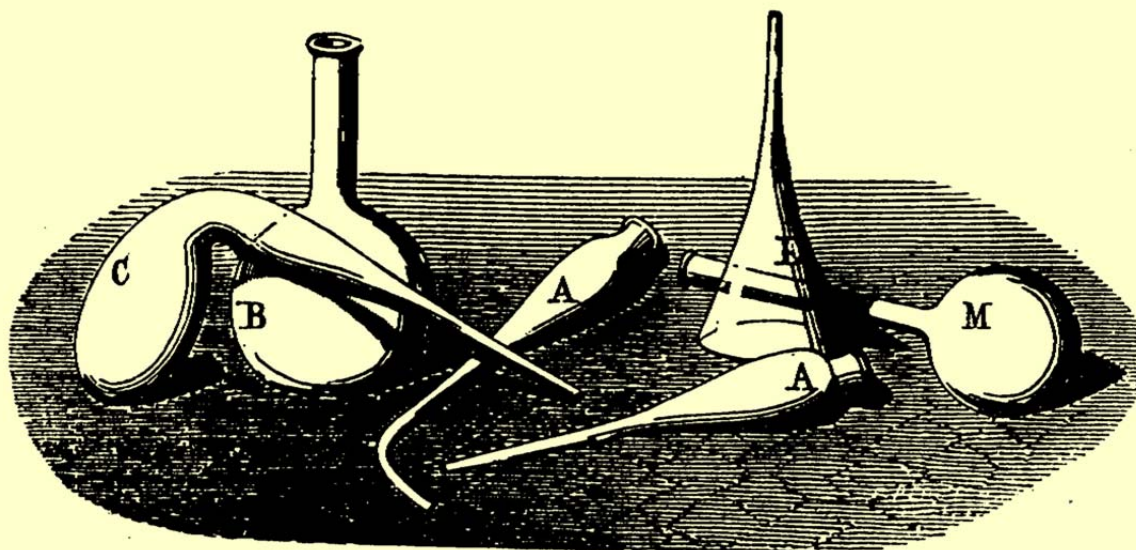




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American Chemical Society
**DIVISION OF THE
HISTORY OF CHEMISTRY**



PROGRAM AND ABSTRACTS

247th ACS National Meeting
Dallas, TX
March 16-20, 2014

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Final Program

HIST

DIVISION OF THE HISTORY OF CHEMISTRY

S. C. Rasmussen, *Program Chair*

SUNDAY MORNING

Section A

Omni Dallas Hotel - South Side 1

HIST Tutorial and General Papers

S. C. Rasmussen, *Organizer, Presiding*

8:30 1. HIST Tutorial: Chemistry and materials for energy – A history of batteries. **V. Mainz**

9:10 2. Serendipity and the prepared mind: the discovery of the antitumor drug, cisplatin. **J. D. Hoeschele**

9:40 Intermission.

9:55 3. Familial and historical influences on the lives of renowned scientists. **R. C. White**, J. H. White, V. B. Keen

10:25 4. Mirosław Kernbaum and the curious case of planetary peroxide. **R. L. Hudson**

10:55 5. Philatelic tribute to the IYCr: Crystallography on stamps. **D. Rabinovich**

SUNDAY AFTERNOON

Section A

Omni Dallas Hotel - South Side 1

Bringing Chemistry to the Public: A Historical Look at the Popularization of Chemistry

Cosponsored by CHED

N. V. Tsarevsky, *Organizer, Presiding*

1:00 Introductory Remarks.

1:05 6. Historical overview of popular chemistry books: From the early days to mid XXth century. **N. V. Tsarevsky**

1:40 7. Popularization of chemistry in France just prior to World War I. **P. Laszlo**

2:15 8. The popularisation of chemistry through Little Blue Books. **W. P. Palmer**

2:50 Intermission.

