

SCANFAX

March 2004

Volume 56, Issue 3



Chicago Section Website:
www.ewh.ieee.org/r4/chicago

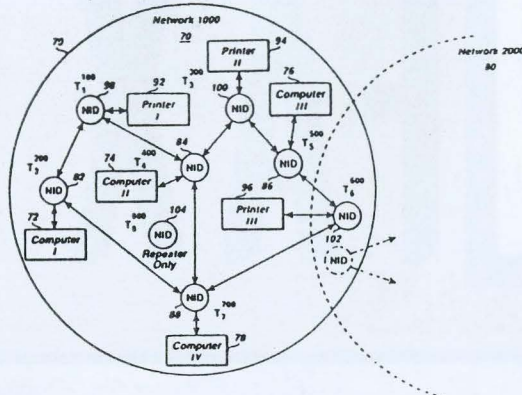
A publication of the
Institute of Electrical & Electronics Engineers
— Chicago Section —



Meeting of the AIEE Western Members at Chicago

Inaugural Meeting of the Chicago Section

U.S. POSTAGE PAID
NON-PROFIT ORG
Permit No. 53
Columbus, Wisconsin



Masters of the Intellectual Property Maze®

Attorneys experienced in virtually every scientific and engineering discipline and concentrating in all facets of intellectual property law including

litigation, licensing, **WELSH & KATZ, LTD.**

negotiation, client counseling and corporate identification programs, as well as protecting rights through trade secrets, patents, trademarks and copyrights worldwide.

120 S. Riverside Plaza • 22nd Floor • Chicago, Illinois 60606 • Telephone 312-655-1500 • Fax 312-655-1501

IEEE MEMBER CONTACTS: A. SIDNEY KATZ AND JAMES A. SCHEER
www.welshkatz.com

Washington Office: Crystal Plaza One • Suite 206 • 2001 Jefferson Davis Highway • Arlington, Virginia 22202-3603 • Tel: 703-415-4777



Weldy/Lamont & Associates

Manufacturers Representative
Engineered Products and Services

AC distribution equipment 600V thru 35KV (50 or 60Hz)

- Transformers
- Distribution switchgear
- Busway
- Automatic transfer switches (mechanical and static)
- Metering

DC power systems

- Switching Controlled Ferro, Mag-amp and SCR rectifiers
- DC to AC inverters
- Free standing rack systems
- Batteries

Critical AC power systems

- UPS Systems — Single and Three Phase
- Power Distribution Units
- Static Switches
- Generator Paralleling Switchgear

Weldy/Lamont Assoc., Inc. / 1008 East Northwest Hwy, Mount Prospect, IL 60056 / 847-398-4510



Chicago Section:
www.ewh.ieee.org/r4/chicago

A publication of the
Institute of Electrical & Electronics Engineers
— Chicago Section —

Chairman

Angeline Schaefer
Phone: 312-960-8329
Fax: 312-827-8329
E-mail: aschaefer@owpp.com

Editor

Gerry Ryan
Phone: 708-445-7537
Fax: 708-445-7538
E-mail: gerryr_idcs@ameritech.net

Published for IEEE by
Slack Attack Communications

Publisher

Barbara Slack

Advertising Sales

Beth Vander Grinten
Phone: 608-222-7630
E-mail: bethv@slackattack.com

Printed By

Town & Country Printers
Columbus, WI

SCANFAX (ISSN #0018-1297) is a monthly publication (except June, July and August) of the Chicago Section Institute of Electrical and Electronics Engineers, Business Office, c/o Western Society of Engineers, 28 East Jackson, Suite 1320, Chicago, IL 60604, (800) 898-4333 or (312) 253-4333. It is published by Slack Attack Communications, 5113 Monona Drive, Madison, WI 53716, (608) 222-7630. Printing is by Town & Country Printers, Columbus, WI 53925. For advertising information, contact Slack Attack Communications.

Subscriptions included in IEEE membership dues; non-member subscriptions: \$25 per year.

Address corrections should be sent to: IEEE Membership, 440 Hoes Lane, Piscataway, NJ 08854-1331 or by phone (800) 678-4333.

Meeting notices should be sent to graphics@slackattack.com

©Copyright 2004 by the Chicago Section Institute of Electrical and Electronics Engineers. Permission to reprint must be secured in advance of publication and credit given to author and SCANFAX.

SCANFAX

March 2004

Volume 56, Issue 3

Features

- 4 Meeting of the AIEE Western Members at Chicago
Inaugural Meeting of the Chicago Section

Upcoming Events

- 7 **Inaugural Meeting Reenactment**
110th Anniversary of the IEEE Chicago Section's Inaugural Meeting
Tuesday, March 23, 2004
- 8 **IEEE-IAS/IES Dinner Presentation**
Legal Aspects of Engineering Presenter
Wednesday, March 10, 2004
- 9 **Chicago Chapter of the IEEE Power Engineering Society**
Flexible AC Transmission Systems (FACTS)
Wednesday, March 10, 2004
- 10 **IEEE Fox Valley Subsection, IEEE Communication Society, and IIT Rice Campus**
Wireless Streaming Media Technology
Wednesday, March 17, 2004
- 10 **IEEE Chicago/Rockford Consultants' Network**
(A Joint Affinity Group of the IEEE Chicago and Rock River Valley Sections)
Voice Over Internet Protocol (VoIP)-Telephone Service as an IP Application
Monday, March 29, 2004

