Charles Lathrop Parsons
Mr. ACS

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More than one hundred years ago in September 1907 Charles Lathrop Parsons took office as the Secretary of the American Chemical Society which had 3000 members. When he retired thirty-eight years later in 1945 the Society was the largest single professional society in the world with 43,000 members and he was better known than any of the presidents who he served and was known as Mr. ACS. As early as 1932 ACS President Marston T. Bogert said, "Having closely followed the progress of our Society for the past forty years I say unhesitatingly and without fear of contradiction that what the American Chemical Society is today it owes more to Charles Lathrop Parsons than any other American chemist." (1)

Parsons' life and professional career can be divided into four overlapping periods: Early Years, New Hampshire Years, Bureau of Mines, and ACS Secretary.

Early Years

Charles Lathrop Parsons was born in New Marlboro, Berkshire County, MA on March 23, 1867, the oldest son of Benjamin Franklin and Leonora Bartlett Parsons. A second son, William Naramore Parsons was born October 11, 1869. Benjamin Franklin Parsons was a graduate of Williams College, class of 1857, which had been founded by one of his ancestors. He was ordained a minister shortly after graduation and moved to

Colchester, CT, where he was the principal of the Bacon Academy. He married Leonora Frances Bartlett, born in Natchez, MS in 1859. They moved back to New Marlboro, where Benjamin founded and was principal of the South Berkshire Academy. Charles Lathrop Parsons was a seventh generation descendent of Cornet (A British military rank equivalent to 2nd Lt.) Joseph Parsons, who emigrated from England to Massachusetts in 1635 and was a founder of both Springfield and Northampton, MA and a prominent leader of the Massachusetts Bay Colony. He was also a descendent of John Alden, one of the Original Pilgrims.(2) In 1878, in the reconstruction period following the Civil War, the Parsons family moved to Hawkinsville, Pulaski County, GA, a farming town 120 miles southeast of Atlanta in central Georgia. Benjamin Parsons was involved in several businesses in Hawkinsville and also served as postmaster for four years. Leonora Parsons was a school teacher and active in local civic organizations. William N. Parsons remained in Hawkinsville and became a businessman and banker. (2, 3)

Figure 1 Parsons Genealogy

Charles L. Parsons was educated in Hawkinsville and graduated from Cushing Academy, in Massachusetts in 1885. (4)

Figure 2 Cushing Academy Diploma

He attended Cornell University and received a B. S. in Chemistry in 1888. (4)

Figure 3 Cornell University Diploma

A certificate recently found in the UNH Chemistry Department files shows that Parsons was appointed 2nd lieutenant of the Corps of Cadets while a student at Cornell. (4)

Figure 4 College of Military Science, Cornell University Certificate

On December 29, 1887, while they were still undergraduates at Cornell, Parsons married Alice Douglas Robertson of Bluffton, SC. in Van Ettenville, NY. They had four daughters Anna, Leonora, Enith and Priscilla and a son Charles Lathrop, Jr.(2) Leonora married Charles Proctor Cooper, a mathematics instructor at New Hampshire College in 1907. In 1908 Cooper joined the New York Telephone Company. Over the years he held a number of positions in the Bell System, including Vice- President of finance, Executive Vice-President and Vice-Chairman of the American Telephone and Telegraph. He also served from 1943 to 1957 as president of Presbyterian Hospital in New York. (5) Two of Parsons' grandsons, James R. Vaughan, Jr. and Charles L. P. Vaughan became chemists.

New Hampshire Years

New Hampshire College

Upon his graduation from Cornell in 1888, Parsons was appointed assistant chemist in the New Hampshire Agricultural Experiment Station in Hanover, NH. In 1889 he was appointed Instructor of Chemistry in New Hampshire College, then located adjacent to the campus of Dartmouth College in Hanover. At the Board of Trustees meeting of October 15, 1890 a new position of Associate Professor of Chemistry was created and Parsons was immediately elected to fill the position. (6)

. At the Board of Trustees meeting of June 23, 1891 he was appointed to the newly established position of Professor of General and Analytical Chemistry, the fourth Professor of Chemistry in the history of the institution, and for the first time two persons held the title of professor in the chemistry department. The members of the Trustees obviously were very favorably impressed with Parsons' abilities as in two years he advanced from Instructor to Professor, which he reached at the age of 24. Interestingly at the same

meeting at which he was promoted to Professor, the trustees voted, "without conditions that women be admitted to the full privileges of the college."(7) The first female student, Lucy Swallow, of Hollis, NH, matriculated as a chemistry major in September 1891. She did not receive a degree as she did not continue as a student when NHC move from Hanover to Durham in 1893. New Hampshire College opened its doors in Durham in September 1893 with 51 first-year students and 13 upperclassmen.

. Fred W. Morse(8), the third Professor of Chemistry and department head since 1889, was also vice-director of the Experiment Station and in 1891 he was appointed Professor of Organic Chemistry and relinquished most of his teaching and administrative duties to Parsons, who had been appointed Professor of Inorganic Chemistry. Thus, Parsons at the age of twenty-four, became in effect the department head, although Morse retained the title until he left to become the vice-director of the Massachusetts Agricultural Experiment Station in 1907, when Parsons was appointed head. When New Hampshire College moved from Hanover to Durham in 1893, Parsons planned the chemistry facilities in Conant Hall, the new science building on the Durham campus, and supervised the move of the department to the new facilities. (9)

New Hampshire College had had a strong teaching program in chemistry since the establishment of the college in 1868 as the first faculty member was Ezekiel Dimond, the first Professor of Chemistry. Research was carried out from the early days and the first undergraduate research thesis was presented in 1877. The new facilities on the Durham campus allowed research to become a regular part of the chemistry curriculum. Parsons and his students carried out research on the chemistry of beryllium and zirconium. This research on beryllium led to the awarding of the second Nichols Medal for "Atomic weight

of Beryllium" to Parsons in 1905 and the awarding of the first masters degree in chemistry at New Hampshire College in 1906 to William Orrin Robinson, one of Parsons' students, for a thesis entitled "Physico-Chemical Constants of the Sulphate of Beryllium." (4) In the period 1898-1911 Parsons was the co-author with A. J. Moses of *Mineralogy, Crystallography and Blowpipe Analysis* and author of *Beryllium, Its Chemistry and Literature,* as well as twenty-five research papers published in the Journal of the American Chemical Society and Science and two book reviews.

