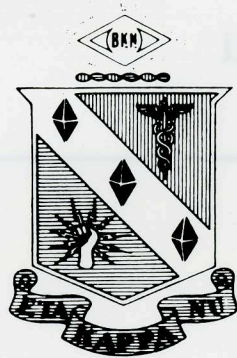




BRIDGE of Eta Kappa Nu

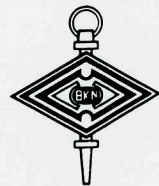


Dr. Ya-Qin Zhang
1998 Winner
Outstanding Young Electrical Engineer Award



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PAUL K. HUDSON HKN DEVELOPMENT FUND ANNUAL CAMPAIGN

**Paul K. Hudson
1916-1988**



**Eta Kappa Nu Executive Secretary
and BRIDGE Editor,
1958-1988**

Established by the Board of Directors in April 1992, this important fund will honor the memory of Paul Hudson, a devoted servant of HKN and a man who truly exemplified the qualities that "balance the bridge."

The Hudson fund, managed by the HKN Board of Directors, will be used to support the general development of Eta Kappa Nu. For example, the fund will be used where necessary to help support HKN's national award programs; expansion, including the development of new college chapters and alumni chapters; and chapter visitations by current and past national officers and directors to assist with special occasions. All of these examples represent activities which Paul so heartily endorsed. Other developmental projects will be considered by the Board as funding grows and new objectives important to HKN become established.

As we honor Paul, we also honor donors to the fund by recognizing them as Paul K. Hudson Fellows. Five levels of giving are recognized, as in the form below. One-time donations at any level will be gratefully accepted. In addition, donors may now make pledges for annual donations. All donations will be counted cumulatively for the purpose of establishing the donor's current level of giving. Fellows at each level will be recognized annually by name in the BRIDGE.

Eta Kappa Nu thanks those who have already become Paul K. Hudson Fellows. We invite all members and friends of HKN to join the growing list of Fellows. And whether or not you are presently a Fellow, consider extending your support of the Hudson Fund on an annual basis. Simply fill out and return the form below. Thank you for your part in supporting and strengthening Eta Kappa Nu.

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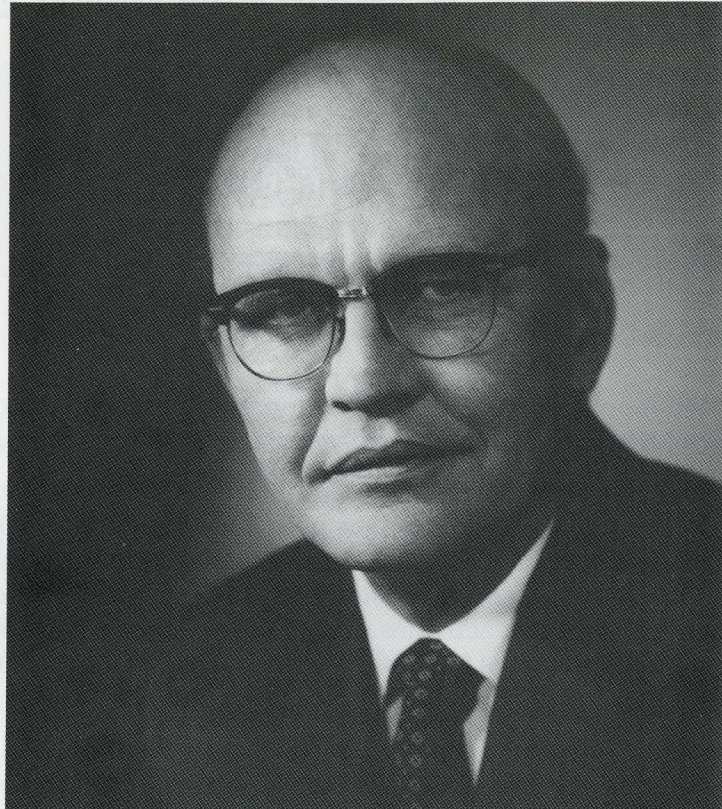
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See Details on Page 3

ALSO VISIT HKN's WWW HOME PAGE

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Jack St. Clair Kilby
WINS
Vladimir Karapetoff Eminent
Members' Award
by
Nancy T. Hantman

Jack St. Clair Kilby received Eta Kappa Nu's Vladimir Karapetoff Eminent Members' Award during the annual recognition ceremonies on 19 April in Princeton, NJ. The Karapetoff Award is given for career accomplishment by a practitioner of electrical engineering who has distinguished him- or herself through an invention, a development, or a discovery in the field of elec-

trotechnology. Among the factors considered in granting the award are the scope of applicability of the invention, development, or discovery; its impact on the public welfare, standard of living, and/or global stability; and the effective lifetime of its impact.