Departments

- 11 **Advertiser Index**
- 11 **Professional and Business Directory**

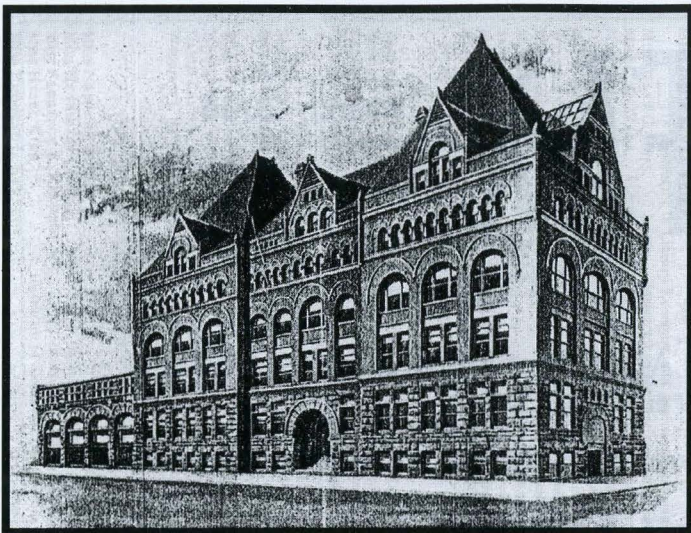
CHICAGO SECTION EXECUTIVE COMMITTEE MEETING

Tuesday, March 9, 2004, 7:00 p.m.

DeVry DuPage, Room TBA, 1221 N. Swift Rd., Addison, IL

No Registration Needed

Statements or opinions expressed herein are those of the author's and not necessarily those of the IEEE Chicago Section, its members, officers, or staff, or the editors of this publication. Readers using any information or materials described in this publication do so at their own risk. In no event will IEEE Chicago Section, its members, officers, or staff be liable for any damages resulting from use of this material and hereby expressly disclaim such liability. The publication of any advertisement is not to be construed as an endorsement of the product or service offered unless the advertisement specifically states that there is such an endorsement or approval by the organization.



Meeting of the AIEE Western Members at Chicago

Inaugural Meeting of the Chicago Section

By George M. Thomas, IEEE Chicago Section, History Committee Chairman

The Chicago Section holds the distinction of being the first AIEE section formed outside New York and has been given an organizational date of 1893. However, the first meeting did not occur in 1893 nor was it a section meeting. (The concept of sections was not developed until later.) In March 1894, at the Armour Institute, the first authorized local meeting was held outside Institute headquarters in New York. Following recently developed Institute rules, Chicago area AIEE members petitioned New York for permission to hold local meetings. Permission was granted and a meeting was scheduled for March 21, 1894. This became the first Meeting of the Western Members of the American Institute of Electrical Engineers, but it is better remembered as the inaugural meeting of the Chicago Section.

The wisdom of holding local meetings, for the benefit of AIEE members residing outside of New York, was debated by the Institute for some time. A group of Chicago members expressed interest during a meeting at the World's Columbian Exposition with Institute officials who were visiting the fair. Ralph W. Pope presented a very thorough paper on the subject at the Institute's October 1893 meeting and a committee was formed and reported on its findings in November of that year. The committee favored the holding of local meetings and submitted a plan. The 1893 plan stated:

- No less than twenty members can request in writing their desire to hold a local meeting. A Local Honorary Secretary will be nominated by the group and serve as the channel of communication between the Council and the local group.
- Local meetings shall be for the purpose of reading and discussing papers accepted by the Institute only. No paper can be read at the local meeting before being read at the Institute meeting.
- The local members will appoint a Chairman for the meeting. The Honorary Secretary will report on the discussions that transpired at the local meeting.
- The expense of the meetings will be borne by the local members.

The concept of local sections was not raised. The concern at the time was that if Chicago was made a section, what would New York become? New York felt that they were the "Institute" and not another section. The concept of sections was not formally introduced until

several years later but the seed was planted with the allowance of local meetings. It is obvious that the Institute was concerned about the quality of papers and did not want to relinquish control. Papers from local members would first be submitted to the Institute for acceptance and, even after that, the paper would first be presented before the Institute in New York. However, simultaneous readings with a local group were acceptable and this was the course chosen by the western members who were the first group to avail themselves of the new rules. All that remained was to request a meeting.

This was done on February 20, 1894 when Edward Caldwell submitted a petition signed by 21 Chicago area members to the Institute Council seeking the authority to hold local meetings. The Council was the governing body of the AIEE. The group appointed Edward Caldwell as Honorary Secretary, a post he held for several of the next meetings.

The first meeting of the western members was held on March 21, 1894 in Professor Wilbur M. Stine's lecture room at the new Armour Institute. Armour Institute had just opened its doors to students in the fall of 1893 and Professor Stine had offered the use of the Armour facilities during meetings he attended at the World's Columbian Exposition. He was on the jury of electrical awards at the fair and, in addition, he may have been conducting a shopping trip at the time. Electrical equipment was purchased by the Armour Institute from the fair after its closing. Other items not purchased directly were granted to the school by benefactors. As head of the Department of Electrical Engineering, one of Professor Stine's duties was to power the school.

This meeting, attended by 45 members and guests, was held simultaneously with the 85th meeting of the Institute held in New York. A phone connection was installed thereby effectively allowing the holding of a joint meeting. The topic of the two meetings was a reading of the paper by Prof. William A. Anthony of Cornell University entitled "On the Effect of Heavy Gases in the Chamber of an Incandescent Lamp." The author asked that his paper be presented in Chicago by Prof. Dugald C. Jackson of the University of Wisconsin. The paper discussed the new Novak lamp that was introduced at the World's Columbian Exposition claiming to be "the only incandescent lamp that retains to the last its original candle power."

Before the meeting was called to order, attendees took advantage

of the telephonic connection established between the Institute rooms in New York and an adjoining room to Stine's lecture room in Chicago to exchange greetings. Mr. Angus S. Hibbard, General Manager of the Chicago Telephone Company, arranged for the complimentary connection. A total of 40 receivers were at the disposal of the attendees...an impressive feat for its day.