Parsons felt that there was a greater demand for chemical engineers than chemists in the early days so he went before the State Legislature in 1892 and explained that there was only so much floor space in the laboratories and each student had to have, for safety sake, a minimum number square feet of floor space. The legislature then passed a law that because of the laboratory space available there could be only six chemical engineering students in each of the upper three classes. Parsons allowed the top six chemistry students in the freshman class to enter the chemical engineering curriculum. However, because they were regarded as irreplaceable they were required to maintain their grades and were not allowed to leave the program. (2)

In those early years a strong faculty was assembled, most notably Charles James, a student of Ramsey's, who joined the faculty in 1907 and started a research program in the separation of the rare earth elements. Following Parsons' example research flourished and seniors were required to carry out a senior research project and complete a senior thesis. This requirement is still in effect today for Bachelor of Science in Chemistry majors. He also encouraged the better students to pursue graduate studies and obtain advanced degrees.

The formation of Mu Chapter of Alpha Chi Sigma gives some insight into Parsons' methods. Following a meeting with J, Howard Mathews, a founder of Alpha Chi Sigma, at an ACS meeting in December 1910, Parsons led the effort to have Mu Chapter of Alpha Chi Sigma established at New Hampshire in 1911. How this came about is recorded in a minute's book. (10). Mu Chapter grew out of the Chemistry Colloquium, which had been dormant for several years. In February, 1911 Parsons called a meeting to order of the Chemistry Colloquium at which officers were elected and there is the first mention of Alpha Chi Sigma. Affiliation with Alpha Chi sigma was left to the next meeting. Two weeks later at the second meeting no action was taken, but it was voted that the student officers and Prof. Parsons would act as an executive committee. Two weeks later there was a discussion of the purpose of the Colloquium. By March 31, 1911 the minutes are concerned with correspondence concerning the installation which occurred on April 11, 1911 with J. Howard Mathews of Wisconsin, W. N. Jones of Missouri and A. M. Buswell of Minnesota as the installing officers. Among the 21 initiates were five faculty members, Parsons, James, B. E. Curry, T. O. Smith, who was still active in the Chemistry Department in 1951, and L. A. Pratt. After the installation Prof. Parsons hosted a lunch prepared by Mrs. Parsons at their home. This first chapter at an eastern college was followed by others at Maine, Harvard, MIT and Yale in New England. In 2007, Parsons was named to the Alpha Chi Sigma Hall of Fame.

Figure 5 "The Chem Bunch" Chemistry Faculty and students, 1909 (18)

Parsons is in middle of the back row; Charles James is to his left, both with mustaches.

In addition to his scientific works, Parsons made use of his military experience at Cornell by conducting military drills at New Hampshire College during the Spanish-American War. He was also captain of the college's first baseball team.(4) He was an avid outdoorsman and hunter and boasted of once killing three turkeys with one shot. He frequently visited his brother William in Georgia to hunt turkeys. In the UNH archives is a photograph of an elderly Parsons with his catch of three turkeys.

Figure 6 Photo of Parsons with turkeys. (18)

He also showed an interest in his colonial ancestry by publishing in 1903, *The Capture of Fort William and Mary, December 14 and 15, 1774. (11)* This was an account of a colonist's raid on Fort William and Mary on Portsmouth Harbor where a considerable quantity of gunpowder was taken from the British garrison and hidden in the basement of a Durham church and later used by the Americans at the Battle of Bunker Hill.

In June 1911 the University of Maine recognized his achievements with the award of an Honorary Doctor of Science degree. (4)

Figure 7 Maine Honorary Diploma

Professional Activities

In August 1893 Parsons took time from his supervision of the move of the chemistry department from Hanover to Durham to be one of 183 chemists to attend the World Congress of Chemists at the Columbian Exposition in Chicago. He was elected to membership in the American Chemical Society at that time. (12) On February 4, 1898 the Northeastern Section of the American Chemical Society was organized at a meeting at the Parker House in Boston with about 150 members present. (13) In all likelihood Parsons was present at that meeting. The American Chemical Society conducted a census of

members of the chemical profession in 1901, as part of the 25th Anniversary of the American Chemical Society activities. Dr. (sic) C. L. Parsons presented a report on the teaching of agricultural chemistry at 42 land-grant colleges. (14) In 1903 he was a Northeastern Section Councilor of the ACS and from 1905-1908 he was a Councilor-at-large of the ACS. (15)

From 1896-1912 the American Chemical Society and Section C –Chemistry of the American Association for the Advancement of Science (AAAS) held one joint national meeting each year. Sometime in the late 1890's Parsons must have joined the AAAS because from 1903-1908 he was the chairman of Section C-Chemistry. Also sometime during that period he was elected a Fellow of the AAAS. He was also an associate editor of the Journal of the American Chemical Society from 1909-1916. He served as chairman of the Northeastern Section of the ACS in 1905. (2, 15) On August 16, 1907 Parsons was elected to the part-time position of Secretary of the ACS by the ACS Council, succeeding Dr. W. A. Noyes. He thus began his 38 year tenure as ACS Secretary, which lasted to his resignation in 1945. (16) Parsons was also a member of the Deutsche Chemische Gesellshaft , the Verein Deutsche Chemicker., and the Chair of the Inorganic Section of the Eighth International Conference of Applied Chemistry in 1912.

C. L. Parsons and M. T. Bogert

Sometime in the early 1900's Parsons and Marston T. Bogert, Professor of Chemistry at Columbia University became acquainted. In 1932 Bogert wrote in American Contemporaries- Charles Lathrop Parsons (1) that he and his wife had visited Parsons at his home in Durham, NH about 30 years before. This article probably gives the best description of Parsons' personality and character. Bogert describes the generous

hospitality of Parsons and his wife. He also states, "He was a man of man of independent thought, confident in his own judgment, tenacious in his opinions and vigorous in their defense. He nevertheless maintains an open mind and is ever willing to discuss any question." "He is a hard and fair fighter, he is also a good loser and never harbors any grudge." "He is endowed with a keen sense of humor and enjoys a good joke immensely, even when it happens to be on himself." Bogert was president of the ACS for two terms in 1907 and 1908 and worked closely with Parsons to reform the structure of the ACS and expand its activities and membership. In this article he also states that by 1911 Parsons had become convinced that as Secretary of the ACS he could better advance the cause of American chemistry than as Professor of Chemistry at New Hampshire College. He further states that is was a real sacrifice for Parsons to give up his home and work in Durham and move to Washington.