Mr. Kilby was selected as this year's recipient of the Karapetoff Award in recognition of his

invention of the semiconductor integrated circuit. His devices, constructed and demonstrated in 1958-1959, were first used in guidance computers for the Minuteman and the Apollo.

During his work at Centralab, from 1947 to 1958, he was the principal developer of the company's first transistorized hearing aid amplifiers. When he joined Texas Instruments in 1958, he quickly concluded that passive components could be made from the same semiconductor material as were the active devices.

By September he had constructed a working integrated circuit and demonstrated it to TI executives. In addition to his invention of the integrated circuit at TI, he held the positions of manager of semiconductor networks, deputy director of the Semiconductor R&D Laboratory, assistant vice president, and director of engineering and technology for the components group.

In 1997, TI unveiled a \$150 million research and development building, naming it the Kilby Center in his honor.

Mr. Kilby now has his own consultancy, based in Dallas, Texas. He holds more than 60 U.S. patents.

He received the BSEE degree from the University of Illinois and the MSEE from the University of Wisconsin, and served as Distinguished Professor of Electrical Engineering at Texas A&M University from 1978 to 1984.

He was awarded honorary doctorates from Texas A&M, the University of Illinois, the University of Wisconsin, Southern Methodist University, the University of Miami, the Rochester Institute of Technology, and Rensselaer Polytechnic.

Among his many recognitions are the Holley Medal of ASME, the Stuart Ballantine Medal of the Franklin Institute, the Zworykin Award of the National Academy of Engineering, the National Medal of Science, and the National Medal of Technology.

He was inducted into the National Inventors' Hall of Fame in 1982, and the Engineering and Science Hall of Fame in 1988, and was named to

the National Academy of Engineering in 1967. In 1993 he was awarded the Kyoto Prize in Advanced Technology.

He was Elected a Fellow of the IEEE in 1966 for "contributions to the field of integrated circuits through basic concepts, inventions, and development."

He has also received the IEEE's David Sarnoff and Cleo Brunetti awards. In 1984 he received the IEEE Centennial Medal, and he will be among those featured in Engineering Tomorrow, the IEEE's millennial book (to be published in January 2000).

Dr. Robert W. Lucky, a member of the Vladimir Karapetoff Eminent Members' Award committee, introduced Mr. Kilby during the ceremonies. Mr. Kilby commented that, at the time of the integrated circuit's invention, he thought it would mainly affect radio and television. He did not realize just how dramatically it would change electronics itself. Since then, however, the "field of electronics has expanded tremendously," he said, while the cost of devices has decreased continuously.

In his early days at TI, transistors cost \$10.00 apiece; that sum now buys an enormous number of "miniaturized wires and systems" in the form of complex integrated circuits.

The Karapetoff Award was established through a bequest of Dr. Karapetoff and his widow, R. M. Karapetoff Cobb, who was herself a chemical engineer. Dr. Karapetoff emigrated from Russia to the United States in 1902, and became a naturalized citizen in 1909. He joined the engineering faculty of Cornell University in 1904 and was a professor there until his retirement in 1939.

Dr. Karapetoff was a prominent member of Eta Kappa Nu and a Fellow of the IEEE.

For more information about the Karapetoff Award or nomination forms, the contact is the chairman of the Eminent Members' Committee: Donald Christiansen, 434 West Main Street, Huntington, NY 11743, USA; 516-423-3143; fax 516-385-4940.

Four College Chapters Win Awards In Eta Kappa Nu's Outstanding Chapter Activities Program For The 1997-98 Year

by
Alan Lefkow

The Top Eta Kappa Nu College Chapter Winners for the 1997-98 School Year were recently announced by Eta Kappa Nu's Outstanding Chapter Activities Award Committee. Beta Chapter at Purdue won top honors as the National Winner. Three other chapters, each of which typified the spirit of Eta Kappa Nu, received the HKN Certificate of Merit Award for their meritorious programs.

The three Certificate Winners are Alpha at the University of Illinois, Champaign-Urbana; Beta Epsilon, at the University of Michigan; and Kappa Delta at the Florida International University.

The National Winner, Beta, will soon receive its Winner's Plaque which is a metal plaque engraved in color and mounted on a field of red velvet framed in walnut; and the other three winners will correspondingly be receiving their time honored Certificates, each laminated in walnut with gold trim.

All the awards are intended to serve as noteworthy symbols which point to the chapter's distinction as an outstanding chapter.

As in the past, representative reports of the currently selected winners will appear in the HKN BRIDGE. In the past, selected winning reports of such fine chapters have appeared in

various issues of Bridge to serve as encouraging examples to all chapters.

For certain, their activities cover a wide range. Popular activities include helping the poor of their community, service to local high schools and other needy entities, support to many events at their own school, providing scholarships and awards to outstanding students, and conducting tutoring programs. Providing Resume books for graduating seniors, providing food at their student lounge, services to alumni (newsletters, record keeping, etc.), evaluating courses and providing course guides, serving as key supporters for Engineering Day, and promoting interaction between students and faculty. These are but a few of the activities and services performed by winning chapters.