The meeting was called to order by Mr. Caldwell and he read the new Institute rule allowing such a meeting. He stated that the required 20 member signatures were affixed to the petition sent to the Institute Secretary and the Secretary issued a call for the holding of the meeting. A Chairman for the meeting had to be appointed and by a motion initiated by Mr. Bion J. Arnold, Mr. Angus Hibbard was appointed chairman. Mr. Hibbard took the chair and read the following communication:

*CHICAGO TELEPHONE CO.
Chicago, Ills., March 21st, 1894.*

*Edward Caldwell, Esq.,
Local Honorary Secretary,
American Institute of Elec. Engrs.,
1432 Monadnock Block, Chicago.*

Dear Sir: The use of the Long Distance telephone lines between Chicago and New York has been extended to the Institute for this evening by the Vice-President and General Manager, Mr. Edward J. Hall, of New York. Telephones have been placed in an adjacent room, and maybe used by the members present in Chicago in communicating with members who are present at the New York Meeting.

*Yours truly,
A. S. Hibbard, General Manager*

The Chairman then called upon Professor Jackson to read the Anthony paper. Prof. Jackson had done two years of postgraduate study at Cornell University and was on the jury of electrical awards during the World's Columbian Exposition. Prof. Jackson later went on to become the 1910 - 1911 AIEE president and was awarded the Edison Medal by the AIEE in 1938.

Prof. Anthony, who was considered an innovator, came to Cornell in 1872. With his assistant, Anthony built a Gramme ring-armature dynamo that was the prized exhibit at the Centennial Exposition in Philadelphia in 1876. It was used to power arc lamps that lighted the Cornell campus. Prof. Anthony was AIEE president during the 1890 - 1891

term and certainly respected by his peers.

The Anthony paper was very long and detailed and dealt with the objectionable blackening of incandescent bulbs being experienced at the time. The presentation and spirited discussion that followed dragged the New York meeting past midnight. Even after the meeting, attendees sent in their comments that became part of the transactions of the meeting. This is what occurs when you have several experts on the subject in the same room with differing scientific and commercial interests. There was no less energy spent at the Chicago meeting.

Thomas A. Edison did not invent the incandescent lamp. What he did was develop a practical lamp and an industry to go with it. Not only did he design a lamp that would last for 600 hours, but dynamos and a distribution system to power his lamps. He first started his research in 1877 with platinum lamps and quickly patented a few versions. One of the problems with platinum was that its filament presented a low resistance requiring the lamps to be connected in series. Edison realized that although a series connection was acceptable for street lamps it was impractical for industrial and commercial use since individual lamps needed to be turned on and off at will without affecting other connected lamps. He needed to operate the lamps in parallel which required a higher resistance filament and he was having limited success with platinum. Although he initially rejected carbon, he returned to it since it offered the best opportunity for increasing resistance. He knew about carbon characteristics since he used carbon in his telephone receiver. After much development, Edison received a patent in 1880 for a particular incandescent lamp with four characteristics:

- 1) A high resistance carbon filament.
- 2) A chamber made of glass and closed at all points by fusion of the glass.
- 3) A high vacuum within the chamber.
- 4) Platinum lead-in wires.

Unlike many of Edison's other patents, this patent led to a viable commercial business. However, the lamp was not without problems.

Carbon filament lamps would blacken after limited use reducing the overall brightness. It was generally agreed to at the time that the black coating on the inside of incandescent bulbs was due to the transfer of the carbon from the filament. This blackening caused a reduction in candle power, efficiency and limited the usefulness of the bulb.

Industry Notables Who Attended Either the New York or Chicago Meetings

Approximately eighty AIEE members and guests attended the 85th meeting in New York. Some of the notables in attendance attained recognition in either the AIEE or IRE.

Prof. William A. Anthony of Cornell University (AIEE Pres. 90 - 91)
Prof. William Lispenard Robb of Hartford
Prof. Elihu Thomson (by correspondence; AIEE Pres. 89 - 90)
Mr. Edward P. Thompson (by correspondence)
Dr. Michael Idvorsky Pupin of Columbia (AIEE Pres. 25 - 26, IRE Pres. 16)
Mr. John W. Howell
Mr. William Hammer
Dr. Hutchinson
Vice-President Arthur E. Kennelly (AIEE Pres. 98 - 99; IRE Pres. 16)
Mr. S. E. Doane
Mr. Theo. J. W. Olan
Mr. E. A. Colby
Dr. Ludwig K. Boehm
Dr. Otto A. Moses
President Edwin J. Houston (AIEE Pres. 93 - 95)
Mr. D. McFarlan Moore
Prof. Reginald A. Fessenden
Mr. Charles J. Reed

In all, about 40 to 45 members and guests attended the meeting in Chicago including representatives from the telephone industry and the city's Electric Light Inspection Department. Chicago had its share of industry notables.

Prof. Wilbur M. Stine of Armour Institute (Honorary Secretary 95 - 97)
Prof. Dugald C. Jackson of the University of Wisconsin (AIEE Pres. 10 - 11)
Mr. Angus S. Hibbard of the Chicago Telephone Company (Chairman of the meeting)
Mr. Bion J. Arnold, Consulting Engineer (Honorary Secretary 94 - 95; AIEE Pres. 03 - 04)
Mr. Edward Caldwell (Honorary Secretary 93 - 94)
Mr. Francis E. Jackson of the General Electric Company, Harrison, NJ
Mr. Ludwig Gutmann
Mr. Kammer and Mr. Terry of the Sunbeam Company
Lt. Samuel Rodman
Mr. L. K. Comstock
Mr. Chark C. Haskins
Mr. McFadden

Blackening of Incandescent Lamps

Bulb darkening during the service of lamps was one of the most troublesome problems in the development of incandescent lamps and the problem continued into modern times. This was the problem that Edison was trying to solve when he discovered the "Edison Effect" which led to the birth of electronics. Was Anthony on the right track when he proposed the introduction of bromine into the lamp? Yes he was. Edison had previously experimented with bromine himself.