3:05 9. Popular 20th-century books for the amateur home chemist. **W. B. Jensen**

3:40 10. Chemistry at play: A look at popularizing chemistry through kits and their effectiveness throughout the years. **S. R. Woodruff**

4:15 11. Breaking bad: Getting good science to the public via TV. **D. J. Nelson**

James Flack Norris Award in Physical Organic Chemistry: Symposium in Honor of Matthew S. Platz

Sponsored by ORGN, Cosponsored by HIST

SUNDAY EVENING

Omni Dallas Hotel - Arts District 4

5:00 - 8:00 HIST Executive Committee Meeting

MONDAY MORNING

Section A

Omni Dallas Hotel - South Side 1

Fifty Years of the James Flack Norris Award: The Foundations of Physical Organic Chemistry

Cosponsored by NESACS, ORGN, and PRES‡

J. Seeman, *Organizer*

E. Strom, *Organizer, Presiding*

8:55 Introductory Remarks.

9:00 12. James Flack Norris: a pioneer in chemical education and his early contributions in physical organic chemistry. **A. Greenberg**

9:30 13. Some thermochemical studies in the 1960s and 70s. **E. M. Arnett**

10:00 14. Aromaticity and conductivity in molecular wires. **R. Breslow**

10:30 Intermission.

10:45 15. Hydrogen isotopes in physical organic chemistry. **A. Streitwieser**

11:15 16. Adventures in Physical Organic Chemistry. **J. I. Brauman**

Benefits of Chemistry in our Lives

Sponsored by PRES, Cosponsored by AGFD, AGRO, CHAS, CINF, CPRC, ENFL, ENVR, HIST, I&EC, MEDI, PMSE, and POLY

MONDAY AFTERNOON

Section A

Omni Dallas Hotel - South Side 1

Fifty Years of the James Flack Norris Award: The Foundations of Physical Organic Chemistry

Cosponsored by NESACS, ORGN, and PRES‡

E. Strom, *Organizer*

J. Seeman, *Organizer, Presiding*

1:55 Introductory Remarks.

2:00 17. Norbornyl Cation Isomers Still Fascinate. **P. Schleyer**

2:30 18. Physical organic chemistry with computations: Pericyclic reactions. **K. N. Houk**

3:00 Intermission.

3:15 19. Understanding Electron Transfer Reactions: A Case Study in Physical Organic Chemistry. **M. R. Wasielewski**

3:45 Panel Discussion. J. Baldwin, N. Porter, M. Platz, H. Reich, J. D. Roberts, M. Wasielewski. J. Baldwin, N. Porter, M. Platz, H. Reich, J. D. Roberts, M. Wasielewski.

MONDAY EVENING

Section A

Dallas Convention Center - Hall F

Sci-Mix

S. C. Rasmussen, *Organizer*

8:00 - 10:00

1. See previous listings.

TUESDAY MORNING

Section A

Omni Dallas Hotel - South Side 1

History of Chemistry in North Texas

Cosponsored by ACS DFW

E. Strom, *Organizer*

M. Reinecke, *Presiding*

8:25 Introductory Remarks.

8:30 20. 140 Years of chemistry at Texas Christian University. **M. G. Reinecke**

9:00 21. History of the Texas Instruments research laboratories. **S. C. O'Brien**

9:30 22. Chemistry at the University of North Texas. **J. L. Marshall**

10:00 23. Mobil Field Research Laboratory in Dallas: An unexpected world class center in magnetic resonance. **E. T. Strom**

10:30 Intermission.

10:45 24. Chemistry at the College in Arlington. **T. J. Cogdell**

11:15 25. History of Alcon Laboratories. **D. L. Dunn**

11:45 26. Short History of Chemistry at the University of Texas at Dallas. **A. D. Sherry**

Synthesis and Applications of Conjugated Materials: Contributions from Texas and Beyond

History and Synthesis

Sponsored by POLY, Cosponsored by HIST

TUESDAY AFTERNOON

Synthesis and Applications of Conjugated Materials: Contributions from Texas and Beyond

