



**CapSci2010**

## ***The History of Technical Societies (IEEE) and Preservation of Institutional Memory***

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Network & Security Consultant  
trweil@ieee.org**

*“The mission of the IEEE History Committee is to further the preservation, research, and dissemination of information about the history of electrical science and technology, and in particular the technological and organizational history of IEEE, its members, and their professions, in order to increase awareness and understanding of the role of engineering and technology in the improvement of the quality of life for people throughout the world.”*

—IEEE History Center



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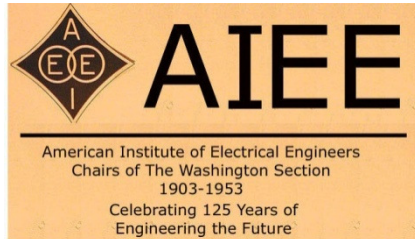
### Agenda:

- Inspiration (125<sup>th</sup> Anniversary Year)
- Accomplishments of the Area Sections
- Professional Resources
- Moving the IEEE Timeline Forward
- Questions



# Inspiration for the History Project

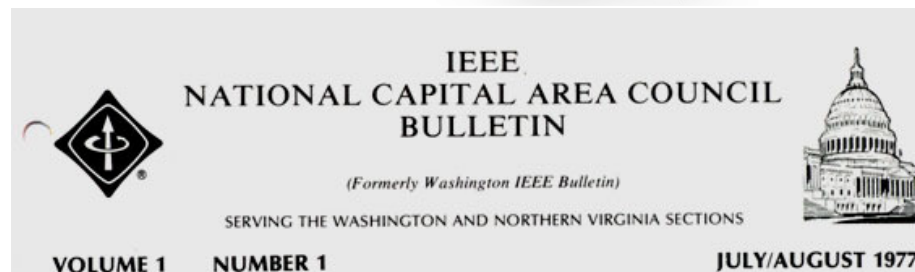
## CapSci2010



Conferences  
Celebrations  
Memorabilia  
Research



Photo Archives  
Storage Lockers  
Interviews  
Seminars





## 2009 – A Historic Year for the NCA IEEE Programs

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During IEEE's 125th anniversary last year, the National Capital Area organized and participated in several successful programs and activities, including:

- IEEE GHN Digital Archive of the Washington Section

[http://www.ieeeghn.org/wiki/index.php/IEEE\\_Washington\\_Section\\_History](http://www.ieeeghn.org/wiki/index.php/IEEE_Washington_Section_History)

[http://www.ieeeghn.org/wiki/index.php/Archives:Washington\\_Section\\_Archives](http://www.ieeeghn.org/wiki/index.php/Archives:Washington_Section_Archives)

- Seminars -

- 125th Anniversary Program at VT Advanced Research Institute
- History of Technical Societies Conference (Philadelphia, on IEEE Xplore)
- History of IEEE SCANNER
- History of the Washington Section, University of District of Columbia
- The History of Electrical Technology in 1884 (Devry University)

- Time Capsule (125th Anniversary Program)

- Press Release and Articles

- Multiple SCANNER stories
- Write-up from IEEE History Network

- Chapter / Member Response

- Montgomery Community College - Poster for 2009 Banquet
- IEEE-USA events (and House Proclamation for 125th Anniversary)



*Preserving History—(left to right) Monica A. Mallini, Chair, Northern Virginia Section; Wally Lee, Scanner Washington Section Editor; Raj Madhavan, Vice Chair, Washington Section; and Tim Weil, Chair, Washington Section attended the IEEE Conference on the History of Technical Societies. Lee holds a time capsule that the two sections are preparing to mark the 125th anniversary of IEEE.*



# HR 413 – Congressional Recognition

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Whereas IEEE is the world's largest technical professional society, with more than 375,000 members, including more than 210,000 members in the United States; (Introduced in House)

HRES 413 IH

111th CONGRESS

1st Session

**H. RES. 413**

Supporting the goals and ideals of 'IEEE Engineering the Future' Day on May 13, 2009, and for other purposes.