According to Edward Covington "Modern tungsten-halogen lamps operate today with lamp fills of bromine, argon, or krypton. This achievement required the use of high temperature glass, or quartz, in order to obtain the necessary regenerative cycle to work properly. Lamps can operate today with virtually no blackening."

To learn more about the history of incandescent lamps, visit his excellent website at: <http://home.frognet.net/~ejcov/index40.html>

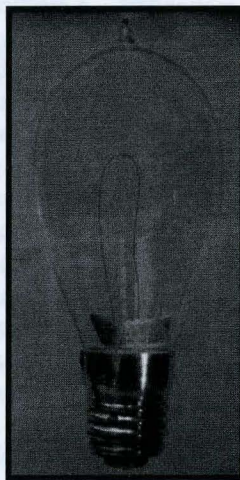
Why it was happening was of contention. Some felt that trace amounts of gases left in the chamber after air removal allowed for the movement of gas molecules around the filament, called "air washing," disintegrating the filament. The other theory was that a chemical or electrical action was occurring that provided this disintegration. Others felt it was simple evaporation of the filament. The obvious solution was to have a higher quality vacuum within the bulb. However, obtaining this was quite difficult and it was expected that the burning filament would give off gases anyway. Instead, Anthony proposed adding a small amount of a heavy gas in the form of bromine that was found to yield less blackening and higher efficiencies. This was what was being done with the new Novak lamp being produced by the Waring Electric Lamp Company, a competitor to the Edison Electric Light Company.

There was a commercial backdrop to this whole discussion and that involved the Edison patent on incandescent bulbs that was granted in 1880. Usually patents are given a 17-year protection, however, if a patent were granted in a foreign country with an earlier expiration date, the US patent would follow suit. Since Edison had a Canadian patent as well, this was the case. The valuable Edison patent was to expire later in 1894. In the meantime, Edison aggressively protected its patents since there were numerous companies trying to have access to the lucrative lighting market. Edison had virtually a monopoly at the time. One of those companies was the Waring Company that had recently received a patent for the Novak lamp in 1893. The Novak lamp had a small amount of bromine added to the vacated bulb that reduced the blackening or converted the blackening to a more greenish tone. Edison was in litigation with this company as with

others at the time. The Edison patent claimed among other things, an all-glass envelope and a high vacuum so that the carbon would not disintegrate. The Novak lamp was claimed to be gas-filled, but the trace amount of bromine was ruled insufficient to consider the lamp as a non-vacuum lamp.

Once the Edison patent expired, companies went back to vacuum style lamps. The Novak lamp was never a success and its inventor John Waring met an untimely death during an explosion and subsequent fire at his plant in 1901. Mr. Waring entered the burning building to save two female employees and died later from the effects of the fire.

The Anthony paper began by stating the conventional wisdom that the wearing away of the carbon filament was due to air washing and that electrical effects were carrying the carbon to the walls of the chamber. Improved carbons have resulted in increased efficiency but with age, a gradual loss in candle power occurred due to blackening. The author defined the ideal lamp as one that would give good efficiency, good life and would die by a ruptured filament while doing its best work. He presented the work of John Waring where he introduced a sufficient amount of bromine gas into the chamber yielding a lamp with high efficiency, a decrease in filament erosion, no blackening and no loss of candle power over the useful life of the lamp. He provided several tables comparing bromine lamps with that of vacuum lamps to prove his point. The vacuum lamp output fell by one-third over time while the bromine lamp dropped by only five-percent. However, he needed to admit that two of the bromine



The Novak lamp had a small amount of bromine added to reduce blackening.

lamps ruptured during testing. Anthony's position was that although vacuum lamps failed to rupture, they were for all practical purposes dead anyway since the blackening had greatly reduced their output. If the gas-filled lamps indeed maintained their candle power, how was this accomplished? Prof. Anthony went on to a detailed explanation of all the effects inside the chamber.

Much of the rebuttal to the Anthony paper came from John W. Howell. He was an Edison man and in 1927 co-authored what is still considered an authoritative book entitled *History of the Incandescent Lamp*. Later in his career, he was also awarded the Edison

Medal by the AIEE for his contributions to the profession. He held numerous positions with the Edison Lamp Company, forerunner to the General Electric Company, and was active in patent litigation cases. In fact, *The Electrical World* reported that Howell's arguments against the Anthony paper and that of Howell's colleague Mr. Doane, were an extension of the same arguments used in the patent litigation suit against the Novak lamp brought by the same gentlemen. Their arguments were echoed in Chicago by Mr. Francis E. Jackson of the General Electric Company who made

the long trip from Harrison, New Jersey to plead the company's case.

The contents of the Anthony paper must have been previously known since two written correspondences were read in New York during the discussion phase of the presentation. These comments were from respected engineers Prof. Elihu Thomson and Edward P. Thompson. Also as a rebuttal to Prof. Anthony, Mr. John W. Howell showed samples of darkened bulbs with discoloring in areas contrary to predictions in the Anthony paper. He also prepared three figures depicting test data that were shown in the discussion phase. Copies of these same presentation slides used by Howell and Doane were shown in Chicago by Mr. Francis Jackson.

During the discussion phase, AIEE president Houston excused himself in order to telephone the Chicago meeting. When he returned he reported to the New York audience that he had the pleasure of sending the following message to Chicago:

"As President of the American Institute

Continued on page 8

SPECIAL CHICAGO SECTION EVENT INAUGURAL MEETING REENACTMENT

Be a part of history – join us in celebrating the 110th anniversary of the IEEE Chicago Section's inaugural meeting originally held at the Armour Institute on March 21, 1894. The Chicago Section has the distinction of being the first section formed outside AIEE headquarters.