It is clear that Parsons and Bogert were close personal friends and colleagues. During the research on this paper it became evident that one basis of this association was that they were almost exact contemporaries with remarkably similar background and careers, which is outlined in the following table:

	Charles Parsons	**Marston Bogert (17)**
Born:	March 23, 1867	April 18, 1868
Ancestors	From England 1635	From Holland 1663
Education	BS Cornell, 1888	AB Columbia, 1890 PhB Columbia 1894
Academic Career	Professor, NHC 1889-1911	Professor, Columbia 1893-1934
ACS	NE Section, Chair, 1905 Secretary 1907-1945	NY Section, Chair, 1901 President 1907-1908
Nichols Medal	1904	1905
Priestley Medal	1932	1938

Figure 8 Photograph of Marston Bogert

The Bureau of Mines Years

. In the following letter to Professor Charles James, his colleague in the department, who was spending the summer vacation in England, Parsons informs him that he had accepted a position in the Bureau of Mines in Washington and that he had resigned from the NHC faculty. (18)

New Hampshire College
Chemical Department
Durham, N. H.

July 10, 1911

Professor Charles James
Broughton, Kettering, England

Dear James:-

You will probably be surprized (sic) to learn that I have accepted an opportunity with the Bureau of Mines in Washington

and have sent in my resignation to President Gibbs. President Gibbs refuses to accept same and insists that I take a leave of absence without pay in the hope that the work may not prove congenial to me and that I will come back in a year or two. I may add, however, as I have to him, that there isn't one chance in a hundred but that my resignation will be permanent. This will leave you in charge and you should begin to be making your plans for the work and also, I presume, plan to come back to Durham a little earlier than otherwise would be the case.

As you are out of the country where President Gibbs cannot consult with you, he has commissioned me to find an assistant professor to be recommended to him for next year. Of course, choice of work will lie with you and I hardly know just now whether you wish to take the lectures in General Chemistry or not. I always preferred to hang on to these, for it gives an early touch with the men, and you may wish to do the same, getting someone else to take charge of the Qualitative Analysis, etc.

On receipt of the letter, please cable me the one word "Yes" or "No". "Yes" means you wish to give the General Chemistry lectures yourself. "No" means that you do not. In the latter case I will try to see that a man is obtained who can do this portion of the work.

The Bureau of Mines position gives me an unusual opportunity. They wish me to take charge of the development of the miscellaneous mineral resources of the country, their industrial application, conservation, etc. This means large new laboratories built in Pittsburgh or Washington, with several men under me engaged in special research work. They also want me to retain the secretaryship of the American Chemical Society and offer me the maximum salary which the law allows.

I want to state to you in advance so that you can be thinking it over, although we will talk it over when you come, that I am much in hopes that you will consent to come with me about a year from now. I talked with Dr. Holmes about this matter and he considers abstract research on the rare earths and the rare earth minerals a part of the work which could be correctly taken up in my new laboratories, as he feels sure such research will lead to industrial development. I hope to be able to offer you unusual opportunities for research in this line, such help as you may need, the privilege of publishing under your own name, all necessary funds to carry on the work and an increase in salary beyond that which the college here could pay you. In fact, I believe I can make the position attractive to you. I should be exceedingly gratified if you should decide to go with me. This, however, is merely a hope for the present an as the laboratories will not be built for approximately a year hence, we can talk this over on your arrival.

For the next year I shall be for the main part making preparations for the work with probable head quarters in Durham, but my college work ceases. I shall, of course, be glad to do anything I can to assist you wherever you may call upon me.

I imagine that being in charge of the department will appeal to you, but I fancy that the onerous business detail, faculty committees, faculty meetings, etc. will not prove so charming as some would suppose.

I am with kindest regards and best wishes for you summer vacation.

Cordially yours

Sig. Chas. L. Parsons

P.S.

(Note added by Mylinda Harrison, UNH Archivist, "I've always wondered what was in the P.S. which was cut off the letter.")

As he stated in the letter, Parsons remained in Durham planning for his work as Chief Mineral Chemist in the Bureau of Mines until he moved his residence and the ACS Secretary's office to Washington on September 1, 1912. (19)

According to Marston Bogert, by 1911 Parsons had become convinced that he could do more for American chemists by being the Secretary of the American Chemical Society than by being Professor of Chemistry at New Hampshire College. Bogert was president of the ACS for two terms in 1907 and 1908 and worked closely with Parsons to reform the structure of the ACS and expand its activities and membership. From its earliest days the American Chemical Society had been centered in New York City as it was incorporated in New York State and in the early days all directors were required to residents of New York State. . This was considered to have limited its effectiveness outside the Northeast. To have an effective influence on national policy Parsons believed that the ACS had to have a presence in Washington, DC. Because the position of ACS was part-time, in order to effectively move the ACS administration to Washington, he had to find a job in Washington.

The United States Bureau of Mines, within the Department of the Interior, was established on May 16, 1910 to deal with a wave of catastrophic mine disasters. The Dr. Holmes, mentioned in Parsons' letter to James, was Joseph A. Holmes, who was the chief of the Technologic Branch of the U. S. Geological Survey until he was appointed the first Director of the Bureau of Mines in late 1910, despite the wavering of President Taft, because as reported in *Coal Age, (20)* "The wishes of mining men in all parts of the country prevailed over the personal desires of a few politicians."