**IN THE HOUSE OF REPRESENTATIVES**

**May 6, 2009**

Mr. STEARNS (for himself, Mr. GORDON of Tennessee, Mr. HALL of Texas, Mr. LIPINSKI, Mr. EHLERS, and Mr. ROHRABACHER) submitted the following resolution; which was referred to the Committee on Science and Technology

[+]  
FEEDBACK

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## **RESOLUTION**

Supporting the goals and ideals of 'IEEE Engineering the Future' Day on May 13, 2009, and for other purposes.

Whereas IEEE is the world's largest technical professional society, with more than 375,000 members, including more than 210,000 members in the United States;

Whereas IEEE members are engineers, scientists, and other professionals whose technical interests are rooted in electrical and computer sciences, engineering, and related disciplines;

Whereas IEEE's core purpose is to foster technological innovation and excellence for the benefit of humanity;

Whereas IEEE traces its roots to the founding of the American Institute of Electrical Engineers (AIEE) on May 13, 1884;

Whereas renowned inventor and entrepreneur Thomas Alva Edison was a founder of AIEE;

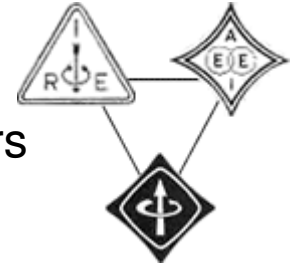
Whereas notable presidents of the IEEE and its founding organizations include Alexander Graham Bell, Charles Proteus Steinmetz, Lee De Forest, William R. Hewlett, and Ivan Gettings;

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Where we came from - as an organization \*\* –

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- The origins of IEEE are in the American Institute of Electrical Engineers (AIEE, founded 1884) and the Institute of Radio Engineers (IRE, founded 1912) which merged into the IEEE
- The AIEE scope spanned wired communications (telegraph and telephony), and light and power systems.
- IRE focus was on (wireless) radio engineering technologies (and was the product of a merger of the Society of Wireless and Telegraph Engineers and the Wireless Institute).
- With the rise of electronics in the 1930s, “electronics” engineers joined IRE, but the applications of electron tube technology became so extensive that the technical boundaries differentiating the IRE and the AIEE became difficult to distinguish.
- The two organizations formally merged, and incorporated in New York, as the IEEE on January 1, 1963.

\*\* (Dr. Federica Darema – 2009 NCA Banquet Keynote Address)





## Where we came from... and what does that foretell for where we are going?

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- IEEE's Constitution defines the purposes of the organization as "scientific and educational, directed toward the advancement of the theory and practice of electrical, electronics, communications and computer engineering, as well as computer science, the allied branches of engineering and the related arts and sciences."
  - In pursuing these goals, IEEE serves as a major publisher of scientific journals and conference organizer; sponsors or cosponsors more than 850 international technical conferences each year
  - IEEE is a leading developer of industrial standards (over 900 active industry standards) in a broad range of disciplines, including electrical power and energy, biomedical technology and healthcare, information technology, information assurance, telecommunications, consumer electronics, transportation, aerospace, and nanotechnologies
  - IEEE develops and participates in educational activities such as accreditation of electrical engineering programs in institutes of higher learning
- The IEEE logo has a diamond-shaped design

**One interpretation: "illustrates the right-hand-grip-rule" (Wiki)**

**Another one: Looks to me like the "electron-spin" (FD)**



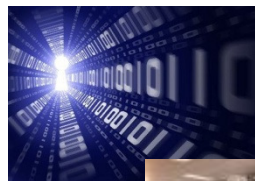
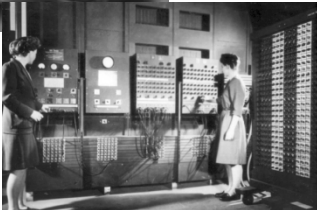


# (some) Technological Milestones through the time...

*Unprecedented and Accelerating Innovation Pace over the Last 150 Years ...*

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- 1775 – industrial steam engine
- 1820 – the industrial revolution begins
- 1843 – long distance telegraph
- 1860 – internal combustion engine
- 1876 – telephone
- 1879 – the electric light
- 1882 – electric automobile
- 1884 – **the dawn of IEEE!**
- 1885 – first gasoline-powered automobile
- 1886 – electric power distribution
- 1903 – airplane
- 1930 – first TV broadcast
- 1942 – nuclear reactor
- 1946 – 1<sup>st</sup> electronic computer (ENIAC)