Socialize while exploring the new Ron Koolhaas designed McCormick Tribune Campus Center as commuter trains whiz overhead in the distinctive 530 foot-long stainless steel clad tube. Dine on the 21st century dinner in the conference center ballroom before a presentation is made to IIT in recognition of their contributions to the electrical and computer engineering profession. Transport yourself to the simulated lecture hall of Professor Stine of the Armour Institute to experience, through reenactment, the inaugural meeting.

A special meeting is hereby requested of the Institute by the required 20 petition signers to hold a local meeting in Chicago. Through the kind offer of Professor Stine of the Armour Institute, this meeting will be held in Professor Stine's lecture room at the Armour Institute. The paper to be presented will be "On the Effects of Heavy Gases in the Chamber of the Incandescent Lamp" by William A. Anthony. In the author's absence the paper will be presented by Professor Dugald C. Jackson of the University of Wisconsin.

- Honorary Secretary Edward Caldwell, 1894

Learn the marvels of the Novak Lamp, recently introduced at the World's Columbian Exposition, claimed as the only incandescent lamp that retains to its last its original candle power. Will this lamp survive Edison patent claims?

PROGRAM

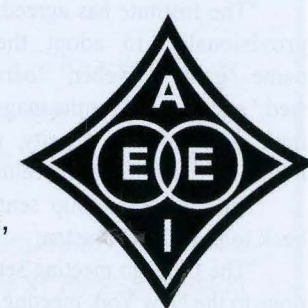
- 5:30 p.m.** Socialize at the new McCormick Tribune Campus Center
- 6:15 p.m.** 21st century dinner at Conference Center Ballroom
- 7:15 p.m.** Welcome address and presentation to IIT
- 8:00 p.m.** Inaugural meeting reenactment in Conference Center Auditorium
- 9:00 p.m.** Adjourn

March 23, 2004

Illinois Institute of Technology
McCormick Tribune Campus Center
33rd and State Streets, Chicago, Illinois

Attire: 19th, 21st century business, Armour Institute, Lewis Institute or IIT student attire.

www.ewh.ieee.org/r4/chicago



Cost of presentation and dinner is \$50.00. Make reservations with IEEE Chicago Section business office at 1-312-253-IEEE. Sponsored by IEEE Chicago Section Executive Committee.

EVENING MEETING

IEEE-IAS/IES Dinner Presentation Legal Aspects of Engineering Presenter Wednesday, March 10, 2004

Newton Marshall, Partner, Hinshaw & Culbertson

About the Topic:

The need to provide clear documents for construction is a growing concern among Electrical Engineers, who are increasingly aware of legal exposure, and contract disputes. Mr. Marshall will present an overview of the legal aspects of avoiding exposure, responding to claims and related issues.

About the Speaker:

Education: BA, Economics,
Denison University; JD, Case Western
Reserve University

Newton C. Marshall is a partner in the firm's Chicago office. He is a member of a litigation group and maintains a diverse practice representing construction companies, corporations, condominium associations, and licensed professionals in commercial, tort, and fraud based litigation.

Mr. Marshall represents a variety of

design professionals, including professional engineers. Mr. Marshall's representation of design professionals is expansive and includes the areas of breach of contract, construction delay claims, professional negligence, and mechanic's liens. He has tried numerous cases and arbitrations successfully and has negotiated hundreds of mediations.

Location:

Costa's (Greektown)
340 S Halsted St., Chicago, IL

Time:

5:30 PM Social
6:00 PM Dinner
7:00 PM Presentation

Directions:

Costa's is located in Greektown on the corner of Van Buren and Halsted.

Cost:

Your cost includes the presentation and a four-course dinner with a choice of the main entree - Roast lamb, Chicken, or Fish. (Vegetarian or special dietary meals available upon request). Cost is \$25 IEEE Member and \$30 non-member. Valet parking is included with your meal.

Reservations:

See www.iaschicago.com for detailed directions and a map. Call the IEEE Business Office at (800) 898-IEEE or (312) 253-4333 with your reservation. Please note any special meal requests at the time of the reservation. You can also make your reservations on line at www.iaschicago.com. Note: For P.E. licenses that require continuing education for renewal, attendance at IEEE Technical Meetings is acceptable as one Professional Development Hour (PDH) per meeting.

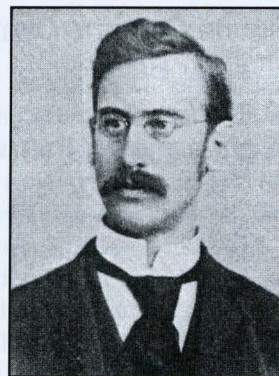
Continued from page 6

of Electrical Engineers I desire to send hearty congratulations on the success of our first dual meeting. It gives me great pleasure to address at once two meetings, over 1,000 miles apart, and to know that that has been rendered possible by the advances in that branch of engineering which it is the privilege of our society to represent."

"The Institute has agreed, provisionally, to adopt the name 'gauss,' 'weber,' 'oersted,' and 'gilbert' for the magnetic units of flux density, magnetic flux, magnetomotive force and reluctance."

The Chicago group sent this message back to president Houston:

"The Chicago meeting sends congratulations to the New York meeting, and trusts that the intercommunication thus, for the first time, inaugurated by means of the telephone will not be the last. It believes that considerable



Professor Wilbur Stine

advance will be made in the electrical science by the idea of holding simultaneous meetings in different parts of the country. It also sends word that Professor Anthony's paper has been read and is now being discussed."