OPVs, OLEDs, and FETs

Sponsored by POLY, Cosponsored by HIST

TUESDAY EVENING

Poster Session

Sponsored by COMP, Cosponsored by BIOL, CINF, COLL, ENFL, ENVR, FLUO, GEOC, HIST, I&EC, INOR, MEDI, ORGN, PHYS, PMSE, POLY, TOXI, and YCC

Synthesis and Applications of Conjugated Materials: Contributions from Texas and Beyond

Posters

Sponsored by POLY, Cosponsored by HIST

WEDNESDAY MORNING

Synthesis and Applications of Conjugated Materials: Contributions from Texas and Beyond

Synthesis

Sponsored by POLY, Cosponsored by HIST

WEDNESDAY AFTERNOON

Synthesis and Applications of Conjugated Materials: Contributions from Texas and Beyond

Theory, Characterization and Electronic Applications

Sponsored by POLY, Cosponsored by HIST

HIST 1 - HIST tutorial: Chemistry and materials for energy – a history of batteries

Vera Mainz, mainz@illinois.edu. University of Illinois at Urbana-Champaign, Urbana, IL, United States

Alessandro Volta reported the construction of what is usually recognized as the first battery in 1800. His device, usually referred to as a voltaic pile, was composed of a series of silver and zinc disks in pairs, each of which was separated with a sheet of pasteboard saturated in salt water. The voltaic pile was not useful for delivering currents for long periods of time. This problem was resolved in 1836 by the invention of the Daniell (voltaic) cell. The Daniell cell was supplanted by another technological development in 1859 – the lead acid (Plante) battery. And was itself supplanted in time. This talk will consist of a short history of the chemical and material developments that have led to the modern batteries in use today.

HIST 2 - Serendipity and the prepared mind: The discovery of the antitumor drug, cisplatin

James D Hoeschele, hoeschel@msu.edu. Chemistry, Eastern Michigan University, Ypsilanti, Michigan 48197, United States

The serendipitous discovery of anticancer activity of Cisplatin by Dr. Barnett Rosenberg, Loretta Van Camp and co-workers at Michigan State University (1960's) led to the world-wide use of one of the most important anticancer drugs in the history of cancer chemotherapy. The clinical success of Cisplatin, the first metal-based anticancer drug approved by the FDA (1978), inspired a renaissance in the field of Contemporary Bioinorganic Chemistry. This talk will chronologically highlight the fascinating details of the discovery of Cisplatin, a 5-year effort. The discovery is a prime example of the optimal use of the scientific method of observation, hypothesis and the testing of hypotheses.

HIST 3 - Familial and historical influences on the lives of renowned scientists

Rick C. White¹, chm_rcw@shsu.edu, Janis H. White², Valencia B. Keen². (1) Department of Chemistry, Sam Houston State University, Huntsville, TX 77341, United States (2) Department of Family and Consumer Sciences, Sam Houston State University, Huntsville, TX 77341, United States.

Familial influences as well as historical influences on renowned scientists will be discussed. For example, although Richard Kuhn came from a Jewish heritage, his career flourished under Hitler and although Fritz Haber wanted to help secure a victory for Germany with minimal human loss by advocating chemical warfare, his chemist wife disagreed and committed suicide. Emil Fischer's failure at his father's business led him to go to college to learn chemistry. Marie Curie's parents instilled in her a love of education and she escaped Tsarist controlled Poland to flourish in France. These will be discussed in terms of students' approach to education and their research activities.

HIST 4 - Miroslaw Kernbaum and the curious case of planetary peroxide

Reggie L. Hudson, reggie.hudson@nasa.gov. Astrochemistry Laboratory, NASA Goddard Space Flight Center, Greenbelt, Maryland 20771, United States.