- 1952 - optical fiber
- 1957 - launch of Sputnik1 (Oct 4)
- 1957 - launch of Sputnik2(dog/Laika; Nov3)
- 1959 - integrated circuit
- 1960 - laser
- 1961 - first (hu)man in space (April 12)
- 1961 - first American in space (May 5)
- 1963 - first woman in space (June 16)
- 1969 - landing humans on the moon & back to earth
- 1971 - microprocessor
- 1973 - cellphone
- 1977 - MRI
- 1983 - portable computer (laptop)
- 1990 - internet (search engine)
- 1994 - Netscape (web browser)
- 1998 - SpaceStation assembly begins
- 2000 - first silicon chip artificial retina impl
- 2004 - first human x-plant of bio-eng airway tissue
- 2008 - ORNL Jaguar Supercomputer over PFlops



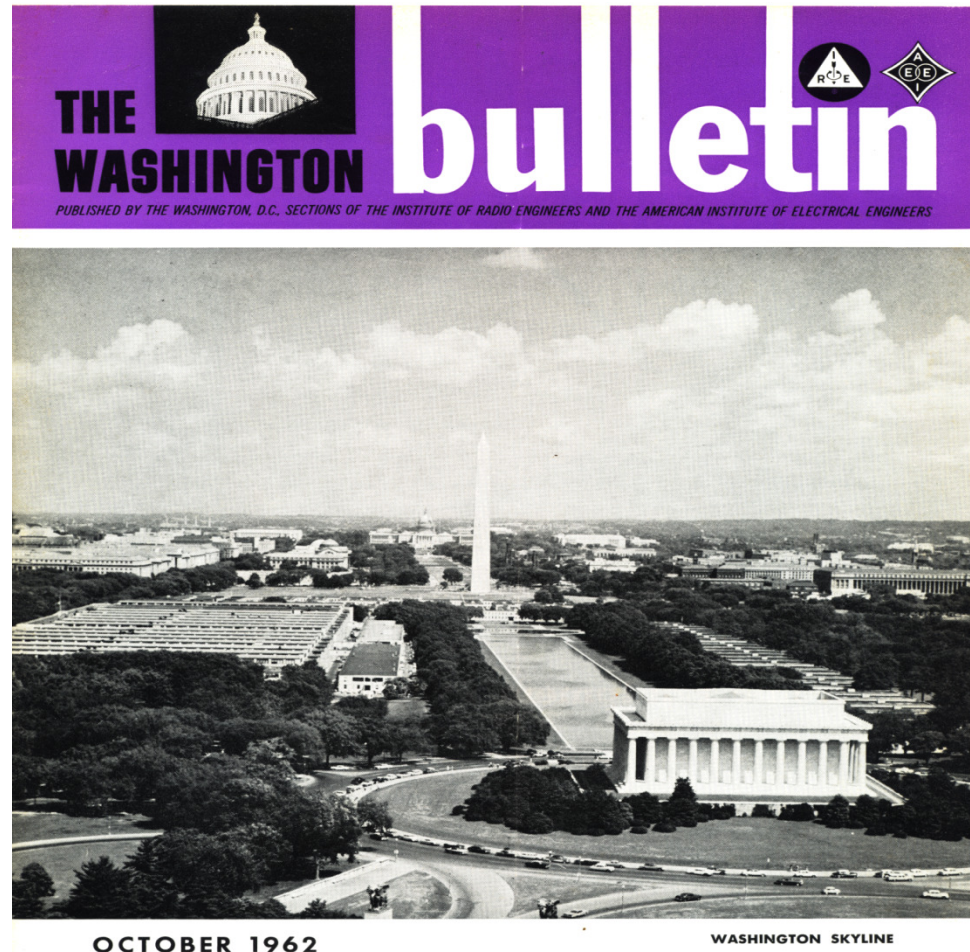
*...spanning space-time ... from the angstrom,  
to acres, to light-years...*





# Accomplishments of the Area Sections

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Earliest surviving Bulletin in NCA archive



**Volta's Electrical Battery Invention**

1799

Alessandro Volta develops first electrical battery, the Voltaic Cell. It consisted of two plates of different metals immersed in a chemical solution.