The Chicago meeting continued with much the same objections and comments heard in New York. Professor Stine submitted his own lengthy paper basically supporting much of what Anthony said. The conclusion was that the Anthony paper was still a very good document even if it did not convince all in attendance the true effects of bulb blackening. However, it was all agreed that the first Chicago meeting was a grand success and future meetings should be held.

The editors of *The Electrical World* certainly were satisfied. They called the Chicago inaugural meeting a "brilliant success." The usefulness of local meetings would aid the Institute in its growth and prestige. However,

they did point out that only about one-third of the attendees in Chicago were Institute members. This had more to do with the restrictive nature of Institute membership and the editors encouraged the Institute to adopt some policy of allowing students and other interested parties to become part of the Institute in an auxiliary capacity. The other issue that required addressing was the funding of local meetings and the editors suggested that the Chicago members take the initiative and propose a method of funding during the Institute's annual meeting.

The Chicago meeting did conclude with the appointment of a committee consisting of Professor Stine, B.J. Arnold and Edward Caldwell to devise means to pay local expenses and to arrange from time to time for the holding of meetings. Those are the same tasks charged to today's Chicago Section Executive Committee so the executive committee can now trace its roots back to these three gentlemen. With that bit of administrative action, the inaugural meeting of the AIEE western members in Chicago was adjourned. ■

EVENING MEETING

Chicago Chapter of the IEEE Power Engineering Society Flexible AC Transmission Systems (FACTS) Wednesday, March 10, 2004

John Paserba, Manager, Power Systems Studies, Mitsubishi Electric Power Products, Inc.

About the Topic:

Electricity is a highly engineered product, it is increasingly being considered and handled as a commodity. Thus, transmission systems are being pushed closer to their stability and thermal limits while the focus on the quality of power delivered is greater than ever.

Advanced technologies are paramount for the reliable and secure operation of power systems. To achieve both operational reliability and financial profitability, it has become clear that more efficient utilization and control of the existing transmission system infrastructure is required.

Power electronics based equipment, or Flexible AC Transmission Systems (FACTS), provide proven technical solutions to address these new operating challenges. FACTS technologies allow for improved transmission system operation with minimal infrastructure investment, environmental impact, and implementation time compared to the construction of new transmission lines.

This presentation will address the issues and benefits of applying FACTS controllers to power systems.

About the Speaker:

John J. Paserba earned his B.E.E. ('87) from Gannon University, Erie, PA., and his M.E. ('88) from RPI, Troy, NY. Mr. Paserba joined Mitsubishi Electric Power Products

Inc. (MEPPI) in 1998 in their Power System Studies Department. Prior to that, he worked in GE's Power Systems Energy Consulting Department for over 10 years. John Paserba is a Fellow of IEEE and is currently the Vice-Chair for the IEEE PES Power System Dynamic Performance Committee and was the Chairman of the IEEE PES Power System Stability Subcommittee. He also sat on the Editorial Board of the IEEE Transactions on Power Systems and is currently on the editorial board of the IEEE PES Magazine "Power & Energy."

He serves as the General Chair of the IEEE PES 2004 Power Systems Conference and Exposition Organizing Committee and has served as the Technical Program Chair for the 2002 IEEE PES Winter Power Meeting held in New York. He is also active in CIGRE and had chaired a Task Force (Power System Oscillations) and contributed to several others. Mr. Paserba has authored or co-authored nearly four dozen national and international technical publications, including articles for the comprehensive CRC Press Control Handbook and CRC Press Electrical Power Engineering Handbook.

Location:

ComEd Commercial Center
1919 Swift Drive, Oak Brook, IL
(near the I-290 and I-294 interchange)

Time:

5:30 PM Social
6:00 PM Dinner
7:00 PM Presentation
8:30 PM Adjourn

Reservations:

Please call the IEEE Business Office by noon on Monday, March 8, 2004 at (312) 253-4333 or (800) 898-IEEE to make your reservation. The cost of the optional box-lunch style dinner is \$15.00 for IEEE members, \$20.00 for non-members, payable at the event. Sorry, we are unable to process credit cards. Checks payable to "IEEE-PES Chicago Chapter" and cash are accepted, and receipts will be provided.

Continuing Education:

IEEE technical meetings may be acceptable as continuing education were required for maintenance of professional engineering licensure. Refer to the individual state's requirements for details.

Information:

For more information, please visit the Chicago Chapter IEEE PES web site: <http://peschicago.org>

North Shore Radio Club Hamfest

Sunday, March 28, 2004-Grayslake

Electronic equipment, amateur radios, computers, parts and accessories will be featured at The NS9RCfest, Sunday March 28. This annual giant Hamfest is sponsored by the North Shore Radio Club and is attended by Amateur Radio, electronic and computer hobbyists from all over the Midwest. It is a great place for young electronic enthusiasts to meet and for job seeking engineers and technicians to make connections.

The all indoor event will be held Sunday, March 28 from 8 AM to 2 PM at Lake County Fairgrounds, Routes 45 and 120, Grayslake, IL. Admission to the event is \$5 for a double-stub prize ticket in advance or \$7 for a single-stub prize ticket at the door. Seller's tables are \$20-\$25. Parking is free. Repeaters 147.345 +0.6 MHz 107.2 Hz Tone and 442.075 +5.0 MHz 100.0 Tone.

To learn more and to purchase tickets and tables with your credit card, go to www.ns9rc.org or call 847-291-4160

EVENING MEETING

IEEE Fox Valley Subsection, IEEE Communication Society, and IIT Rice Campus Wireless Streaming Media Technology Wednesday, March 17, 2004

Daniel Esposito, Systems Engineer, Clarity Communication Systems, Inc.

About the Topic:
As data communication extends into the wireless domain it is possible to create and deploy mobility enabled end user applications. Applications can be characterized by their use of the communications channel which may vary from light message traffic up to real-time streaming media such as voice or video traffic. This talk will focus on the technology required to support real-time streaming media applications. An application example, Push to Talk over Cellular, will be used to illustrate the challenges. Technological alternatives and solutions for these challenges will be discussed.

