

This evening Larry Scharer and I plan to take you back a little, and maybe describe how this all started and in Larry's case, to give you some idea of what we do, the programs we have run and the progression of lung disease over the years.

I, on the other hand, hope to provide you with some history, and I will tell you that it all started with one of the basics of human emotions, FEAR. Fear based one of the most devastating diseases in the history of mankind, tuberculosis.

Mankind has probably been bedeviled by tuberculosis since the earliest of times. Human remains from 5000 B.C. have shown evidence of spinal column changes consistent with tuberculosis. Dr. John Murray's marvelous monographs recently appearing in the American Journal of Respiratory and Critical Care Medicine described evidence of a tubercle bacillus infecting long horned bison that roamed the North American continent 17,000 years ago, the thought being that probably represented a form of bovine TB. As man began to domesticate these bison, he contracted the infection, the bacillus gradually evolving to what we now call *Mycobacterium tuberculosis*.

More recent studies utilizing highly specific molecular typing suggest that this may not be the case, however.

In any event, for many centuries consumption, phthisis, the white plague was one of the leading causes of death. With the advent of the industrial revolution, the crowding of people into cities where sanitation and hygiene were virtually nonexistent, the incidence of the white plague soared. Although records were poorly kept, it was estimated that the incidence of death from TB was in the range of 1000/100,000 population. During those years, John Keats, Frederic

Chopin, Henry David Thoreau, the Bronte sisters and Elizabeth Barrett Browning were but a few of the many who contracted tuberculosis. In those years, being a consumptive was almost a mark of distinction, the pallor caused by the disease became a standard of beauty as described by Dr, Rene Dubos in a 1982 monograph. The English poet, Lord Byron is reported to have said while looking in a mirror, "I look pale, I should like to die of consumption....because ladies would say....how interesting he looks in dying."

Nevertheless, the disease continued to kill. In England from 1840 to 1850 it was estimated that 30% of laborers died of TB.

But in the past 100 years of the long history of tuberculosis, we have benefited from incredible medical progress, both scientific and clinical, in the diagnosis and treatment of the disease. Today, TB is relatively easy to diagnose and, where the right combination of medication is made available and the patient takes it, can be cured in more than 95% of cases. In certain targeted populations, the disease can be attenuated to some extent by vaccination and even prevented by chemotherapy in so called latent tuberculosis.

Wonderful we say, so why is it that the actual number of new cases of TB throughout the world is on the rise,.....8.0 million new cases in 1997, 8.3 million in 2000 and it is estimated that there will be 10.2 million in this year, 2005.

No question, the global incidence is getting worse, but the situation is actually improving in some countries. In the United States, the incidence has steadily fallen since 1992 to a new low of 5.2 new cases per 100,000 population in 2002, the last year we have statistics.

But this progress has occurred only in the rich (industrialized) nations, although there are still problems remaining in some of the inner city areas. The reverse is true in the poorer (developing) countries where the great majority (86%) of people live. These regions are also home to 95% of the world's cases of tuberculosis, and home to 98% of the world's deaths from TB, some 2,000,000 people per year. In addition, exactly the same countries are being ravaged by the pandemic of Human Immunodeficiency Virus (HIV,) the most important factor known to favor the development of Tuberculosis.

The really effective fight against TB probably began on an evening in Berlin, in 1882, when a young German physician, Robert Koch, announced to the Berlin Physiologic Society that he had 1) succeeded in staining a bacillus from a laboratory animal with tuberculosis so that it could relatively easily be identified under a microscope, 2) that he had succeeded in growing this bacillus in an artificial culture medium, 3) that this freshly isolated microorganism, when inoculated into a healthy laboratory animal, caused the same disease seen in the original animal and 4) the microorganism was reisolated in pure culture from the experimental infection, namely tuberculosis. He had satisfied, what became known to the scientific world as Koch's postulates.

This discovery that tuberculosis was caused by a micro-organism and could be transmitted from person to person was hailed as one of the great medical triumphs. This discovery, along with the subsequent tuberculin skin test and Dr. Roentgen's invention of the x-ray machine in 1885, made an exact diagnosis possible, dramatically lowering the incidence of the disease by the simple expedient of isolating the patient.