Volta's development of the first continuous and reproducible source of electrical current was an important step in the study of electromagnetism and in the development of electrical equipment.



**Demonstration of Practical Telegraphy**

1838

Samuel Morse and Alfred Vail first demonstrated publicly crucial elements of their telegraph system, using instruments that Vail had constructed during the previous months. Electrical pulses, transmitted through two miles of wire, caused an electromagnet to ink dots and dashes (grouped to represent letters and words) on a strip of paper.



**First Intelligible Voice Transmission over Electric Wire**

1876

Alexander Graham Bell called out to his assistant Thomas Watson, "Mr. Watson, come here! I want to see you."



**Mill Creek No. 1 Hydroelectric Plant**

1893

The Mill Creek hydroelectric generating plant began operating on 7 September 1893. This powerhouse was foremost in the use of three-phase alternating current power for commercial application and was influential in the widespread adoption of three-phase power throughout the United States.



*Innovation*

*Teamwork*



2009

**Montgomery College IEEE Chapter**

The mission of the IEEE MC Student Chapter is to provide a gateway for prospective engineers at Montgomery College to become part of an international engineering community as well as gain invaluable knowledge and experience.



1997

**Development of 802.11 Standard**

A network access technology for providing connectivity between wireless stations and wired networking infrastructures.



1973

**Pioneering Work on Electronic Calculators**

A Sharp Corporation project team designed and produced several families of electronic calculators. The integration of CMOS-LSI and LCD devices onto a single glass substrate

*Creativity*





# AIEE Scrapbook – 50 Years of Society Leadership

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## The First 50 Years



## Washington Section





# NCA History - Professional Resources

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## Events and Tools That Launched our Program

- Washington Section Centennial Celebration (2002)
- IEEE-USA Annual Meeting (SLC – 2009)
- IEEE History Center – Global History Network
- History of Technical Societies Conference
- WikiMedia, Oral Histories and Student Chapters
- SCANNER Newsletter and Archives





## Washington Section Chairs and Officers 2003

IEEE National Capital Area Scanner

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May-June 2009 5



## snippets of the Last 40 Years...

### A Shared History

Until 1971, the Washington Section included the entire Washington metropolitan area, consisting of the District of Columbia, suburban Maryland and Northern Virginia. In 1972, the latter became the Northern Virginia Subsection, and then a full-fledged Section in 1977. The Washington Section continues to include six Maryland counties and seven in West Virginia.

The National Capital Area Council (NCAC) was formed in 1977, in order to coordinate certain common activities of the two sections, such as general administration, publication of a joint newsletters, management of the annual awards banquet, and conferences held in the area. The council was dissolved at the end of 2002, but the two sections have continued to cooperate on issues of common interest, and to run joint chapters of many technical societies.

Thus, the histories of the Washing-

U.S. regional directors. However, the idea of getting involved in "professional" issues was opposed by some technical societies and non-U.S. regional directors, who wanted the IEEE to work on technical issues only. Extended debates led to the formation of the U.S. Activities Committee (USAC) and then the U.S. Activities Board (USAB). Marc Apter remembers that Hyatt in Crystal City had just opened and PACE-USAB was the first group to meet there, even though all the meeting rooms weren't finished yet. Such meetings resulted in many new projects.