Figure 9 Photograph of Joseph A Holmes

Holmes was born in Laurens, South Carolina, the son of a farmer and Presbyterian minister. He received a Bachelor of Agriculture degree from Cornell University in 1881. Following graduation, he was appointed Professor of Geology and Natural History at the University of North Carolina at Chapel Hill. His teaching duties included all disciplines of natural history including botany, horticulture, and geology. In 1891 he became the State Geologist in the North Carolina Geological Survey. In 1905 he joined the U. S. Geological Survey and was successively, Chief of the U. S. Geological Survey Laboratories in St. Louis and Pittsburgh, before he became Chief of the Technological Branch in Washington. As Director of the Bureau of Mines he was responsible for filling a number of high level professional positions in the new Bureau of Mines. (21) Parsons and Holmes had much in common; they had been brought up in the post Civil War South, were sons of clergymen, received their college educations at Cornell University and were Fellows of the AAAS. Probably their activities in the AAAS initially brought them together. In any event, it was undoubtedly Holmes who recruited Parsons for the post of Chief Mineral Chemist in the

Bureau of Mines, since he was responsible for staffing the new agency. From his earliest days at New Hampshire College Parsons was very much a participant in the political life of New Hampshire, where he used his influence with the Republican controlled legislature for the benefit of the NHC. Among the leaders of the legislature during the 1880's was Dr. Jacob N. Gallinger, who later served four terms from 1891 to 1918 in the U. S. Senate. From 1911 to 1913 he served eight times as President *Pro Tem* of the Senate. (22) This connection certainly did not harm Parsons chances for obtaining what was essentially a political appointment.

Among the duties assigned to the new Bureau of Mines was determination of ways to increase the utilization of mineral resources and lessen the dependence of American industry on foreign sources. (23) Special interest was given to the production of radium for use in the treatment of cancer. In 1913 there was probably about 30 grams of radium available in the world, with about 2 grams in the United States. In 1912 about 15 grams were available world-wide, of which 11.5 grams had been extracted in various European countries from ores shipped from the United States. American hospitals, meanwhile, were trying vainly to buy it for their own use at prices of $120,000 to $160,000 per gram ($2.7 M to $3.6 M in 2009 dollars).

Parsons, who was an expert at the extraction of metals from ores, instituted a program at the Bureau of Mines to study the best methods of extracting radium from carnotite ores from Colorado and Utah. Because the Bureau of Mines did not have sufficient funds to carry out the work, Parsons helped organize the National Radium Institute, which raised private funds to establish an experimental plant at Denver to produce radium. The plant was operated by the National Radium Institute under the supervision of

the Bureau of Mines. The plant, which was soon enlarged to commercial size, by 1917 processed 1500 tons of carnotite to produce 30 tons of uranium oxide and finally 8.5 grams of radium bromide at a cost of only $40000/g. (24) Parsons, spoke extensively about the production of radium and its use in the treatment of cancer. One of these talks was delivered on April 4, 1914 to the Society of the Arts at MIT as recorded in *The Tech.* (25) In this presentation, Parsons discussed radioactivity, the extraction of radium from its ores and the problem that much of the carnotite ore in the western United States is controlled by several large corporations most of whose product has been contracted for by foreign interests. He pointed out that in an effort to save some of this valuable material for the American people the Bureau of Mines had leased carnotite claims and had an operating mill producing radium. He concluded his presentation with a number of slides showing the results of treating cancerous tumors with radium.

In May 1914 Parsons was elected to membership in The Society of the Sigma Xi, honorary research, by Alpha Chapter at the University of Wisconsin.

Figure 10 Sigma Xi Certificate (4)

In 1915 Parsons was awarded an honorary doctorate by the University of Pittsburgh on the occasion of the dedication of the new laboratories of the Mellon Institute.

Figure 11 University of Pittsburgh Doctorate Diploma (4)

At the outbreak of war in Europe in August 1914 the United States found that it could possibly be cut off from its suppliers of nitrate minerals in Chile, which were the starting materials for the production of nitric acid necessary for the production of fertilizers and explosives. The German chemical company, Badishe Anilin & Soda-Fabrik (BASF) had for a number of years supported the research of Fritz Haber, a professor at Karlsruhe

University. On July 2, 1909 after a long series of experiments, Haber successfully demonstrated the production of ammonia from hydrogen and nitrogen to representatives of BASF, using an apparatus designed and built by Haber and his assistant Robert Le Rossignol. (26) Ammonia was easily converted to nitric acid, thus the production of fertilizers and explosives was not limited by the availability of nitrate containing materials. Haber's invention was quickly commercialized by BASF, under the leadership of Carl Bosch, which by 1914 was producing 25 tons of ammonia per day. Production of ammonia and nitric acid was quickly expanded to meet the demands of the military. (27)

The implications of these developments became apparent to leaders in the United States and in 1916 Parsons was transferred temporarily from the Bureau of Mines to the War Department as Chief Engineer and sent to Europe to investigate the processes for the fixation of nitrogen and the oxidation of ammonia to nitric acid. He was instructed not to enter Germany, but to study the processes for the fixation of nitrogen and oxidation of ammonia in Norway, Sweden, England, France and Italy. He prepared an extensive report and made recommendations to the government for the design of plants for the fixation of nitrogen. He also instigated a cooperative agreement between the Bureau of Mines, the Semet-Solvay Co. and the Army Ordnance Department for the development of methods for the oxidation of ammonia to nitric acid. (28, 30)

Parsons was also responsible for the engineering, construction and operation of a plant in Virginia to fix nitrogen by the cyanamide process and which produced sodium cyanide for war gasses. (29)

On this trip Parsons visited many chemical plants and noted that so many of the trained chemists had been called up to the army that the production of war materials was

being hampered. (31) He observed that the whole munitions program had been affected by the lack of technical personnel, particularly chemists, and he was told that the greatest mistake the allies had made was that they had paid too little attention to brain power and too much to physical strength. France, England, Italy and Canada had withdrawn all chemists for duty on the home front. France had been forced to import chemists and engineers from Norway and England from the colonies and the United States. Germany on the other hand had employed scientists in the development of new weapons and not as fighting men. A very good account of how Germany employed chemists and other scientists can be found in "Mastermind" (26), a biography of Fritz Haber.

Based on the European experiences with the use of chemists, Parsons understood the implications for the United States if it became involved in the war. (31) He arranged a cooperative agreement between the Bureau of Mines and the American Chemical Society to conduct a census of American chemists starting in February 1917. By July 1917 full data had been obtained for about 15,000 chemists. Eventually more than 18,000 chemists were identified, including 3000 in war service, most in uniform. When the United States entered the war in April 1917 a plan for the war service of chemists was formulated by the ACS. The wisdom of the creation of a census of chemists was apparent soon after the entry of the US into the war when the growth of the ordnance and other military departments created a tremendous need for chemists. The initial requirement for chemists in Washington resulted from the work on gas warfare by the Bureau of Mines. The work was first carried out at the Bureau of Mines Experiment Station in Washington and later at Catholic University and American University and other locations throughout the country. People were still digging up hazardous materials at American University many years later,

Parsons helped to organize the Chemical Warfare Service of the US Army which took over this work in June 1918. The Chemical Warfare Service became responsible for all aspects of the use of and defense against chemical agents including toxic gases, gas masks, incendiary bombs, smoke grenades, gases for balloons, and other materials for use in chemical warfare. He also served as chairman of a committee to investigate the use of zirconium in light armor.