In this issue, Alpha's Winning Certificate of Merit report is featured. See pages 7 and 8.

NOTE: To all chapters! Chapter contributions of individual self effort, and service to school or community is the name of the game.

Congratulations to all winners, including, of course, Beta chapter, at Purdue, which has, by far the most wins nationally, over all the decades of the HKN Chapter Award Program.

ETA KAPPA NU ASSOCIATION ANNUAL CHAPTER REPORT - CERTIFICATE OF MERIT WINNER

ALPHA CHAPTER

GENERAL MEETINGS

On September 17th, Jim Goeing of National Instruments spoke about eliminating redundancies in technical equipment through custom-built boards and circuitry.

On November 11th, Boeing technical Managers, Diane Wood and Diane Heillebargh, discussed current material in software and electromagnetics.

NEW PROJECTS

Engineering Open House: Alpha Chapter for the first time in recent history participated in the Jerry Sander's Design Contest. In the contest, participants design and build a remote controlled robot that competes with other robots in collecting small foam cubes off the floor. Later, the robots attempt to destroy each other in a demolition round. Alpha Chapter also completed a Engineering Open House demonstration project which involved a game show machine that required an extensive amount of bread board wiring and assembly programming. Officer Eric Totten supervised both projects and spent many hours working on them.

ONGOING PROJECTS

Quiz Bowl: The 4th annual Quiz Bowl was held on April 25th. Teams competed in trivia concerning technical ECE, the history of the ECE department, and the corporate world. The winning team received 166MHz MMX Intel Overdrive Processors. The Quiz Bowl was organized and run by Officer Don Baron.

Tutoring: Every Tuesday and Thursday night, HKN members and initiates tutored ECE students in the basic courses required for the ECE curriculum. These courses included math, physics, chemistry, and introductory ECE classes. Of course, tutoring received the bulk of its use just before major exams. Officer Jason Sheu was responsible for scheduling and general organization.

Outreach: Outreach is a program that maintains contact with several high schools. It serves to give high school students an idea of what ECE is about. This program was supervised by David Kim/Anna Spaanem in the Fall semester and by David Kim during the Spring semester.

Test Sales: As always, HKN sold copies of past hour exams from ECE courses. The past hour exams are periodically updated to reflect changes in the ECE curriculum such as the elimination or addition of courses. The test sales assist students in preparing for exams and provide Alpha Chapter with needed funds. Johanna Canniff, Fall semester, and Nelson Yeung, Spring semester, maintained the test files.

Office Hours: During office hours, HKN officers sold copies of past hour exams and tickets to the initiation banquets. For the first time, HKN officers collaborated with IEEE officers in the sale of both HKN past hour exams and class notes that are distributed through IEEE. This change resulted in less officer hour time for both organizations and less confusion for students wishing to purchase exams and notes.

PHILANTHROPY PROJECTS

Philanthropy Projects were organized and supervised by Wendy Fung and Caitlyn Troung. **Busey Woods Work Day I:** On November 11th, HKN officers and initiates went to Busey Woods where they picked up trash and removed nonnative plants harmful to the environment.

Champaign Soup Kitchen I: On March 1st, HKN officers and initiates went to work at a soup kitchen in Champaign. At the soup kitchen, the participants helped prepare lunch, serve it to the local people in need, and clean up the kitchen area.

Busey Woods Work Day II: HKN officers and initiates went to Busey Woods where they picked up trash.

Champaign Soup Kitchen II: On March 1st, HKN officers and initiates went to work at a soup kitchen in Champaign. At the soup kitchen, the participants helped prepare lunch, serve it to the local people in need, and clean up the kitchen area.

U of I Hunger Cleanup: On April 11th, HKN officers and initiates took part in the University of Illinois's 2nd annual Hunger Cleanup.

PUBLICATIONS

Course Review Guide: Published each semester, the Course Review Guide is a compilation of surveys of all ECE courses. Students are asked in the surveys to rate classes on organization, difficulty, and usefulness of the textbook. The results are tabulated by initiates and placed in the guide. Classes are periodically updated. Don Baron in the Fall semester and Shawn Struc in the Spring semester oversaw the publication of the Course Review Guide.

Undergraduate Research Guide: The Undergraduate Research Guide is a list of surveys from ECE professors concerning their research and their need for research assistants. The guide is a well-kept secret. Not many realize how easy it is to find the research experience demanded by graduate schools by using the guide. Many, however, have attested to its usefulness. Kristi Hylle, who received a research position through the guide, oversaw the collection of data.

Newsletter: The HKN newsletter is a publication sent to all active HKN Alpha Chapter members. It provides members with important dates as well as articles concerning the activities of HKN. Derek Huyser in the Fall semester and Jin Park in the Spring semester prepared the newsletter.