## EDWARD LIVINGSTON TRUDEAU

In October of 1848, Edward Livingston Trudeau was born in New York City, his father, Jacques Trudeau, being a physician, surgeon, army officer, artist and an explorer. At age 26 he arrived in NYC and entered into the practice of medicine and in time married Cephise Berger. Edward's parents separated when he was three years of age, and he was brought to live with his mother in Paris. He returned to NYC at age 17 where he was required to re learn English. He was described as a "spirited and mischievous boy." After several occupational false starts he applied to and was accepted at the US Naval Academy. However, when his older brother contracted tuberculosis, Edward gave up his plans to enter Annapolis to care for his now fatally ill brother. This may have stimulated his plan to practice medicine, for he entered New York's College of Physicians and Surgeons from he graduated with a credible record. Following his marriage to Lottie Beare in 1871 he entered into the practice of medicine in NYC. But after one year he became acutely ill with fever. He had had a previous bout with a rectal abscess and cervical adenitis, undoubtedly an earlier manifestation of his now diagnosed tuberculosis.

Dr. Janeway, his mentor and physician gravely announced to him that "the upper 2/3rds of the left lung was involved with an active tuberculosis process." ( Parenthetically, I wonder what percentage of today's medical students and house officers could make that diagnosis without benefit of x-ray or CT.)

In his autobiography Dr. Trudeau wrote, " I think I know something of the feelings of the man at the bar who is told he is to be hanged on a given date, for in those days pulmonary consumption was considered as absolutely fatal. I pulled my self together, put as good a face on the matter as I could, and escaped

from the office after thanking the doctor for his examination. When I got outside....I felt stunned. It seemed to me the world had grown suddenly dark. The sun was shining, it is true, and the street was filled with the noise and rush of traffic, but to me the world had lost every vestige of brightness.”

Dr. Trudeau’s emotional resilience carried him through the difficult adjustment to the realization that he had a fatal illness. His young family was very supportive and, after a trial of horse back riding in the South, ( one of the popular therapeutic measures of the day,) which was totally unsuccessful, he recalled his enjoyment of hunting and fishing in the Adirondacks at the boarding house of the famous Paul Smith, a guide who catered to the wealthy elite. He decided that this would be where he would spend his last days. He traveled by train from NYC to Whitehall, then boat to Plattsburgh, then by overland stage to Paul Smith’s, just Northwest of Saranac Lake. He was so weak from his trip that he had to be carried to his

room. Despite his illness, he asked the guides to transport him through the rivers in a comfortably arranged boat and to the woods in a chair. On this program of outdoor rest, good food and enjoyable surroundings, his fever subsided. His strength returned and his vigor was restored.

Dr. Trudeau to NYC 1873 to resume his practice, but he again became febrile. A winter in St. Paul, Minn. Was prescribed but proved to be of no help. So, in the spring of 1874 he returned, with his wife, two small children and two nurses, to his beloved Adirondacks. He resumed hunting and fishing, initially with help, but again began to improve. He moved his family into a house in Saranac Lake and drifted into the practice of general medicine. Inevitable, he

was sought out as a tuberculosis specialist, developing his program of rest, fresh air and good nutrition.

At this time Edward Livingston Trudeau profile was that of a socially attractive man with an aristocratic background and apparently some degree of financial independence. His selection of medicine as a profession was probably a result of seeing his brother die of tuberculosis and his early practice pattern in NYC indicated a special interest in diseases of the lung. This was probably enhanced by his personal physician and teacher, Dr. Janeway.

When he himself was stricken with tuberculosis, he was able to gravitate to Paul Smith's in the Adirondacks, where he was able to maintain social contacts with a number of influential and supportive friends. When he developed his practice in Saranac Lake, it was this group of friends that enabled him to start his cottage sanatorium. The first 16 acres on a mountain side overlooking Saranac Lake was purchased for Dr. Trudeau by guides and woodsmen at \$25.00 per acre.

Here was placed the first building of the new sanatorium, known as the Little Red Cottage, it measured 14' X 18' and could accommodate two patients, although the porch was only large enough for one cure chair. "Little Red" was completed in 1884 and was rapidly followed by other cure cottages, then larger structures housing more and more patients. By 1890 there were 25 patients at the Adirondack Cottage Sanatorium and by 1898 the number had climbed to 100, all there for the "cure."

But what was the 'cure?' Trudeau had never lost faith in the virtues of the Adirondack climate as a fortifier against the ravages of TB, but was also a pioneer scientist and bacteriologist of intense curiosity. When Koch announced

his discovery of the tubercle bacillus in 1882, Trudeau was electrified by it, as opposed to many U.S. physicians who ignored it. Dr. Trudeau had set up a laboratory in his own home and very quickly duplicated the work of Dr. Koch. He conducted numerous experiments on animals to study the effects of good nutrition, rest, fresh air etc. on the course of tuberculosis. Trudeau's correspondence with other researchers throughout the world and his own experiments led to the introduction of trial therapies. These included have the patient whistle and sing daily, breathe medicated oxygen from a glass cabinet and inhaling hydrogen sulfide gas with its rich and overpowering smell of rotten eggs.

