interested in chemistry, he was assigned to the Edgewood Arsenal which, as you'll recall, is where James Conant had worked in the Research Division during WW I two decades earlier. Just like Conant Stewart studied the effects of mustard agents and then shortly after the war began, he was assigned to General Eisenhower's headquarters in Algiers. As an important aside, it's there that he met and married Col. Bernice Wilbur who was the army's chief of 4,000

nurses in the Mediterranean Theater. Although she outranked him, apparently it was love at first sight. Ike officiated at their wedding and the Alexanders and Eisenhowers became life-long friends.

Even as our physicists were racing to beat the Germans in building an atomic bomb, fears of gas warfare had prompted a major expansion of our Chemical Warfare Service. Its budget rose from $2 million in 1940 to $1 billion in 1942 and shortly after the attack on Pearl Harbor, the Dean of Yale School of Medicine (Milton Winternitz) signed a government contract to investigate new chemical warfare agents - among them was a newly discovered relative of mustard gas called nitrogen mustard.

Two research pharmacologists, Louis Goodman and Alfred Gilman were assigned to the secret project. Today, every physician knows their names because Goodman and Gilman's textbook of biochemistry (first published in 1941) became a classic that was used by everyone. In their rabbit experiments the toxin they used (which they called "Substance X") caused damage mostly to bone marrow and lymphoid tissue and it occurred to Goodman and Gilman that this might have potential benefit in treating human malignancies. In fact, in August 1942, which was four months *before* the Bari attack, they began treating a man who had far-advanced lymphosarcoma. He responded dramatically, but then relapsed and died after nine months. They got inconsistent effects in six other patients so what they needed was more data in humans.

Lt. Alexander was flown to Bari and right away used his nose to figure out what had happened. He recognized the pervasive garlic smell of nitrogen mustard that was familiar from his laboratory work. He suspected that the Germans must have dropped mustard bombs so he sent divers down into the harbor to seek evidence which they did. The trouble was that the bombs weren't German - they were found in the hold of the American tanker *The John Harvey*. Regardless of whose bombs they were, Dr. Alexander wanted to spread the word so that military and civilian doctors could properly treat victims - but not so fast. News of his report reached Winston Churchill who was quite familiar with poison gas from his own experience in World War I. Churchill denied that there was any gas and threatened the young doctor with court martial if he made his findings public. It didn't fit the Allied narrative.

So the affair was hushed up but Stewart's report already had reached Colonel Cornelius "Dusty" Rhoads who headed the medical division of the Chemical Warfare Service. Autopsies of forty fatal cases had revealed major destruction of lymphatic tissues and in his preliminary report Stewart wrote, "the systemic effects were far more severe than I

had ever anticipated as being possible…[which] left plenty of room for mental gymnastics." He understood that in peacetime this might have therapeutic implications and he knew about the work already being done at Yale. So when he sent his preliminary report and tissue blocks back to Edgewood Arsenal (Col. John Wood) Stewart asked that the Yale group be notified. After the war, in 1946, Goodman and Gilman published a classic paper about using nitrogen mustard as the first chemotherapeutic agent effective in humans - but Stewart Alexander's name wasn't mentioned.

After the war (1948) Dusty Rhoads was appointed to head the new Sloan Kettering cancer research institute at Memorial Hospital and invited Dr. Alexander and others to join his team there - but Stewart had other plans. He wanted to join his father's suburban practice in Park Ridge so he settled into relative obscurity and continued on for more than four decades. When he retired a few years before his death from melanoma, it ended 117 years of a three generation medical practice that began just after the Civil War.

In about 1987 an Arizona high school student by the name of Nicholas Spark won first place in a state essay contest sponsored by the Naval Historical Foundation. His subject was the disaster at Bari and in his research he learned of Lt. Alexander's struggle to get out the truth. He felt that the young officer hadn't received due recognition and at the contest's awards ceremony Nicholas Spark asked his state's senator to check out the story. He did and on May 20, 1988 - 45 years after the Bari incident and three years before Stewart's death on the island of Mystique - a small ceremony was held in Sen. Bill Bradley's Washington office to belatedly acknowledge his contribution. Now, another 30 years have passed and Jenny Conant is working to call attention to his profile in courage resisting Winston Churchill and his prescience anticipating the peace time use of nitrogen mustard. Great work Stewart!

***Jennet Conant's book The Great Secret. The Classified World War II Disaster that Launched the War on Cancer was published by W.W. Norton in 2020.