Dan Benigni recalls a crucial meeting in 1995, when the IEEE Board was being urged by some Technical Activities Board directors to vote down professional activities; as a counter proposal, Dan and some others were ready with a motion to dissolve certain technical societies which opposed such activities. Luckily, cooler heads prevailed and USAC/USAB was allowed to remain active. A new set



**Washington Centennial**—The Washington Section celebrated its 100th anniversary at the Cosmos Club in 2003. Officers attending included (left to right) Jerry Gibbon, Doug Holly, Haik Biglari, James Christian, Roger Kaul, Howard Needham, Harvey Newman, Richard Benjamin, Harry Sauberman, and Saj Durrani. (Photo courtesy of Doug Holly)

couraged to publish their business cards in the *Scanner* and use an electronic bulletin board. In addition, a separate network was proposed to support employment assistance needs of unemployed members. Hence, the National Capital Area Consultants' Network was formed on November 1, 1990 as a PACE subcommittee. PACE Chair James Strother, who had just completed a term as Chair of the Northern Virginia Section, filled the role of Advisor to the subcommittee. The first Chair of the Entrepreneurs and Consultants Network was Raymond Mataloni.

### Outreach to Students

Both Sections have supported stu-

tical and electronic equipment and to provide it to the youth to take apart and examine under volunteer supervision, to satisfy their curiosity about how things work. Other events target young women. GOLD has partnered with the DeVry University student branch to host electronics workshops at Young Women in Science and Technology events. GOLD volunteers are also regular participants at the IEEE-USA exhibit at the annual Discover Engineering Family Day during Engineers Week in February.

The Northern Virginia Section has also supported local high school FIRST robotics teams with financial support and mentors.



# IEEE Global History Network – Washington Section Archives

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IEEE Global History Network

SEARCH

HOME TOPIC ARTICLES FIRST-HAND HISTORIES IEEE MILESTONES IEEE STARS ORAL HISTORIES ARCHIVES

Home > Archives:Washington\_D.C.\_Section\_Archives

- Categories** ▶
- Automation
  - Bioengineering
  - Business, Management & Industry
  - Communications
  - Components, Circuits, Devices & Systems
  - Computers and Information Processing
  - Culture and Society
  - Engineered Materials & Dielectrics
  - Engineering Profession
  - Environment, Geoscience & Remote Sensing
  - Fields, Waves & Electromagnetics
  - General Topics for Engineers
  - IEEE
  - Lasers, Lighting & Electrooptics
  - Nuclear and Plasma Sciences

Archives

Discussion

View source

History

Attachments

## Archives:Washington D.C. Section Archives

SHARE EMAIL ...

(Redirected from Archives:Washington Section Archives)

### Contents [hide]

- 1 Washington D.C. Section Archives: A Fifty Year History of the Washington D.C. Section of the AIEE, preface
- 2 Founders and Members, 1903
- 3 Washington as a City, 1903 - 1953
- 4 Potomac Electric Power Company
- 5 Special Events, 1904 - 1953
- 6 Minutes of Meetings, 1908 - 1950
- 7 Names and Photographs of Section Chairmen, 1903 - 1953
- 8 Names of Officers, Executive Committee Members and Chairmen of Committees, 1903 - 1953
- 9 Legislation, 1931 - 1950
- 10 Meetings and Subjects and Speakers, 1915 - 1952
- 11 Technical Sessions, 1941 - 1952





### Editing IEEE Washington D.C. Section History

The screenshot shows a WikiMedia editing interface. The top toolbar includes icons for Wikitext, undo, redo, bold, italic, underline, text color, background color, bulleted list, numbered list, quote, link, unlink, and help. Below the toolbar is a text input area with the following text: "The Section chairs of the past 50 years are shown here --> [Washington Section Chairs \(1964-2008\)](#). The gavel which has been a part of the Section for 100 years is shown here --". Below the text is an image of a wooden gavel resting on a document titled "IEEE Scanner". Below the image is another paragraph: "We have also worked to create an on-line digital archive from a Scrapbook presented at our 100th year Centennial celebration in 2003. Be sure to visit our new Digital Archive on GHN at --> [Washington AIEE Section Digital Archive \(1903-1953\)](#)".

Please note that all contributions to GHN may be edited, altered, or removed by other contributors. You are also promising that you wrote this yourself, the material is in the public domain, or that the material contributed respects the copyrights of the original source. In making contributions to the IEEE GHN, you also accept the copyright terms of the IEEE GHN, which are the **Creative Commons Legal Code - Attribution-NonCommercial-ShareAlike 3.0 Unported** (for more details see **Creative Commons Legal Code**).