I had long discussions with my late partner in the practice of pulmonary medicine, Dr, Frank C. Maxon in which he regaled me and anyone else who would listen with tales of curing at Trudeau Sanatorium. Frank had spent almost two years there following a diagnosis of right upper lobe tuberculosis immediately after his second year of medical school in 1935.

After one year of bed rest, good nutrition and fresh air his infiltrate and cavity had doubled in size. Treatment with pneumothorax was begun, and after almost an additional year his sputum had converted to negative and he was symptomatically much improved. He returned to medical school, obtained his degree and entered an abbreviated combined medical-surgical residency and then began an arduous general practice. During all of this he was obliged to obtain an air refill every week in order to maintain his pneumothorax, which he carried for nine years. Just routine treatment for tuberculosis prior to the days of anti-tuberculous drugs.

By 1900, Trudeau's pioneer sanatorium had grown from a few rustic cottages to an imposing campus with a well designed main building, dining facilities, procedure rooms, laboratories and more patient accommodations to handle the ever growing patient population

Saranac Lake became the "City of the Sick" with five or six new sanatoria having sprung up in the early 1900s. Patients who were not able to be cared for in the sanatoria, either because they were too ill or too poor, became boarders in private homes through out the village. Beginning around 1900 when the "cure" involved sleeping out in the air at night became part of the treatment, porches began appearing everywhere. They sprang up outside front doors, back doors, side doors, out from second story bedrooms, perching on ground floor porches underneath. Porches, which had gained popularity in the 1880s now became an architectural obsession in Saranac Lake.

Saranac Lake became a health industry built entirely on the treatment of TB. By 1935, 114 people were employed at what had become Trudeau Sanatorium, renamed in 1917, two years after the death of Edward Livingston Trudeau from tuberculosis. The population of Saranac Lake had grown from 1200 in 1892 to over 4,000 by 1903, virtually everyone employed in some manner to support the care of the TB patient. The life of the TB patient at Saranac Lake was, needless to say, highly regimented. It really had to be since there was no other treatment other than rest, good nutrition and fresh air.

THE NEW YORK TRUDEAU SOCIETY

Dr. Bob Yeager, a delightful and distinguished Phthiatriist and Pulmonologist, in 1957 wrote 50<sup>th</sup> anniversary monograph entitled The Voluntary Crusade Against Tuberculosis in the State of New York.

In it he quoted C.E.A. Winslow's biography of Hermann M. Biggs, State Health Commissioner from 1914 to 1923, who stated; "The mobilization of the lay forces of the community for the control of disease is today such an obvious fact in American life, that it is a little difficult to realize how novel a conception it was in the year 1900.

The discovery of the possibilities of widespread social organizations as a means of controlling disease was one which almost be placed along side the discovery of the germ theory of disease itself as a factor in the evolution of the modern public health campaign.

It was the pioneers in the anti-tuberculosis movement who introduced this novel and pregnant conception. It has since spread with transforming magic to other fields.

Through the leadership of Homer Folks, the State Charities Aid Association and the NYS Department of Health, on June 6, 1904 jointly declared war on tuberculosis in this state, outside NYC.

Tuberculosis was then the leading cause of death, with an-upstate death rate of 152.8/100,000 population. It was catastrophic in its destruction of family life and in creating poverty and distress. To put the statistic in perspective, a city the size of Albany, roughly 100,000 population, would have a funeral almost every other day of someone, usually young, who died of tuberculosis.

This group formed the National Association for the Study and Prevention of Tuberculosis. This was the predecessor of what is now known as the American Lung Association. The State Charities Aid Association (SCAA,) important in the formation of the NASPT, undertook, with the help of a number of eminent counselors, 1) a scientific determination of the preventive and social aspects of tuberculosis, 2) a campaign of public education and 3,) the organization of citizen committees to promote a program of action in up-state localities. The NASPT 's first president was Dr. Edward Livingston Trudeau. The following year, the American Sanatorium Association (ASA) was formed, primarily consisting of heads of tuberculosis sanatoriums or full time physicians employed in sanatoria. Its charge was the scientific study of tuberculosis and the care and treatment of the patients. The ASA has evolved over the years to become the American Thoracic Society (ATS.)