By 1919 the American Chemical Society had become so large that its operations required a full time secretary and Parsons resigned from his position at the Bureau of Mines and took up the position of full time secretary,

The ACS Years

Charles Parsons began his long association with the American Chemical Society In August 1893 when he joined while attending the World Congress of Chemists at the Columbian Exposition in Chicago. (12) He was probably in attendance when the Northeastern Section of the ACS was organized at a meeting in Boston in February 1898. (13) In 1901, as part of the 25th Anniversary of the American Chemical Society, Parsons presented the results of a survey on the teaching of agricultural chemistry at forty-two land-grant colleges. (14) In 1903 he was a Northeastern Section Councilor of the ACS and from 1905-1908 he was a Councilor-at-large of the ACS. (15) The Councilor-at-large position was intended for members who had *contributed* significantly to the ACS. He was an associate editor of the Journal of the American Chemical Society from 1909-1916 and served as chairman of the Northeastern Section of the ACS in 1905. (2,15) Considering that then, as now, the membership of the Northeastern Section was dominated by

academic and industrial chemists of the Boston area, these were singular honors for a faculty member, who held only a BS degree, at one of the smallest land-grant colleges, New Hampshire College. Parsons must have greatly impressed his colleagues with his professional competence and personality.

In June 1906, the ACS Council decided to start the publication of *Chemical Abstracts,* effective January 1, 1907, with Dr. William A. Noyes as the first editor. In addition he was editor of the Journal of the American Chemical Society and Secretary of the American Chemical Society. In early June 1907 a committee submitted a recommendation that the office of Secretary-Editor should be divided into two offices, because of the increased workload. This recommendation was adopted by the Council and Dr. Noyes submitted his resignation as Secretary, effective September, or as soon as a new secretary could be elected. His last act as Secretary was to distribute ballots to the Council members for the nomination and election of his successor. "On August 16,1907, Dr. (sic) Charles L. Parsons, Professor of Chemistry at New Hampshire College" was elected Secretary. Thus Charles L. Parsons began his historic thirty-eight year tenure as Secretary of the American Chemical Society, which did not end until the conclusion of World War II in 1945. It is probable that ACS president Marston Bogert influenced in some way the choice of Charles Parsons as ACS Secretary, because they almost immediately began to deal with the organizational problems of the Society.

At the turn of the century the American Chemical Society was faced with a number of institutional problems. The fact that the ACS was chartered as a New York State

Corporation and was still largely centered on the New York metropolitan area, made it difficult to claim that it was a national organization. A growing number of members felt the need for a more specialized organization with high educational standards for membership and a number of such organizations, such as, the Electrochemical Society, the American Society of Biological Chemists and the American Institute of Chemical Engineers had been organized, frequently by loyal members of the ACS. (33) A rift between academic and industrial chemists was also growing over the issue of an appropriate professional publication. Attempts were also being made to consolidate three research oriented publications, the *Journal of Physical Chemistry*, the *Journal of the American Chemical Society* and the older and initially more respected *American Chemical Journal*, which had been founded by Ira Remsen. (34)

The desire for more specialized groups within the ACS was met by the formation of divisions, the first of these was the Division of Industrial Chemists and Chemical Engineers organized in June 1908. The divisions were given the right to make their own bylaws for their governance, subject to the approval of the Council and Bylaws of the Society. (35). Shortly after four other divisions were recognized, the Divisions of Agricultural and Food Chemistry, Fertilizer Chemistry, Organic Chemistry, and Physical and Inorganic Chemistry. At the same time the *Journal of Industrial and Engineering Chemistry* was established, which filled the need for a professional publication for industrial chemists and engineers.

As stated in the *History of the American Chemical Society –Seventy –Five Eventful Years:*

> "The consolidation accomplished by the establishment of Divisions of the Society and by the founding of the *Journal of Industrial and Engineering Chemistry* marks the year 1908 (the second year of Dr. Bogart's presidency and the second year of Dr. Parsons' secretaryship) as one of the most important in the history of the Society. The initiation of these and other reforms caused the members of the Society to realize, more than ever before, that they could find in its meetings and journals opportunities both for broadening their chemical outlook and for satisfying most of their needs for specialization." (36)

Because of these new opportunities, 615 new members joined the Society in 1908.

Also, in June 1908, the Council incorporated, so far as practicable, the business management of the Society attached to the offices of Treasurer and Librarian with the similar duties of the Secretary. Thus the office of Secretary became the top administrative post in the Society. (37)

The problem of how to integrate the *American Chemical Journal* and the *Journal of the American Chemical Society* was finally settled in 1913 after the Directors and the Council voted against publishing the *American Chemical Journal* as a separate publication or combining it with the *Journal of the American Chemical Society*, with separate pagination. Secretary Parsons drew up an agreement, which was accepted by ACS President Little and Professor Remsen, as follows:

> ··· that the *American Chemical Journal* shall be discontinued with the December number and that the words "with which has been incorporated the *American Chemical Journal* founded by Ira Remsen," shall be placed during the lifetime of

President Remsen in smaller type under the title of the *Journal of the American Chemical Society.*

Dr. W. A. Noyes, editor of the *Journal,* petitioned the Council for reconsideration of the matter and this was denied by a vote of 65 to 16. (38) Dr. W. A. Noyes was a former president of the ACS, long-time editor of the *Journal of the American Chemical Society* and founder of *Chemical Abstracts* and the outcome of this long term problem on the terms proposed by Parsons demonstrates the increased confidence in Parsons on the part of the Council and officers of the ACS.

From Its beginning the office of Secretary was a part time unpaid position and the ACS headquarters was effectively where the Secretary was employed, although the official headquarters location was New York City. Probably as early as 1908, Parsons and President Bogert believed that for the ACS to an effective national organization its headquarters had to be in Washington, DC, close to the national government. This move was finally accomplished on September 1, 1912, while the office of Secretary was still part-time, when the headquarters were moved to Washington when Parsons took up his full-time position as Chief Mineral Chemist of the United State Bureau of Mines. (39) The importance of this action for the American Chemical Society and the United States became apparent when war broke out in Europe in August 1914.