# IEEE Global History Network – Washington Section (1903-2000)

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http://www.ieeeahn.org/wiki/index.php/IEEE\_Washington\_Section\_History

IEEE Global History Network

FIRST-HAND HISTORIES | IEEE MILESTONES | INNOVATION MAP

Section History

Page Discussion View source History Attachments

## IEEE Washington Section History

SHARE | EMAIL...

- Page created by [Csommero](#), 21 November 2008
- Contributors: [Csommero](#) x1, [Azalma](#) x1, [Nbrewer](#) x4, [Tweil](#) x6, [Martian928](#) x2, [Anthonyssc](#)
- Last modified by [Tweil](#), 27 April 2009

[Link to Section Homepage](#)

[Link to Region 2 Homepage](#)

### The Earliest Days

Very little information is available about the early years of the section and its founding. From the bits of information gathered recently, the following can be pieced together to form a picture of the origins of the section.

A small group of individuals residing in the District of Columbia gathered in the fall of 1902 to form a club, the Washington Society of Engineers. They held their meetings at the George Washington University, located at 15th and H Streets, N.W., on the present site of the former Woodward and Lothrop Building. They filed an application for branch status in the American Institute of Electrical Engineers (AIEE) and were formally admitted

#### Contents [hide]

- The Earliest Days
  - Standards Setting
  - Power Engineering
- The 1910s: Building a Foundation
- The 1920s: Peacetime Research
- The 1940s-1950s: Recollections
- The 1960s: Technological Advances
- The 1970s: Welcome to the Digital Age
- The 1990s: Approaching the Millennium
- Entering the 21st Century





IEEE History Center

CENTER ACTIVITIES

## IEEE GLOBAL HISTORY NETWORK SHOWCASES WASHINGTON D.C. SECTION'S HISTORY

The Washington, D.C. Section offers a wonderful example of how an IEEE organizational unit can use the GHN to preserve and showcase its institutional memory. Many of the Section's early records have been lost. But fortunately, back in the early 1950s, someone in the Section put together a large scrapbook of photographs and extensive summaries of the records spanning the fifty year period from 1903 to 1953. Recently, this Section has placed all these documents on the GHN. Not only does this material offer a fascinating glimpse into the Section's past, but it also offers a window on to the early history of AIEE, the development of the engineering profession in the U.S., and even the history of the District of Columbia.

One photograph found in the Washington, D.C., Section, archives page on the GHN is a rare aerial view of the D.C. urban landscape, taken from a U.S. Army Signal Corps balloon.

Interaction between the Washington, D.C. hosts and the British delegation, as recorded in the Section's archives, offers some information of broader historical interest. For example, we learn that for the British delegation of engineers, the highlight of the St. Louis Congress was the discussions between the AIEE and the British Institute of Electrical Engineers (IEE) on the "different methods and systems of using alternating currents in electrical railway motors." Another incident recorded in the archives illustrates the very high esteem in which British electrical engineers held Benjamin Franklin.

As members of the Washington D.C. Section were showing the British delegation around D.C, the group passed a statue of Benjamin Franklin. Suddenly, one of the Englishmen suddenly proclaimed, "Ah here is the statue of the first electrician. By jove I must have a snapshot of him." He then



# Moving the IEEE Timeline Forward

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Was the 125<sup>th</sup> Anniversary Just a Haley's Comet Event?



- Establishing Section Archives (UDC)
- Encouraging Member Participation !!
- Building the Digital Library – Global History Network
- Innovations with History Projects – NCA Contest
- SCANNER – NCA History Challenge
- NoVa Historical Archives



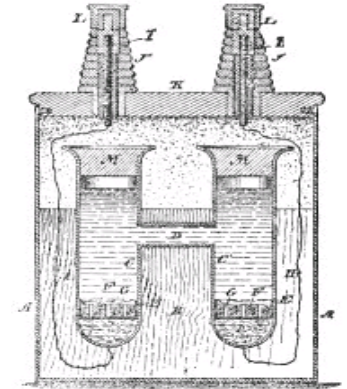


## NBS 1903 – Dr. F.A. Wolff (1<sup>st</sup> Chair of the AIEE) – NCA History Challenge (Nov. 2009)

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A Laboratory In The National Bureau Of Standards In 1903 - Dr. F. A. Wolff On The Right