Web Page: The HKN web page at <http://www.ece.uiuc.edu/~hkn> provides a wealth of information on the activities of the Alpha Chapter. It contains a summary of current events, electronic copies of past hour exams and the course review guide, and links to ECE students' resumes. Officer Shane Ryoo maintained the web page.

Bridge Report Writing Guide: Officer Ted Lekan created a brief guide to writing the Bridge Correspondent Report.

NATIONAL AWARD NOMINATIONS

Outstanding Junior/Senior Award: On April 4th, the HKN officers chose the nominees for the Eta Kappa Nu Outstanding EE Junior and Senior Award.

ENGINEERING COUNCIL AND ECE DEPARTMENT ACTIVITIES

Engineer's Night: Engineer's night is a yearly event sponsored by Engineering Council where every engineering society or organization sets up a booth with representatives to answer questions on the group. As always, HKN had two representatives at the event for the entire night to recruit HKN initiates.

Engineering Council Meetings: An HKN member attended enough meetings for HKN to remain a registered society by EC's standards. At the meetings, the HKN member participated like other society representatives in events such as voting.

ECE Explorations: ECE Explorations was a joint event sponsored by HKN, the ECE Student Advisory Committee, and IEEE. This event started the Spring Semester of 1998. Each Wednesday, one of the three organizations provided a speaker. The speaker presented material on current technology or career trends in engineering. Pizza and soda were always provided as an incentive to ECE students. HKN members always volunteered to help set up and clean up the food and beverage.

BANQUETS AND ELECTIONS

Fall Initiation Banquet: The Fall Initiation Banquet was held on Saturday, November 21st on the 21st floor of the University Inn.

Fall Elections: Elections for the Fall semester were held on December 4th.

Spring Initiation Banquet: The Spring Initiation Banquet was held on May 1st at the University Inn.

Spring Elections: Elections for the Spring semester were held on May 4th.

THE 1998 OUTSTANDING YOUNG ELECTRICAL ENGINEER AWARDS

by Ralph J. Preiss

OYEE Awards Organization Committee

Dr. Ya-Qin Zhang, Sarnoff Corporation, Princeton, New Jersey is the Outstanding Young Electrical Engineer of 1998. His award was presented at the 63rd annual Eta Kappa Nu Awards Banquet at the Princeton Marriott in Princeton, New Jersey on Monday, April 19, 1999.

At the same ceremony Prof. Scott David Sudhoff, Purdue University, West Lafayette, Indiana was awarded Honorable Mention and Prof. Joel T. Johnson was named as Finalist for the first time. All were chosen from some eighty nominations which were solicited and received by the Awards Organization Committee.

The award winners were honored for their contributions to electrical, computer, and communications engineering, as well as to society at large. Selection of the winner, honorable mention and finalist is based on individual accomplishments. It is not influenced by newsworthiness or commercial value of the contribution. In the same way, contributions to local neighborhoods and schools, religious organizations and the arts is measured only in personal contributions, and not for newsworthiness or sensationalism. It is Eta Kappa Nu's emphasis on the well-rounded individual that leads it to recognize people who, in addition to striving for excellence in their profession, also give of themselves for the betterment of society, community, and family. We hold that an education based upon the acquisition of technical knowledge and the development of analytical and logical thinking is a prerequisite to achievement in many lines of endeavor.

This year's winners join a long list of individuals who have brought distinction to themselves, to their community, and to the profession. These winners were brought to the attention of the Jury of Award by the persons who had the foresight to nominate them. For instance, Dr. Zhang was nominated by Glenn Reitmeier, Vice President of the Sarnoff Corporation, and Prof. Sudhoff was nominated by the Head of the School of Electrical and Computer Engineering at Purdue University, W. Kent Fuchs. Both nominations were received in 1998. Prof. Johnson, on the other hand, was already nominated in 1997 by Prof. Yuan Zheng, Chairman of the EE Department of The Ohio State University, but his accomplishments did not percolate to the Finalist status until 1998 with an update to his dossier.

Dr. Zhang was cited for his individual contributions and team leadership in the field of digital video compression and for service to society.

Ya-Qin Zhang was born in Taiyuan, the capital of Shanxi Province in January, 1966. He started his university studies at the age of 12 and received his B.S.E.E. in 1983 and his M.S.E.E. in 1985 (before he was 20 years old) from the University of Science and Technology of China (USTC). It is located in Hefei, ANHUI province. He continued his studies at George Washington University, in Washington, DC, where he was elected to Eta Kappa Nu in 1986, and received his Ph.D. in 1989.