In 1914 the United States was to a large extent dependent on European, especially German suppliers of chemicals and scientific equipment and instruments. A British blockade of Germany effectively cut the United States off from this source. Especially hard hit was the textile industry which was almost entirely dependent on Germany for dyes. Fortuitously the ACS now had a man in Washington, in the person of

Charles L. Parsons, who was a leader of the ACS and also was Chief Chemist of the Bureau of Mines, one the highest ranking scientists in the government.

The European war had an adverse effect on the chemical industry, but this soon changed because of the cessation of chemical imports made domestic production necessary and the First Chemical Exposition was held to promote the domestic chemistry industry. Secretary Parsons' trip to Europe as Chief Chemist of the Bureau of Mines to investigate munitions production by the Allied countries brought new ideas and concepts to America. On this trip to Europe he observed how the different countries used their chemists. France and the United Kingdom allowed chemists to join the armed services as fighting men. The folly of this policy was illustrated by death of Henry Moseley at Gallipoli. The Germans, on the other hand, put their chemists to work on military research projects. After Parsons returned from Europe he initiated a plan to make a census of American chemists. In order to determine where every available chemist could serve the country where he could do the most good, (40) Using the membership list of the American Chemical Society as a starting point and funding from the Bureau of Mines the names and status of most of the American chemists was determined. This list was especially important because when the United State entered the war many chemists were graduates of land grant colleges where all male students were required to take military training and many graduated with commissions in the reserves, which were called to active duty. Parsons was instrumental in the formation of the Chemical Warfare Service and recruited many chemists to work under his direction on gas warfare and other aspects of the offensive and defensive aspects of chemical warfare. (41)

ACS Years

By 1919 the size and activities of the ACS had become so complex that the office of Secretary was converted to a full-time position and Parsons resigned from the Bureau of Mines to become the full-time paid secretary of the American Chemical Society. Thus Parsons became the chief administrative officer of the Society, responsible for all the day-to-day operations.

The American Chemical Society showed its desire to resume its international activities after the World War I Armistice when Marston Bogert made the suggestion that a permanent international federation of chemists be established at a reception in London given by the Society of Chemical Industry for Paul Kestner, president of the Societé de Chimie Industielle in November 1918. In April 1919 the initial meeting for the establishment of such an organization was held which lead to the formal establishment of the International Union of Pure and Applied Chemistry in July 1919 in Brussels. The United States delegation consisted of F. G. Cottrell, C. L. Parsons and E. W. Washburn. Charles Parsons was elected the American vice-president. (42)

In the 1920's Parsons was honored by a number of European Societies. In 1922 he was made an officer of the French Legion of Honor, Cavalier of the Order of the Crown of Italy, in 1926 he was made an Honorary member 0f the Romanian Chemical Society and was made a life member of the Societe Chimique de France. Later in 1931 he was elected an honorary member of the Society of Chemical Industry of Great Britain. (28)

Parsons' vision of building the chemical industry and profession led his several times to oppose programs proposed by government officials. Among the most important was his successful opposition to the proposal of Secretary of State Frank B. Kellogg to ban

the manufacture of chemicals used as warfare poison gases. Parsons pointed out that these chemicals, such as chlorine and phosgene, were important industrial chemicals used in the manufacture of many widely used materials. (43)

Another of product of Parsons' concern for chemists as professionals was the beginning of the Employment Clearing House at a national ACS meeting in 1937, during the Great Depression. Employment Clearing Houses to bring together potential employers and employees have been held at every national meeting since that time. The Employment Clearing Houses at national meetings proved so successful that the creation of a continuous employment service was established in 1944.

Some insight of how Parsons Puritan heritage shaped his views is given in a reminiscence of his long-time friend and associate in the Northeastern Section, Dr. Edward R. Atkinson (44)

> "Charlie's concern for the ACS can be illustrated by a single example. At a national meeting held in Boston in September 1939 (just as World War II started) Bill Pierce and I were in charge of the then fledgling Employment clearing House, operated for the benefit of unemployed chemists and chemical engineers, of whom there were still many. Registration was limited to ACS members registered at the meeting. When almost indigent chemists came to Bill and me and indicated that they could not afford the registration fee, we stretched the regulations a bit and arranged for a few interviews with prospective employers. Charlie found out what were up to and almost blew his stack. He gave Bill and me a long lecture about how the country was filled with chiselers, who gladly would use the ACS services without paying for them." (45)

Another piece of evidence about Parsons' management style as Secretary is also given by Atkinson:

"On December 9, 1921 he was a speaker at a meeting of the section where he was welcomed with a song, sung to the tune of "Solomon Levi:

My name is Charlie Parsons and I rule the ACS.
It's due to my phenomenal tact that you've had such great success.
And now the war is over and I'm from nitrogen
I'm going to shake you thoroughly and make you grow again.
Directors-at-large may fluctuate and Presidents may change.
But I stay here as permanent as the Appalachian range.
I let my Presidents have their way – at least they think they do-
But the cases in which I don't get mine are unimportant and few.
He did not become mellower with age."

On April 24, 1932, at an ACS National Meeting in Denver Parsons became the fourth person to be awarded the Priestley Medal, the American Chemical Society's highest award, for his distinguished service to chemistry. He was presented the medal by ACS President Arthur Lamb who said in part:

"There is no person in the world less in need of an introduction to the members of the American Chemical Society than Charles Parsons. For twenty-five years, without a single exception, he had been with us at all our meetings. In season and out of season he has always been on the job. Presidents have come and gone; councilors have flourished and passed away; sections have waxed and waned; but Secretary Parsons, thank God, is

still with us. His energy and enthusiasm in the discharge of the Society's business have never flagged. No item of Society business has been too trivial, no detail of procedure too tiresome, and no problem of our sections too vexatious to dampen his ardor or escape his attention. He has guided our deliberations. He has lectured us, indeed he has bossed us—and we have liked it! Often against our wills, he has led us to security and to success." (46)

As further evidence of Parsons' emphasis on chemistry as a profession, in 1933 the Society upgraded its membership requirements to "include an adequate collegiate training in chemistry or its equivalent." In 1937 the Committee of Professional Training was established and soon after standards for the training of professional chemists was drawn up and a list of colleges and universities with approved undergraduate programs in chemistry was published. (47)

The Federal Charter

As we have seen previously, Parsons and Marston Bogert had considered that the American Chemical Society would be most effective if it had a presence in Washington, DC. In 1912 this was accomplished when Parsons took up his position at the Bureau of Mines and moved the ACS Secretary's office to Washington. The wisdom of the move to Washington was confirmed by the close cooperation that was possible between various branches of the government and the American Chemical Society during World War I.