About the Speaker:
Dan Esposito works on the product definition and evolution of the inTouch™ Push-to-Connect over Cellular product. He has 24

years of experience in the telecommunications and wireless industries. Current areas of interest include wireless data applications, VoIP, quality of service, radio efficiency, and data traffic engineering. Prior to joining Clarity, Dan was involved in the architecture and development of fault tolerant processors, telephone switches, data switching equipment, and 3G wireless packet data technology. Dan has 3 patents and was a speaker at the XVII World Telecommunications Congress. He earned a B.S. degree in Electrical Engineering from the UW, Madison, and a M.S. degree in Electrical Engineering and Computer Science from the Massachusetts Institute of Technology.

Location:
IIT's Rice Campus, 201 East Loop Road, Wheaton, IL. Take Rt.56/Butterfield Rd. to

first stoplight east of intersection of Butterfield & Naperville roads. Turn north onto East Loop Road; the campus will be on your right about a block north of Butterfield Road. More detailed directions and a map are available at www.rice.iit.edu/directions.html.

Time:
6:00 PM Networking Time
7:00 PM Presentation

Reservations:
Reservations are not required. Professional Engineers: this meeting qualifies for Professional Development Hours.

Sponsorship:
IEEE's Fox Valley Subsection, IEEE Communication Society, and IIT's Center for Professional Development (Rice Campus).

EVENING MEETING

IEEE Chicago/Rockford Consultants' Network (A Joint Affinity Group of the IEEE Chicago and Rock River Valley Sections) Voice Over Internet Protocol (VoIP)-Telephone Service as an IP Application Monday, March 29, 2004

Carol Davids, Owner, Davids Consulting

About the Topic:
The integration of voice and data networks is occurring in both the private and public sectors. Public Service offerings by cable television companies and competitive local exchange providers bundle services, offer lower costs and add features. This talk will introduce two basic VoIP architectures, MGCP and SIP and the VoIP protocols that support them. Examples of the use of these architectures in the deployment of VoIP over cable television networks will be included.

About the Speaker:
Carol Davids has worked in the telecommunications industry for over 30 years. Her experience includes 22 years with a Bell operating company and ten years in the vendor community where she worked at Motorola and Tellabs in System Test and

Systems Engineering roles. She currently teaches Voice over IP and other Telecommunications courses at Illinois Institute of Technology's Center for Professional Development and works with CableLabs and the European Telecommunications Standards Institute (ETSI) on the development of Voice over IP specifications.

Location:
Palatine Public Library -847-358-1216
700 North Court, Palatine, IL

Dinner Location:
Bakers Square
270 E. Northwest Hwy, just south of the library.

Time:
6:15 PM Optional Dinner at Bakers Square
(Order off the menu)

7:30 PM Meeting – Presentation and Open Discussion
9:00 PM Adjourn

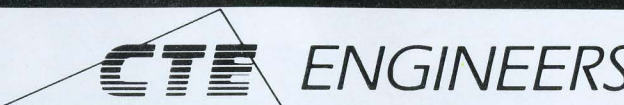
Information:
E-mail: consultnet@bmillerengineering.com
or JAuerConsulting@worldnet.att.net, or visit www.drblank.com/coaction.htm.

Reservations:
Members and non-members are invited. Reservations are NOT required. See you on March 29, 2004, and bring consultants and those who aspire to be consultants for a pleasant and informative evening of networking.

Attendance at this meeting will earn 1.0 PDH. Meetings are usually held on the last Monday of odd-numbered months.

PROFESSIONAL AND BUSINESS DIRECTORY

Transportation Engineering • Water Resources Engineering



CONSOER TOWNSEND ENVIRODYNE ENGINEERS, INC.
303 East Wacker Drive, Suite 600, Chicago, Illinois 60601
(312) 938-0300 www.cte-eng.com

ELECTRONIC INSTRUMENT ASSOCIATES

Chicago 630-924-1600 • Milwaukee 262-677-1600
Manufacturer's Representative info@electronicinstrument.com

Electromagnetic Compatibility Test Equipment
Power Amplifiers, Transient Generation Equipment, Shielded Rooms, Anechoic Chambers, EMC Antennas, Turntables, Field Probes, etc.

Electrical Parameter Measurement Instrumentation
AC & DC Current, Voltage, Watt, VAR Transducers, Sensors, Signal Conditioning, Energy Monitoring Instruments, Demand / Submetering



LEE BUTTER & ASSOCIATES
ELECTRICAL MANUFACTURERS REPRESENTATIVES

20 S. LIVELY BLVD. Phone (847) 437-7600
ELK GROVE, IL 60007 Fax (847) 437-7609
info@leebutter.com

LEHMAN COMPANY
Electrical Manufacturers Representative

PHONE: 630-942-1900 FAX: 630-942-1955



Automation and Controls
www.panatrol.com
info@panatrol.com

7481 S. Sayre Ave. • Bedford Park, Illinois
Phone: (708) 496-3080 • Fax: (708) 496-0426

- Engineered Factory Automation
- PLC and Computer Programming
- Electrical Design and Drawings
- Custom Control Panels
- Motor Controls

U/L Listed
CSA Certified

Joseph L. Bolsinger
Territory Manager



S&C ELECTRIC COMPANY
Specialists in Electric Power Switching and Protection

Chicago Sales Office
(630) 516-9076
Fax: (773) 381-4849
E-mail: jbolsinger@sandc.com
Web: www.sandc.com

S&C Inside Sales
6601 North Ridge Boulevard
Chicago, Illinois 60626-3997
(888) 762-7700
Fax: (773) 381-4893