In 1998, Dr. Zhang directed the Multimedia Technology Laboratory at Sarnoff Corporation in Princeton, New Jersey where he had worked since

January, 1995. His laboratory was actively engaged in research and development and commercialization of digital Television, Motion Picture Experts Group standards, and multimedia and Internet technologies. He was one of the co-founders of WWW.VIEW.COM, a Sarnoff Corporation start-up venture that develops image and video compression and communications technologies and products on the Internet. Between 1989 and 1994 he worked at the GTE Laboratories Inc. in Waltham, Massachusetts and at the Contel Technology Center in Virginia.

Dr. Zhang has a stellar record of technical achievements that have significantly advanced the state of the art in video and image compression. At age 31, he was the youngest person named Fellow of the IEEE in its 100-year history. He holds 8 issued patents and has some 22 more on file. He has contributed 9 chapters to textbooks and special issue publications, has over 35 papers published in refereed IEEE technical journals, and some 60 more in conference proceedings. He also submitted some 50 technical contributions to various international standards bodies on the same subject.

His development of a very low rate video codec at ~20 kbps using a vector subband coder, and his video compression algorithms including multiresolution coding for full motion video, multiresolution motion compensation, wavelet coding for images and video are just some of the developments which will be seen in use once HDTV is fully commercialized. His laboratory team is already responsible for three significant parts in the MPEG-4 Standard: the zero tree entropy (ZTE) coder for images and video, a technique which provides significant picture quality improvement and object/SNR/spatial scalabilities with fine levels; a scalable rate control (SRC), a technology that adopts a novel quadratic rate-distortion model, a sliding window protocol, and adaptive data selection with linear regression; and global motion compensation (GMC).

Dr. Zhang serves as the Editor-in-Chief for the IEEE Transactions on Circuits and Systems for Video Technology, 1997-99. He also serves on the editorial Boards of seven professional journals and participates in over a dozen conference committees such as IEEE Globecom, ICC, ISCAS, ICIP, and VCIP. Furthermore, he represents Sarnoff in the

ISO/MPEG and in the ITU-T/LBC standardization efforts. He serves as dissertation committee member for Ph.D. candidates at different universities and he lectures at local Chinese high schools.

Since coming to the United States, he has been deeply involved in student activities. He chaired the IEEE Communications Society Student Chapter in Washington, DC in 1987, the Chinese Student Union of George Washington University in 1988, and in 1989, he founded and chaired the Chinese Alliance of Patriots, a pro-democracy organization promoting human rights for China. He also served as Chairman of Council, Independent Federation of Chinese Students and Scholars Associations, which has some 70,000 members in the USA.

Ya-Qin Zhang is married and enjoys leisure time with his 5-year old daughter.

Dr. Sudhoff was cited for his outstanding contributions to electrical propulsion and mobile power distribution systems, and for effective teaching and course development.

Scott David Sudhoff, the Honorable Mention, was born in Columbus, Indiana in 1966. He studied electrical engineering at Purdue University, West Lafayette, Indiana where he received the BSEE (with highest distinction), MSEE, and Ph.D. degrees in electrical and computer engineering in 1988, 1989, and 1991 respectively. Between 1991 and 1993, Dr. Sudhoff served as a consultant for P.C. Krause and Associates, also in West Lafayette, working in the area of aerospace power and actuation systems. During this period, he conducted novel work on the concept of a mixed wild-frequency, 400Hz, 20-kHz distribution system which resulted in his winning the 1995 best paper SAE Manly Memorial Medal. From 1993 to 1997, Dr. Sudhoff served as an assistant professor at the University of Missouri-Rolla and became associate professor at UMR in 1997. He returned to Purdue in the fall of 1997 as Associate Professor, which job he holds to the present time, while continuing his consulting practice.

As a graduate student, Scott Sudhoff was the first person to derive analytically and rigorously an expression for the commutating reactance of a synchronous machine line-commutated converter system and introduced the now well-known method of

dynamic multiple reference frames. As a new faculty member at UMR, Dr. Sudhoff developed a novel hybrid rotor position sensor for use in low-cost brushless dc motor drives; developed a novel automatic flux-weakening control for permanent magnet synchronous motor drives; and developed the concept of the cascaded multi-level converter which promises to yield extremely high-efficiency power conversion at high power levels. Recently, Dr. Sudhoff has developed a replacement for distribution class transformers which can mitigate most power quality problems and which is environmentally friendly in that it does not utilize mineral oil for thermal cooling or as a dielectric medium. Among other contributions, he has also developed a fundamentally new means of analyzing and setting component specifications for dc power systems such as are being designed for next generation ships and aircraft.