In 1999 it was reported that hydrogen peroxide had been detected on the surface of Europa, one of Jupiter's icy moons, by an infrared spectrometer on board NASA's Galileo spacecraft. This discovery constituted the first observation of H₂O₂ beyond our planet, and it raised the question of how this molecule could be made in outer space at a temperature near 100 K. The answer goes back over a century to an almost-forgotten young researcher named Miroslaw Kernbaum (1882 - 1911) who worked with Marie Curie in the early days of radiation-chemical research. In this presentation, Kernbaum's work will be reviewed and the line from his lab bench to Jupiter will be traced. Despite the many intervening years of effort, significant gaps and uncertainties remain in the study of extraterrestrial peroxide. -- Professor Andrzej Chmielewski of the Institute of Nuclear Chemistry and Technology in Warsaw, Poland is acknowledged for help with this presentation.

HIST 5 - Philatelic tribute to the IYCr: Crystallography on stamps

Daniel Rabinovich, *drabinov@uncc.edu*. Department of Chemistry, The University of North Carolina at Charlotte, Charlotte, North Carolina 28223, United States.

The 1914 Nobel Prize in Physics was awarded to Max von Laue “for his discovery of the diffraction of X rays by crystals”, a seminal discovery that is one of the key sources of inspiration for many of the celebrations taking place during the International Year of Crystallography (2014). Milestones in the history of X-ray crystallography, from the observation of crystals in nature (e.g., gemstones, minerals, snowflakes) to the discovery of X rays by Wilhelm Röntgen (1895) and the key contributions of von Laue and the Braggs, will be described in this presentation and illustrated with postage stamps and other philatelic materials. A number of stamps depicting the molecular structures of a variety of organic and inorganic compounds will also be shown to underscore the importance of X ray diffraction to chemistry, biochemistry, mineralogy, medicine, physics, and related fields.



HIST 6 - Historical overview of popular chemistry books: From the early days to mid 20th century

Nicolay V. Tsarevsky, *nvt@smu.edu*. Department of Chemistry, Southern Methodist University, Dallas, TX 75275, United States.

The field of popular science, which was born in XVIth century (an example of an early book being “Natural Magic” by G. Porta (ca. 1535-1615)), bloomed during the Age of Enlightenment in the works of thinkers, philosophers, and professional scientists, who were passionate about the dissemination of knowledge. A number of popular science essays and books began to appear in the XVIIIth century that aimed to explain complicated scientific concepts to the laypersons, who were either too young to be exposed to science or were older but had not been given the chance to learn about science due to various socioeconomic reasons. Early works on the usefulness of science and particularly chemistry and chemical technology often concentrated on a specific application or field, such as agriculture, cooking, art, technology, or medicine. Gradually, more comprehensive books were offered to the public, often including illustrations or descriptions of experiments. Some were in the form of case studies or short stories, while others were written as dialogues. The development of popular chemistry books will be traced, from the essay “On the Usefulness of Chemistry” by T. Bergman (1735-1784) to “A Chymical Catechism” by S. Parkes (ca. 1759-1829), to “Conversations on Chemistry” by J. Marcet (1769-1858), to similar books by J. Liebig (1803-1873), W. Ostwald (1853-1932), and other, more or less theoretical, works. Additionally, books describing experiments of various degrees of complexity were published, which encouraged and inspired the readers to experiment at their own homes, including “The Young Chemist's Pocket Companion” by J. Woodhouse (1770-1809), and “Chemistry No Mystery” and “A Manual of Chemical Analysis for the Young” by J. Scoffern (1814-1882). More contemporary publications, which were quick to incorporate the most recent developments of science and to present them in a coherent and accessible fashion will also be described.

HIST 7 - Popularization of chemistry in France just prior to World War I

Pierre Laszlo, *pierre@pierrelaszlo.net*. Department of Chemistry, Ecole polytechnique, Palaiseau, IdF 91128, France.

On the verge of becoming a professor of chemistry at Ecole polytechnique — a university level French institution of the first rank, but a military school as well, a kind of a cross between MIT and West Point — Georges Darzens published in 1912 *Initiation chimique*, a popularization for the general public. My talk, besides analyzing this book, will replace it in its historical context. It was marked by the Dreyfus Case. Darzens was asked to write this book by a fellow Dreyfus supporter, C.A. Laisant, a polytechnicien like Darzens, a mathematician who had started a collection of popularization texts with the Parisian publisher Hachette. Darzens and Laisant also shared belief in progress through science, they had a commitment to popular education and to socialism.