The Society was still somewhat hampered because it was still officially a New York State corporation and in 1937 the board of directors decided to

recommend incorporation under an act of Congress .This recommendation was approved at the fall meeting of the Society in, Rochester, NY. Meanwhile, bills to incorporate the Society had been introduced in the House by Representative Walter Chandler and in the Senate by Senator Walter F. George of Georgia.(48) One can speculate about how these two legislators came to introduce the incorporation bills, almost certainly through the influence of Parsons, who was always well connected politically. Senator George was born and grew up in Webster County, GA not far from Pulaski County, where Parsons grew up after the family moved from Massachusetts. (49) Representative Chandler was born and grew up in Memphis, TN in 1887. His connection to Parsons is less obvious.

The bill was passed by Congress and was signed by President Franklin Roosevelt as Public Act No. 358, 75th Congress on August 25m 1937. The act granted the society a federal charter effective Jan. 1, 1938. (51)

Figure 12 National Charter of the ACS

It is interesting to note that Charles Parsons' professional affiliation on the charter is the Hammermill Paper Company of Buffalo, NY..

A Permanent Home for the ACS in Washington

After Parsons' move to Washington in 1912 the office of the ACS was probably his office at the Bureau of Mines. After he left the government service to become the full-time secretary of the ACS the society occupied rented office space in Washington. By 1940 the society needed a permanent location in Washington.

In one of the shrewdest moves of his long career, Parsons purchased for the society a five-story apartment building at 1155 Sixteenth St., NW for $150,000. The offices of the ACS were moved to the new location in 1941. As noted in his obituary: "Those who opposed the purchase at the time were probably inhibited by the same lack of appreciation and vision that characterized those members of the school board, back in the '90's who were horrified at his demanding a separate, large, chemistry building." The original building was demolished in 1960 and replaced by a new building, which was renovated in 1994. The ACS headquarters is still at the same site today. (52)

War Again

As war broke out in Europe again in 1939, Parsons was again involved in the efforts to keep chemists and other scientists in the country's laboratories and plants. Even before the war in Europe broke out he chaired an industrial conference in Washington to explore ways chemistry could support a war effort. He realized that there was no reasonable place for chemists and chemical engineers in the armed forces. (53) He therefore drafted a bill which was introduced into congress, which was designed to keep America's scientific and technical manpower in the positions where they were vital to the operation of the scientific and industrial sectors. Congress did not pass the bill, but Parsons continued a highly effective campaign to prevent chaotic conditions from occurring. After the United States entered the war he led a long fight against the drafting of chemists and chemical engineers needed in war industries. He coined the phrase "combat army vs. production army" which illustrated to the public their equal importance. (54) Parsons also

waged a vigorous campaign to encourage members of the ACS, who held commissions in the reserves to resign their commissions before entering active service. His arguments were convincing enough to the military and naval leaders in Washington to allow ACS members to resign, even after Pearl Harbor. As Edward Atkinson remembers " many of those who did not, as well as chemists who joined the Chemical Corps from civilian life, had frustrating experiences during the balance of the conflict" A notable example where civilian scientists and engineers made vital contributions to the war effort was in the Manhattan Project where the atomic bomb was developed. Scientifically trained personnel in the chemical industry also helped maintain the production of munitions used in the war. Parsons helped educate the public that the wise application of science and engineering is vital to a successful war effort.

The ACS became a major supporter of scientific research in 1944 when the Petroleum Research Fund was established by the Morgan Guaranty Trust Company and the seven petroleum companies that owned Universal Oil Products, using stock from UOP. The income from the trust was to be used to support "advanced scientific education and fundamental research in the petroleum field." Later the UOP stock was sold and the proceeds were invested in a diversified portfolio. (54) By 2001 income from the fund provided research support in the amount of about $18 million.

In November 1944, shortly before he retired as ACS Secretary Parsons was belatedly awarded an honorary Doctor of Science degree by the University of New Hampshire on the occasion of the inauguration of Harold W. Stoke as President. Interestingly the letter informing Parsons of the awarding of the honorary degree is addressed to him at the Cosmos Club. (55) In a letter thanking President Stoke for the

honorary degree and his hospitality during the visit to Durham Parsons invited President Stoke to visit him in Washington and that he "could put him up at the Cosmos Club." (56)

The Cosmos Club was incorporated in Washington in 1878 by John Wesley Powell, soldier, explorer and Director of the Geological Survey and like-minded friends. The club "has elected members since his founding individuals in every virtually every profession that has anything to do with scholarship, creative genius or intellectual distinction. " Among its members over the years, have been three Presidents, two Vice Presidents, twelve Supreme Court Justices, and 32 Nobel Prize winners, among others. (57)

Inquiry at the Cosmos Club revealed that Parsons had been a member between 1912, when he arrived in Washington, until his death in 1954. In also developed that Dr. Joseph A Holmes, the first Director of the Bureau of Mines, who had hired Parsons, was a member from 1902 to 1915, when he died and that he had probably sponsored Parsons for membership. (58) Parsons wife passed away in 1936 and sometime between then and 1944 Parsons apparently established his residence in Washington at the Cosmos Club. The Cosmos Club must have been a very congenial place for Parsons, who had wide interests and enjoyed a spirited discussion and good stories and jokes. It also could be a center of his contacts with persons who could be of assistance in his dealings with the government as Secretary of the American Chemical Society.