It was the conclusion of both these organizations along with the SCAA that nothing short of hospital isolation of active cases could prevent the continuing spread of tuberculosis.

Enormous obstacles were encountered. Even then hospital care was vastly more expensive than home care, clinics visiting nurses and home instruction. Local governments were not prepared with facilities, funds or legislative authority to undertake this assault of this terrible disease. But the SCAA, the predecessor to the ALANYS, attacked these problems with great confidence. Laws were enacted to allow counties to build TB hospitals and to appropriate funds for maintenance, doctors, nurses, and follow up care.

The unprecedented degree to which the legislature and various governors had placed the full influence and financial assistance of the state behind the all out

fight to eradicate TB had been extraordinary. It had been an enterprise shared among the state, local and national tuberculosis and health associations, in cooperation with official agencies and medical professionals. In 1940, the SCAA in conjunction with the State Health Department undertook a three pronged attack on TB.

- 1) A concentrated effort to bring about the examination of all persons having contact with active cases of tuberculosis.
- 2) The earlier admission for active cases for hospital care and treatment.
- 3) Organized efforts to discover the unknown cases of TB with mass CXR screening. This also highlighted the war time need to screen inductees for military fitness and to protect workers in war industries.

In 1946 Governor Thomas Dewey launched an “all out fight on TB.”

- 1) A repeal of the “ means test” provisions, so that all patients with TB could be treated free of charge.
- 2) The state would reimburse counties and cities 50% of the cost of the cost of treating TB patients in public hospitals.
- 3) Free CXRs for every adult and the provision for free X-rays for anyone admitted to a general hospital.
- 4) Appropriations for new programs were increased from \$ 3,000,000 to \$ 20,000,000.

The death rate from tuberculosis in upstate New York had declined from 152.8/100,000 in 1907 to 125.7 in 1919 to below 30/100.000 in 1946!!! In 2002 the incidence of newly reported cases in the U.S. was down to 5.2/100,000.

An overview of the volunteer organizations which led to the present national and state wide configurations as presently constituted is a little daunting. As I

indicated previously, the NASPT was organized in 1904, specifically to promote public education and public policy. The following year the ASA was formed, primarily by physicians, to focus on the science and patient care. In 1939, the name of the ASA was changed to the American Trudeau Society, recognizing the contributions of Dr. Trudeau and the broader interests of its members. In 1960, the name was again changed to the American Thoracic Society, again in keeping with the increasing interest in non-tuberculous pulmonary diseases.

In 1918, the NASPT changed its name to the National Tuberculosis Association, a name it retained for the next 50 years. Again, because of less emphasis on TB, the name was changed to the National Tuberculosis and Respiratory Disease Association in 1968. This name was kept for the next five years, but was considered unwieldy, and , in 1973, it became simply the American Lung Association.

Getting back to New York State, the fight against tuberculosis was undertaken jointly by the State Health Department and the State Charities Aid Association, the latter, a volunteer organization, through its Committee on the prevention of Tuberculosis, in 1907. The SCAA State Committee, appointed by the NASPT as its agent, immediately began organizing citizens tuberculosis committees in up-state NY. Generous grants from the Russell Sage Foundation supplied funds for the campaign until 1918. The local committees established by the SCAA were truly local, representing villages, towns and cities, a total at one point of some 664 organizations. In 1919, the territorial unit became the county, significantly reducing the number to 57. Counties large enough to support them were building TB hospitals and a little later the state built three sanas for the residents of the smaller counties.

Organizationally, in 1920 the SCAA changed the name of its Committee on Prevention of Tuberculosis to the State Committee on Tuberculosis and Public Health. In the early 1960s the SCAA was phased out of its association with the American Lung Association, and eventually, the New York structure became the ALA of NYS as the volunteer organization.

The New York State Thoracic Society was initially formed on April 26, 1950 at the annual meeting of the American Trudeau Society, and was initially called the New York Trudeau Society. This name remained in effect until approximately 1990, when it was changed to the New York State Thoracic Society, this after some 15 years of debate. The name change occurred when it was argued that many of the younger members of the organization had no idea who Trudeau was, and, in addition, it would be appropriate to have uniformity with the national structure.

The impact of excellent public health measures, very good hospitals and dedicated physicians and support staff, in addition to the introduction of highly effective anti-tuberculous drugs in the mid 40s provided the results above. This organization, along with many like it, was created because of fear of a dread disease. It has persevered, and now, in addition to tuberculosis, it must continue the fight against other killers including COPD, asthma and cancer.