HIST 8 - Popularisation of chemistry through Little Blue Books

William P. Palmer, bill_palmer15@hotmail.com. The Science and Mathematics Education Centre, Curtin University of Technology, Perth, WA, Australia.

The five hundred million Little Blue Books, with about 200 different titles, published by Emanuel Haldeman-Julius from his printing presses situated at Girard in Kansas between 1919 and 1951, were an important influence on American education. Three Little Blue Books exist that attempt to explain Chemistry to students and the general public; they are: 1) Chemistry for Beginners (#679) by Hereward Carrington; 2) The Chemistry of Familiar Things(#1352) by Lawrence A. Barrett; and 3) The Wonders of Modern Chemistry, the Principles on Which They Are Based (#1771) by Joseph McCabe. Specifically for schools, about sixty Little Blue Books on all topics were packaged together as a set and made available to students at a price of about \$3.00. About 250,000 of these sets were sold to schools and students; the chemistry book in the set was entitled Chemistry for Beginners. The simple thesis is that if one quarter of a million books of one chemistry title were sold to students, then it would have been a major, though unrecognised, factor in popularising chemistry to younger Americans. Similarly the other two chemistry titles communicated an interest in chemistry to the general public and these also sold well. Additionally there are another half dozen Little Blue Books whose content also relates to chemistry that also assisted in communicating chemistry to the general public.

HIST 9 - Popular 20th-century books for the amateur home chemist

William B. Jensen, jensenwb@ucmail.uc.edu. Department of Chemistry, University of Cincinnati, Cincinnati, OH 45221, United States.

There are many ways to popularize chemistry, including itinerant lectures, books emphasizing the modern industrial fruits of chemistry, chemistry sets, videos, radio talks, television documentaries, and products intended for the amateur home laboratory enthusiast. This talk will deal with books created for the latter market, and though this genre can be traced back to the early 19th century, if not earlier, it will focus on 20th century examples, with emphasis on the first half of the century and such authors as A. Frederick Collins, Raymond F. Yates, and Alfred P. Morgan.

HIST 10 - Chemistry at play: A look at popularizing chemistry through kits and their effectiveness throughout the years

Shannon R Woodruff, swoodruff@smu.edu. Department of Chemistry, Southern Methodist University, Dallas, TX 75275, United States.

Chemistry education has a wide history in targeting younger generations in the comfort of their own homes. The most prominent of these methods has been the development of various portable chemistry sets and kits. These sets heightened in popularity in the mid-20th century with those made by established toy companies such as the A. C. Gilbert Company (famed for their patented Erector set), but the existence of chemistry sets as educational aids can be traced back well into the 18th century. Over the years, these sets grew in what equipment and chemicals they included, until the mid-1960s, when concerns about safety started to take rise. This presentation will take a look at the evolution of chemistry sets over the years as well as how these changes have affected their usefulness as educational aids.

HIST 11 - Breaking bad: Getting good science to the public via TV

Donna J Nelson, djnelson@ou.edu. Department of Chemistry, University of Oklahoma, Norman, OK 73019, United States.

Personal experiences in assisting Breaking Bad producers, writers, and actors with science will be discussed. Thoughts on how to make such advising desirable and successful will be offered.

HIST 12 - James Flack Norris: A pioneer in chemical education and his early contributions in physical organic chemistry

Arthur Greenberg, *art.greenberg@unh.edu*. Department of Chemistry, University of New Hampshire, Durham, New Hampshire 03870, United States.