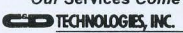
77 W. 61st Street, Westmont, IL 60559
Phone: (630) 769-1138
Fax: (630) 769-1174
www.standbypowersys.com

Stationary Battery and DC PowerSystem Services & Sales

Testing - Engineering - Consulting - Maintenance - Monitoring -
Installation, Removal & Disposal -
Sales - Training - Root Cause Failure Investigations -
24 hour Emergency Response & Site Restoration

Specializing in Electric Utility, Telecommunication, Switchgear,
Data Center & UPS Applications

Residential Standby Generator & Renewable Energy System Service and Sales
"Our Services Come Batteries Included"



POWERCON DIVISION

T&D Products, Inc.
Manufacturers Representatives - Transmission & Distribution Electrical Equipment

650 East Diehl Road, Suite 107 Phone: (630) 245-9130
Naperville, IL 60563 Fax: (630) 245-9135
Web: www.tdproducts.com email: info@tdproducts.com

ABB Inc., Atkinson/EPRI, Calvert, Carter & Crawley, Central Electric, CGIT, Cyberex, Hamby Young, IPC Resistors, MTI Technologies, Shallbetter, Tierney Electrical

Transformers, Switchgear, Breakers, Relays, Capacitors, Harmonic Filters, Electrical Buildings, Power Resistors, Synchronizing Switchgear, Non-Seg Bus, Iso Phase Bus, Batteries, UPS Systems, Chargers, Substation Design and Supply.



Engineering Your Future!
<http://online.engr.uiuc.edu/scan>
Online Graduate Programs in CS, ECE, & ME
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Support all of these fine businesses that support SCANFAX.

ADVERTISER INDEX

DLS Electronic Systems, Inc.BC
Elite Electronic EngineeringBC
Weldy/Lamont & AssociatesIFC
Welsh & Katz, Ltd.IFC

Introducing
**New EMC Practical Applications
Seminar/Workshop**

by Donald L. Sweeney
and Roger Swanberg

April 29-30 & May 3-4, 2004
Hilton Hotel, Northbrook, IL

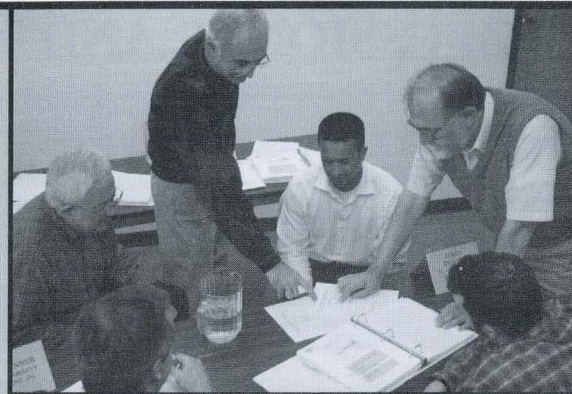
During three days of class before the workshop, students will study EMC design techniques and the calculations required to design a product to meet compliance regulations.

In the Workshop:

Using an example of a real life product and following typical design principals, students will:

1. Develop a block diagram.
2. Determine the product's parameters.
3. Calculate the probable emissions and immunity of the:
 - a. Circuit boards
 - b. Power supply
 - c. I/O lines
 - d. Enclosure
4. Determine if there are EMC concerns.
5. Find cost effective mitigating steps while product is still on paper.

When you leave this class, you should be ready to lead a design team with a high degree of confidence that your products will meet the EMC requirements.



Special Offer:

Students who have previously taken both D.L.S.'s "Introduction to EMC Design Practices" and "Design Techniques for Controlling Radiated Emissions" will receive a special discount on this workshop.

Workshops will also be held in July, Oct. & Jan.

Call 847-537-6400 for a brochure or find us on line at www.dlsemc.com.

DLS
ELECTRONIC SYSTEMS, INC.
1250 Peterson Drive
Wheeling, IL 60090

Elite Capabilities.

T E S T L A B O R A T O R Y

New and different products demand new and different testing capabilities—and Elite has them.

- Enhanced High-Intensity RF (HIRF) testing
600V/m-CW/AM and +2500V/m pulsed RF
- HALT/HASS accelerated life testing via rapid thermal cycling and six-axis vibration
- Computer simulation of EMI using software modeling consulting services

Visit www.elitetest.com to see how our constantly improving capabilities can meet your constantly changing testing needs.

Elite Electronic Engineering Inc.

1516 CENTRE CIRCLE, DOWNERS GROVE, IL 60515
1-800-ELITE-11 [1-800-354-8311]

www.elitetest.com

FC Canada CE

A2LA Accredited
NVLAP Accredited
ANSI Accredited
DESC Approved
NARTE Certified Engineers

**Our Constantly Improving
EMC Test Capabilities**

• **EMC Testing Services**

MILITARY AND COMMERCIAL AVIATION

600V/m-CW/AM and +2500V/m pulsed RF,
Lightning Testing, Large system capabilities

AUTOMOTIVE

DaimlerChrysler and Ford Approved,
GM Correlated, Nissan, Toyota, BMW, others
Whole Vehicle EMC Test Facility;
Truck and Ag Equipment Specialists
European Union "e-Mark" Testing for
ESA's & Whole Vehicle

FCC, CE MARK, TELECOM

Regulatory Experts; Test Experts;
EMC Design Experts
FCC Telecommunication Certification
Body (TCB)
European Union Conformity Assessment
Body for CE Mark Approvals

• **Environmental Stress Testing and
Electrical Safety Services**

Full Environmental Stress Test Laboratory;
Temp, Humidity, Vibe, Shock, Rain, Dust,
Salt Fog, and many others

• **Engineering Design Consulting Services**

FCC/CE Mark Regulatory Experts,
EMC Design Analysis and EMI Suppression,
EMI Simulation and Circuit Modeling Services