In the area of teaching, in addition to revising and defining new courses in electro-mechanical systems and power conversion for UMR, Dr. Sudhoff has been especially active in the field of distance education, and he has been involved in several efforts involving multi-institutional courses delivered through a combination of live two-way video, video tape, and web-based conferencing. He founded the Energy Systems Analysis Consortium, ESAC, a grouping of universities, e.g., UMR, Purdue, U. of Wisconsin, the U.S. Naval Postgraduate School, and the U.S. Naval Academy, focusing to promote research and graduate level education in the area of power electronics based systems. One of the advantages of this group over the single university approach is that it gives students the benefit of access to the leading faculty at several institutions. It also enables the faculty to pursue research projects which are beyond the resources of a single institution. He also excels in involving undergraduates in his research programs; in fact, half his current graduate students were involved in his research as undergraduates.

Dr. Sudhoff is an active member of the Wabash Valley Astronomical Society. As a member of this group, he designed and helped to build an equatorial telescope mounting (Poncet Table) which is used for the Society's large Newtonian reflector. He regularly participates in open houses in which

the public is invited to look through the club telescopes. During these sessions, he instructs visitors in optics relating to the telescopes, in observational techniques, and in astronomy. During his Rolla days, he participated in the Noon Kiwanis Club and served as faculty liaison for youth groups including the Circle-K.

Scott Sudhoff has authored or co-authored nearly sixty journal and conference papers since graduation and has two US patents pending. He regularly participates as reviewer for three IEEE societies and serves on a number of subcommittees of the Power Engineering Society. In addition, he is involved with the Society of Automotive Engineers, the American Society of Naval Engineers, the Small Motor Manufacturers Association, and he sits on the editorial board of the Electric Power Systems Journal.

Dr. Johnson was recognized for his contributions to passive polarimetric remote sensing of ocean wind, among other contributions to solving Maxwell's equations involving a large rough surface area. His biography will appear in another issue of THE BRIDGE.

The Eta Kappa Nu Outstanding Young Electrical Engineer Award is presented annually to young (under thirty-five) electrical and computer engineering graduates for meritorious service in the interest of their fellow man as well as for outstanding achievements in their chosen profession. Those honored with this prestigious award are selected each year through a well-defined process which has remained virtually unchanged since its inception in 1936. The nomination process involves the initiative of the nominator and the participation of at least three references in support of the candidate. The dossiers of all nominees are carefully screened by a subcommittee of the Awards Organization Committee, a standing committee of Eta Kappa Nu, which is responsible for soliciting and updating the nominations every year, and which then selects up to a dozen finalists for submission to the Jury of Award.

The members of the 1998 Award Organization Committee were:

- * Mark Adamiak, GE Protection and Control, Malvern, Pennsylvania
- * Robert Bartolini, Sarnoff Corporation, Princeton,

- New Jersey
- * Donald Christiansen, IEEE (Retired), Huntington, New York
 - * James D'Arcy, Lockheed Martin Communications and Power Center, Newtown, Pennsylvania
 - * Amy Brotherton, (On Leave), Grove City, Ohio
 - * Larry Dwon, Retired, West Kill, New York
 - * Irving Engelson, IEEE (Retired), Jamesburg, New Jersey
 - * Quayne Gennaro, Design by Hilton, Inc., Vienna, Virginia
 - * Willard Groth, Consultant, Boca Raton, Florida
 - * Michael Hajny, Metering Engineering, Charleston, South Carolina
 - * John Henderson, Hitachi America, Ltd., Princeton, New Jersey
 - * Cecelia Jankowski, IEEE Operations Center, Piscataway, New Jersey
 - * Fern Katronetsky, IEEE Operations Center, Piscataway, New Jersey
 - * Stephen Mauser, Products Delivery, Electric Power Research Institute, Palo Alto, California
 - * Ralph Preiss, IBM (Retired), Poughkeepsie, New York
 - * Berthold Sheffield, RCA (Retired), Belle Mead, New Jersey
 - * Joseph Strano, New Jersey Institute of Technology, Atlantic Highland, New Jersey
 - * Kurt Trampel, IBM Corporation, Purchase, New York
 - * Won-tien Tsang, Multiplex, Inc., South Plainfield, New Jersey

The Jury of Award is constituted once a year from highly respected leaders of the profession for the final selection of the winner and honorable mention(s). The 1998 Jury of Award consisted of the following individuals:

- * John Henderson, (CHAIR) Hitachi America, Ltd., Princeton, New Jersey
- * Ron Andrews, Vice President, Lockheed Martin Advanced Technology Center, Palo Alto, California
- * Robert Bartolini, Vice President, Sarnoff Corporation, Princeton, New Jersey
- * Bede Liu, Electrical Engineering Department, Princeton, New Jersey

- * Richard Gowen, President, ETA KAPPA NU Association, Rapid City, South Dakota
- * David Turek, IBM Fellow, IBM Corporation, Poughkeepsie, New York

Nominations for the award are solicited each year through the Eta Kappa Nu Award Organization Committee. Nominations may be made by any member or group of members of Eta Kappa Nu; by leaders from industry; by any Section or Society of the Institute of Electrical and Electronics Engineers, Inc.; by the heads of electrical and computer engineering departments of any U.S. College or university; or by any other individuals or groups, who, in the opinion of the Awards Organization Committee, are properly qualified to make nominations.