James Flack Norris (b. 1871) received his Ph.D. with Ira Remsen at Johns Hopkins University (1895) and joined the Chemistry faculty at M.I.T. In 1904 he became the first chemistry professor at Simmons College, a college for women, in Boston. He was responsible for establishing the curriculum and laboratories at Simmons. He remained at Simmons until 1915, taking a one-year leave (1910-11) during which he spent a sabbatical year with Fritz Haber in Karlsruhe. Following one year at Vanderbilt University in Tennessee, Norris rejoined the faculty at M.I.T. and spent the remainder of his career there until he died (1940). Professor Norris had married Anne Bent Chamberlin in 1902. When Mrs. Norris died in 1948, her will provided a bequest establishing the The Norris Fund, administered by the Northeast Section of the American Chemical Society. The James Flack Norris Award for Outstanding Achievement in Teaching was established in 1950 and awarded to George Shannon Forbe in 1951. The James Flack Norris Award in Physical Organic Chemistry was established in 1963. The first three awardees, Christopher K. Ingold (1965), Louis P. Hammett (1966), and George S. Hammond (1967) are prominent in every physical organic chemistry textbook well into the twenty-first century. Indeed, Hammett was the only recipient of Norris awards in teaching (1960) and physical organic chemistry. The presentation in this symposium will describe the impact of Norris as teacher and researcher in the context of his times (especially during the 1920s and 1930s).

HIST 13 - Some thermochemical studies in the 1960s and 70s

Edward M. Arnett, *edward.arnett@duke.edu*. Department of Chemistry, Duke University, Durham, North Carolina 27708, United States.

Initial commentary will refer to the occasionally stressful emergence of physical organic chemistry as an interdisciplinary field which benefitted greatly from post WWII instrument development. Design of a simple calorimeter in the speaker's laboratory allowed the measurement of solvent-solute interactions over the entire range from weak hydrogen bonding to heats of formation of stable carbonium ions in superacids or of carbanions in superbases.

HIST 14 - Aromaticity and conductivity in molecular wires

Ronald Breslow, *rb33@columbia.edu*. Department of Chemistry, Columbia University, New York, NY 10027, United States.

It is common to use aromatic molecules such as thiophene in nanoscale molecular wires, but we have seen that aromaticity adds extra resistance as connecting to them from gold leads causes the contribution of a quinoid structure. We have studied a number of aromatic systems in break junction conductivity measurements. The result is that the best conductors are non-aromatic, and even perhaps antiaromatic if distortion is minimized.

HIST 15 - Hydrogen isotopes in physical organic chemistry

Andrew Streitwieser, *astreit@berkeley.edu*. Chemistry, University of California, Berkeley, Berkeley, CA 94720-1460, United States.

Deuterium and tritium have been important tools in physical organic chemistry, as tracers as well as by kinetic and equilibrium isotope effects. Examples of different types will be given, many of which come from my laboratory during my first few decades at Berkeley.

HIST 16 - Adventures in physical organic chemistry

John I Brauman, *brauman@stanford.edu*. Department of Chemistry, Stanford University, Stanford, California 94305-5080, United States

Historical background for some of our advances and discoveries in gas phase ionic chemistry will be discussed.

HIST 17 - Norbornyl cation isomers still fascinate

Paul Schleyer, *schleyer@chem.uga.edu*. Department of Chemistry, University of Georgia, Athens, GA 30602, United States

While Scholz, et al.'s (Science, 2013, 341, 62) 2-exo-norbornyl cation X-ray determination brought long overdue closure to the vituperative structure controversy, this report summarizes other remarkable issues currently engaging research groups worldwide. The 2-endo-norbornyl cation also has a bridged minimum, as does the 7-cation. J. I. Wu, et al. find that Cs and C_{2v} symmetry forms of the latter are anti-aromatic. Unexpectedly, Duncan, et al.'s gas phase protonation of norbornene gives the 1,3-dimethylcyclopentyl cation, the C₇H₁₁⁺ global minimum. Merino, et al.'s molecular dynamics simulations reveal many acyclic as well as monocyclic intermediates along the reaction pathway, and that the known 1- to 2-norbornyl cation isomerization involves a far more complex mechanism than a direct, 1,2-hydride shift.