Weston Cell Illustration

“The In response to the History Challenge on p. 5 of the November-December *Scanner*, an anonymous reader identified the laboratory experiment being performed by Dr. F. A. Wolff in a 1903 photo. “Dr. Wolff, the man at the right in the picture **at is operating an oil bath maintained at a particular temperature while observing a temperature gauge graduated** to tenths of a degree in order to measure the temperature response of several Weston cells, used to calibrate voltmeters at the time,” the reader wrote. “His colleague may be crafting the mercurial thermometers used in the experiment, and undoubtedly resting his eyes for the next batch of measurements he was to take following Dr. Wolff. **Apparently Dr. Wolff was one of the first to make use of least squares fitting to produce a calibration curve, a result of this experiment**”. (Available on Wikipedia - [http://en.wikipedia.org/wiki/Weston\\_cell](http://en.wikipedia.org/wiki/Weston_cell))



## IEEE National Capital Area History of Technical Societies Competition

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### Examples

This page displays examples of various types of history projects. For detailed information about the **IEEE National Capital Area History of Technical Societies Competition**, see the [Contest](#) page.

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### 125 Years of IEEE History

[Hochheiser, S.](#)  
IEEE History Center, New Brunswick, NJ, USA  
This paper appears in: [History of Technical Societies, 2009 IEEE Conference on the](#)  
Publication Date: 5-7 Aug. 2009  
On page(s): 1 - 5  
Location: Philadelphia, PA  
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INSPEC Accession Number: 10984305  
Digital Object Identifier: 10.1109/HTS.2009.5337857  
Current Version Published: 2009-11-17

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**Abstract**

IEEE is celebrating its 125<sup>th</sup> anniversary in 2009, as it traces its origin to the beginning of its predecessor society AIEE in 1884. This paper is a high-level overview of that history, the history of the IRE, IEEE's other predecessor organization, and the merger that created IEEE in 1963, all placed in the context of the evolution of electrotechnologies. It thus provides background for the more specialized papers given during the conference.





# NoVa Historical Archives - 1979

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## November Meeting

PACKET NETWORK TECHNOLOGIES will be discussed by Dr. Vinton G. Cerf, Program Manager, DARPA, at the 8 pm meeting to be held at the Melpar Division of E-Systems on November fourteenth. The meeting is jointly sponsored by the Northern Virginia Section and the IEEE Communication Society.

6:00 pm--Cocktails

6:30 pm--Dinner

Cost per person, \$10.00

Both at the Sir Walter Raleigh Inn,  
8120 Gatehouse Road, Falls Church.

See details inside:  
Speaker Biography,  
Route map to Inn .

Pictured at right: Dr Vinton G. Cerf, Program Manager, Defense Advanced Research Projects Agency, Information Processing Techniques Office.





# Moving the IEEE Timeline Forward

*CapSci2010*

## References:

- IEEE History Center –  
[http://www.ieee.org/web/aboutus/history\\_center](http://www.ieee.org/web/aboutus/history_center)  
[http://www.ieee.org/portal/cms\\_docs\\_iportals/iportals/aboutus/history\\_center/newsletters](http://www.ieee.org/portal/cms_docs_iportals/iportals/aboutus/history_center/newsletters)  
(see November 2009 Edition)
- IEEE Global History Network  
[http://www.ieeeghn.org/wiki/index.php/Main\\_Page](http://www.ieeeghn.org/wiki/index.php/Main_Page)  
<http://www.ieeeghn.org/wiki/images/6/68/Labpic.jpg>
- NCA History of Technical Societies Contest  
<http://ewh.ieee.org/r2/washsec/historycontest.html>
- Thomas – Digital Library of Congress (HR 413) –  
[http://thomas.loc.gov/cgi-bin/query/z?c111:H.RES.413:](http://thomas.loc.gov/cgi-bin/query/z?c111:H.RES.413)
- National Science Digital Library  
<http://nsdl.org/collection/history-science-technology/>



# Questions?

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Thank You!