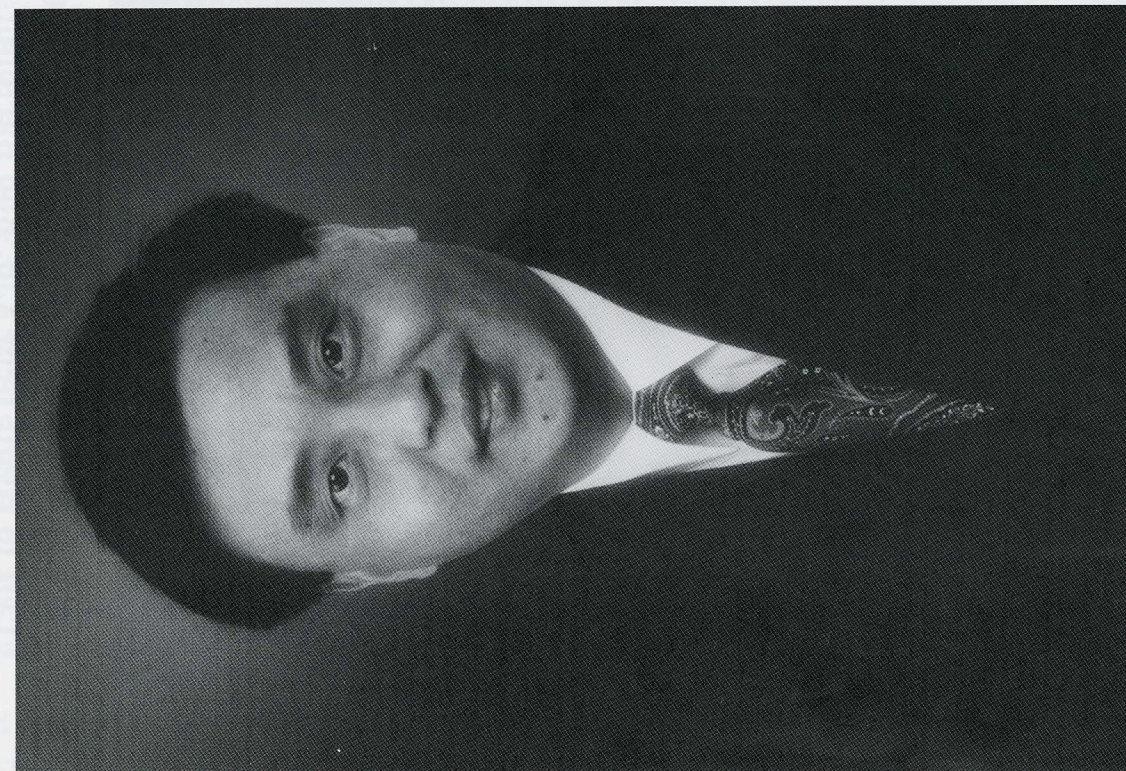
Nomination forms for 1999 may be obtained from the Executive Secretary of Eta Kappa Nu, P.O. Box 2107, Rolla, MO 65402, and should be returned to him by August 1, 1999 for processing.

For those nominating, bear in mind that awards are based upon

- (1) the candidate's achievements of note in his or her chosen work, including invention of devices, circuits, or processes, improvements in analyses, discovery of important facts or relationships, developments of new methods, exceptional results in teaching, outstanding industrial management, or direction of research and development;
- (2) the candidate's service to community, state, or nation, such as activity in philanthropic, religious, charitable, or social enterprises, leadership in youth organizations, or engagement in civic or political affairs; and
- (3) the candidate's cultural and aesthetic development, such as work done in fine arts, architecture or the performing arts. Studies in history, economics, or politics are also highly valued, as well as any other noteworthy accomplishments, including leadership participation in professional societies and other organizations.



Scott David Sudhoff, 1998 Honorable Mention



Dr. Ya-Qin Zhang, 1998 OYEE



1998 OYEE JURY
Left to right: Bede Lin, Bob Bartolini, Ron Andrews, John Henderson, David Turek

THE SECRET OF SUCCESS

by

Jim Watson, P.E.

President, WATSON ASSOCIATES

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Professional Engineers face many challenges. Most engineers are aware of the challenges associated with the rapid changes in the technical aspects of the profession. Staying current with technology requires great effort and concentration.

But there is another very important challenge that is often overlooked. In a world which is daily growing more dependent upon the practical use of technology, the role of engineering continues to be greatly misunderstood by those outside the profession. Unless we become aware of these misconceptions and improve the perception of our profession, we will experience many roadblocks to success.