HIST 18 - Physical organic chemistry with computations: Pericyclic reactions

Kendall N. Houk, *houk@chem.ucla.edu*. Department of Chemistry and Biochemistry, University of California Los Angeles, United States

During the history of the James Flack Norris Award, computations have become a powerful tool for the investigation of organic reaction mechanisms. This lecture will describe how quantum mechanical and molecular dynamics calculations have complemented experimental studies of pericyclic reactions and stepwise analogs to give time-resolved insights into mechanisms.

HIST 19 - Understanding electron transfer reactions: A case study in physical organic chemistry

Michael R Wasielewski, *m-wasielewski@northwestern.edu*. Department of Chemistry, Northwestern University, Evanston, Illinois 60208-3113, United States

A wide range of important processes ranging from photosynthesis to charge transport in organic semiconductors depend on movement of electrons between molecules and within materials. For example, we have used complex, covalent molecular systems comprising chromophores, electron donors, and electron acceptors to mimic both the light-harvesting and the charge separation functions of photosynthetic proteins. These synthetic systems have been used to study the dependencies of electron transfer rate constants on donor-acceptor distance and orientation, electronic interaction, and the free energy of the reaction. The most useful and informative systems are those in which there are structural constraints to control both the distance and the orientation between the electron donors and acceptors. We have extended this approach to understanding how long distance charge transport occurs in systems as diverse as self-assembling organic charge transport materials and DNA. Using modern time-resolved spectroscopic techniques and the strategies of physical organic chemistry, significant progress has been made in understanding electron transfer reactions in chemistry, biology, and materials science.

HIST 20 - 140 Years of chemistry at Texas Christian University

Manfred G. Reinecke, *m.reinecke@tcu.edu*. Department of Chemistry, Texas Christian University, Fort Worth, Texas 76129, United States

Texas Christian University was founded in 1873 in Thorp Springs, Texas as the first university west of the Mississippi to enroll women. TCU moved to Waco and then to Fort Worth in 1910 and hired its first degreed chemist in 1920 and its first PhD chemist in 1928. The first of 83 Chemistry MS degrees was awarded in 1934 and the first Chemistry PhD degree in North Texas in 1967. The first Robert A. Welch Chair of Chemistry in North Texas was then established at TCU in 1974 and filled by Paul D. Bartlett from Harvard University until 1985, by David Gutsche (1989-2002) from Washington University (St. Louis) and, since 2010 by Eric Simanek from Texas A&M. The present department has 12 full-time faculty members, all with PhD degrees, 9 post-doctoral fellows and 25 PhD track graduate students. TCU has graduated over 150 Chemistry PhD students and has over 2000 citations in SciFinder.

HIST 21 - History of the Texas Instruments research laboratories

Sean C O'Brien, sobrien@ti.com. Digital Light Processing, Texas Instruments, Dallas, TX 75243, United States

From the oilfields of Louisiana to the battlefields of Desert Storm and the Beijing Olympics Texas Instruments has pioneered fundamental research technology and produced devices which have changed our lives. Scientists and engineers such as Gordon Teal, Jack Kilby, and George Heilmeier have given us inventions and innovations which have transformed our world and enabled near instantaneous voice and data communications. TI Labs including Central Research, Materials Science, and Kilby Laboratories have changed the way we think about technology. In this talk we will learn about the people involved in research at TI.

HIST 22 - Chemistry at the University of North Texas

James L. Marshall, jimmm@unt.edu. University of North Texas, United States

The Department of Chemistry of the University of North Texas has just commemorated its centennial, which began with W. N. Masters in 1910. At its grand celebration, a history of the Department was presented, a story which will be retold at the Dallas ACS National Meeting.

HIST 23 - Mobil Field Research Laboratory in Dallas: An unexpected world class center in magnetic resonance

E. Thomas Strom, tomstrom@juno.com. Department of Chemistry and Biochemistry, University of Texas at Arlington, Arlington, TX 76019-0065, United States

Mobil Corp. carried out exploration and production research from the 1940's to the 1990's at their Dallas laboratory, known for a time as the Field Research Laboratory. For a 10-15 year period from the late '50's to the early 70's, the Field Research Laboratory did some of the best NMR research in the world. This was a result of the confluence of three individuals, a talented NMR spectroscopist in Don Woessner, an innovative electrical engineer named Bob McKay, and a dynamic, aggressive group leader in John Zimmerman. Changing priorities and loss of key personnel eventually brought this era to an end.