Retirement

With the end of World War II Charles Parsons retired on December 31, 1945 from the position of executive secretary and business manager of the American Chemical Society after 38 years of service, which had started before World War I. Parsons was

succeeded as Secretary by Alden H. Emery, who had been Parsons' assistant since 1936. (59) After retirement honors continued to come to Parsons, in 1948 he was elected to honorary membership in the American Institute of Chemists and honorary membership in the Chemists Club of New York. Parsons final honor from the American Chemical Society came in 1952 when the Parsons Award for Public Service by Chemists and Chemical Engineers was established and the first award was made to Parsons himself. In 1966 the new Chemistry Building at the University of New Hampshire was dedicated as Parsons Hall in his honor. The speakers on the occasion were Dr. Roger Adams, past president of the ACS and Dr. William Sparks, president of the ACS. Charles Lathrop Parsons Vaughn, Parsons' grandson and UNH chemistry graduate presented Parsons' medals to the University. (60) Parsons Hall thus became the fourth building on the UNH campus to be named for a Professor and Head of the Chemistry Department, joining Diamond Library, named for Ezekiel Dimond, the first faculty member and Professor of Chemistry; James Hall, named for Charles James, Parsons' successor as Professor and Head;and Iddles Chemistry Library named for Harold A. Iddles, James' successor as Professor and Head.

Charles Lathrop Parsons died on February 13, 1954 at the age 87 at Pocasset ,MA. He was survived by three daughters, Anna Vaughn, Leonora Cooper, and Enith Bennett. He was predeceased by his wife, Anna Robertson Parsons in 1936, a daughter Priscilla in 1924 and son Charles Lathrop, Jr. in 1946, eight grandchildren and numerous great-grandchildren. (61)

Summary

Charles Lathrop Parsons was born the son of Benjamin Franklin Parsons and Leonora Bartlett Parsons in New Marlborough, MA in 1867 into a family which had lived in Massachusetts since 1632 when Cornet Joseph Parsons arrived in the Massachusetts Bay Colony. His father was a clergyman and schoolmaster and his Massachusetts ancestors included soldiers, clergymen and a founder of Williams College. In the reconstruction period after the Civil War the family moved to Hawkinsville, GA where his father operated a store, farmed and was postmaster. His mother was a schoolteacher. He was sent north to study in Massachusetts at Cushing Academy and received a B. S. degree in Chemistry from Cornell University in 1888. He married Anna Robertson of Bluffton, SC, a Cornell student in 1887. Following graduation he was appointed Assistant Chemist in the New Hampshire Agricultural Experiment Station in Hanover, NH. In 1889, he was appointed Instructor of Chemistry in New Hampshire College, also in Hanover, and in 1892 he was promoted to Professor. In 1893 New Hampshire College moved to Durham, NH where Parsons designed the laboratories in the new science building. In 1907 he began a thirty-eight year period as the Secretary of the American Chemical Society. After a distinguished career as a teacher and academic administrator at New Hampshire College, he served from 1912 to 1919 as a high government official in the United States Bureau of Mines in Washington, DC, where he made an international reputation. He then became the full-time Secretary, essentially the chief operating officer of the American Chemical Society, which he built from a small organization of 3000 members in 1908 to the largest single discipline scientific organization with 40,000 members by the time he retired in 1945. The organization whose foundation he had prepared had grown to more than 70,000 members

by the time he passed away in 1954. Today the American Chemical Society has more than 100,000 members. In his own lifetime he was known around the world as "Mr. ACS.".

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Note: Fred W. Morse received a BS in 1887 and an MS in 1900 from Worcester Polytechnic Institute. He was appointed Assistant Chemist in the New Hampshire Agricultural Experiment Station in 1888 and promoted to Chemist in 1889, He was appointed Instructor of Chemistry in March 1889 and promoted to Professor of Chemistry and Department Head in April 1889 and Vice-Director of the Experiment Station, succeeding Benjamin Blanpied. In 1891 he was named Professor of Organic Chemistry and relinquished many of his responsibilities in the Chemistry Department because of his increased responsibilities in the Experiment Station. He retained the title of Department head, however, until he left to become Vice-Director of the Massachusetts Experiment Station in 1907. The Vice-director was the chief operating officer of the Experiment Station, while the President of the College was also the titular head as Director.
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Note: Walter F. George was born in rural Webster County, Georgia, where his father was a sharecropper on January 29, 1878. He earned undergraduate and law degrees from Mercer University in Macon and served many years on the Courts of Georgia, including the Georgia Supreme Court. He was elected to the US Senate in 1922 and served there for thirty five years, the last two a *President pro tempore*. He then served as special foreign policy advisor to President Eisenhower and Ambassador to NATO. He died on August 4, 1957. Mercer University named its law school in his honor.
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Note: Walter Chandler was born in Memphis in 1887 and earned a law degree from the University of Tennessee. He served as an officer in World War I and was later a Congressman for five years in the late 1930's. He later served twice as mayor of Memphis. He was an active and contributing member of the West Tennessee Historical Society. He died in 1967.
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Note: (Edward R. Atkinson, New England Chemist, *NEACT Journal*, **2003,** 21(2), 1-6) Edward R. Atkinson was born in Boston on February 15, 1912. His parents were career officers in the Salvation Army. Except for a period during his youth when his parents were transferred to Georgia and then to Pennsylvania he spent his whole life living and working in New England. He became interested in chemistry by doing experiments with a chemistry set. He entered MIT and received a degree in chemistry in 1933 and was commissioned an officer in the Chemical Warfare Service through the ROTC program. He earned his PhD in 1936 under Ernest Huntress. In 1936 he joined the faculty of Trinity College in Hartford, CT where he remained until 1938, when he moved to the University of New Hampshire. At the outbreak of World War II he resigned his commission as a major to remain as an instructor for Army troops at the University of New Hampshire. In 1951 he moved to Dewey & Almy Chemical Company which specialized in polymers. In 1957 he moved again, literally across the road to Arthur D. Little, a company which specialized in contract research, where he remained until he retired in 1977. He was long active in the ACS and the Northeastern Section, serving as chair of the NESACS in 1956. He also wrote extensively on the history of chemistry.
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Clarence J. Murphy is Professor Emeritus of Chemistry at East Stroudsburg University of Pennsylvania. He received BS and MS degrees in chemistry from the University of New Hampshire, where he learned his chemistry in James Hall named after Charles James, who succeeded Parsons as Head of the Chemistry Department in 1911. One of his professors was Harold A. Iddles, who succeeded James as Head of the Department in 1930. He received his Ph. D. from the State University of New York at Buffalo. He has held teaching positions at Ithaca College, St. Anselm College and East Stroudsburg University and research appointments at the Massachusetts Institute of Technology, Cornell University and Lehigh University.