HIST 24 - Chemistry at the College in Arlington

Thomas J Cogdell, tcogdell@sbcbglobal.net. Department of Chemistry and Biochemistry, University of Texas at Arlington, Arlington, Texas 76019, United States

Arlington College was founded as a private school in 1895. It passed through seven reorganizations and name changes, becoming The University of Texas at Arlington in 1966. As Carlisle Military Academy it began a tradition of military discipline for its male students. The Texas legislature gave it public support in 1917, placing it under the administration of Texas A&M, which viewed it as a source of students to transfer to its College Station campus, providing steady but meager funding. It had a standard curriculum in chemistry for junior college and after 1949 for baccalaureate students. After a public campaign by students, faculty and business leaders throughout the region, the legislature transferred the college in 1965 to the University of Texas System, which began an orderly development of graduate programs, research accomplishments and public service. UTA is now noted for the diversity of its students.

HIST 25 - History of Alcon Laboratories

Danny L. Dunn, dannyldunn@sbcbglobal.net. Alcon Laboratories, Retired, Fort Worth, TX 76132, United States

Alcon Laboratories was founded in 1945 by two pharmacists, Robert Alexander and William Conner. The new company was named using the first syllables of their last names. Both men felt that sterile eye medications needed to be readily available. Alexander and Conner continued to fill prescriptions during the day, and at night prepared sterile products using a blender and pressure cooker. While on a sales call to West Texas, Robert Alexander and a local physician created and patented the DROP-TAINER® eye drop dispensing bottle which is now the standard for eye care products. From these humble beginnings, Alcon was first purchased by Nestlé (1978) and then Novartis (2011). In the process, Alcon became the world's largest eye care company with sales of over \$10 billion and products in ophthalmology, surgical, and consumer care. The innovative leaders and products that fueled this amazing growth will be discussed.

HIST 26 - Short history of chemistry at the University of Texas at Dallas

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UT Dallas evolved from the Graduate Research Center of the Southwest (GRCSW), established by the founders of Texas Instruments in 1961 as a privately funded, basic research institution to aid the southwestern region of the United States in the advancement of graduate education in the natural sciences. In 1967, its name was changed to the Southwest Center for Advanced Studies (SCAS) and in 1968 it was integrated into The University of Texas System as UT Dallas. The areas of scientific emphases at SCAS at that time were Molecular Biology, Geosciences, Space and Atmospheric Sciences and Mathematics. All of the original SCAS scientists became faculty members of UT Dallas and the four existing graduate programs were authorized to award Ph.D. degrees. Four chemists were hired in 1972 and given authorization to award the MS degree in Chemistry. All of this began in a single building named Founders in a field in far North Richardson.

UT Dallas initiated upper-division undergraduate programs in 1975 with most students coming from local junior colleges. Chemistry created a non-standard curriculum when included integrated laboratory courses rather than the usual upper level analytical, physical and organic synthesis courses. Those same courses exist today. Freshman arrived on campus in the fall of 1990 and this event catalyzed the growth of UT Dallas to its current size of 22,000 students. Beginning in the early 1980's at the urging of Norman Hackerman and others, the chemistry faculty began planning a new type of doctoral program, one that would train PhD level students specifically for industrial careers in Chemistry. The Doctor of Chemistry program, initiated in 1985, awarded 61 Doctor of Chemistry degrees between 1990 and 2002. After the arrival of Ray Baughman and Alan MacDiarmid (2000 Nobel Prize in Chemistry) to initiate the NanoTech Institute at UT Dallas in 2002, a more traditional PhD program was requested and added to the Chemistry curriculum. Today, UT Dallas has 22 research-active Chemistry faculty and 76 PhD students.