Unfortunately, our image is often clouded by inaccurate word associations. What is an engineer? Are professional engineers confused with someone who operates a railroad locomotive? Does the word engineer create visions of those who collect garbage (sanitation engineer), replace light bulbs (building engineer) or fix bathroom drains (hotel engineer)?

While these examples may be somewhat comical, they do contribute to the general confusion around us. Despite our efforts to promote professional registration, we have little control over non-engineers using the title of engineer. There is little we can do to change what others elect to call themselves.

We can provide information to those around us to establish a better understanding of our profession. Unfortunately, some of the information provided in the past has been the reason engineers are perceived to be "different" from the "normal" inhabitants of the world. In fact, there are engineers who are proud to be considered different.

Many think of an engineer as one who sits at a drafting board with a pocket full of pencils in a pocket protector or someone who repairs TV sets and VCR's. Often we are accused of writing computer manuals or national electric codes in some foreign language.

We may be frustrated with comments and jokes made about our profession, but we should avoid criticizing those making the comments. Perhaps we have not provided evidence of who we really are and what we do to the non-engineering population. Negative perceptions result in roadblocks and interfere with our ability to accomplish our goals.

The engineering profession in the 90's and beyond is too important to be undermined by misconceptions. To be effective, we must make significant improvements in this situation. This can not be accomplished with fancy promotional programs or printed literature.

Because many do not understand or appreciate our contributions to society, all of us must do something to change the situation. This will only happen when each of us understands the problem and is committed to making a change.

The time to act is now. The purpose of this discussion is to identify typical reasons for this problem and to suggest solutions for changes to put more "shine on our images."

Where do we begin? How can we find the secret of success? An excellent start would be to acknowledge the present situation. Perhaps we are like the crow and the pitcher of water in Aesop's fable. A very thirsty crow came upon a pitcher half full of water. The level of the water was well below the crow's reach.

As we consider the options offered to the crow,

we may be able to draw analogies for our own use. If the crow pretends he never saw the pitcher and walks away, he will still be very thirsty and fail to satisfy his needs. By ignoring our world, we may also fail to make a positive impact on the future of mankind.

If the crow becomes aggressive and attempts to drink by tipping over the pitcher, the water will run out before he even begins to drink. Aggressive methods of influencing the world to our way of thinking will also surely fail.

Either of these two approaches may be fatal. So, what is the secret of success? What can we do to achieve our goals? The solution can be found if we study the options, consider the possible results and use our ingenuity to drink and quench our thirst. In other words, use proven engineering techniques to solve this problem in the same manner we would seek a solution to a technical problem.

We owe our profession the best we can produce. This includes keeping current with technical information. We owe the world the ability to translate that information into useful forms. If there is negative perception about the technical world, we must change that perception. Right or wrong, perception is reality.

It's time to study our world in a new light. We need to observe what is going on around us. We have many ways to accomplish this. This should not become the primary purpose in life but should be just as important as our technical skills.

As we become more aware of our non-technical world, we may surprise ourselves with some new found interests. These can be developed not only to add depth to our lives, but to be useful in establishing a more "normal" image.

Our family is the best place to start expanding our horizons. Family members offer a different perspective because they are not usually members of the engineering profession; therefore, they are an excellent source of information if we stop to listen and observe their world. This will often build a much more positive family relationship as well.

Reading technical literature keeps us current with technology. This same approach is effective in expanding our knowledge of activities in our community, our country and the world.

The expression of our knowledge of current events may come as a shock to those around us; however, this is an excellent method of putting a little polish on the old image. Others will applaud our efforts. There are many ways to keep current with information, and these should all be tapped whenever appropriate.

Our past focus has been on solutions to technical problems. This should continue to be the foundation of our profession but should not be the only goal of our work.

A more important mission is to use solutions for useful purposes. This may be best accomplished when we consider the needs of the world. There is a great deal more to life than a classroom, office, laboratory, test site or other workplace. In other words, we need to join the non-technical world.

Non-technical activities may be somewhat uncomfortable for engineers. Some of our lowest moments come in non-working, informal settings in which we are seen as boring, quiet, confused or in our own world.

One method of handling this unknown territory is to remain in our technical shell. Although others are discussing non-technical topics, we continue to talk about technical issues. This only adds to the negative perception problem.

It is important to focus on changing the way others see us. First impressions are often initiated by superficial impressions established during the first 12 seconds of a conversation. Studies on first impressions indicate that people form as many as 13 opinions during the first minute after meeting someone.

How we look and act are important in creating positive first impressions. Our demeanor is an expression of our self-worth and confidence. It is the foundation for opinions formed by others.

An honest smile is one of the most effective methods to establish a positive start. It takes 39 muscles to frown and only 13 to smile. So, conserve your energy and enjoy the positive results. We can not be successful in getting to more important issues unless we make a more positive first impression.

Look into the eyes of the other person as you initiate a firm handshake. Listen to the other person's name and try to use their name in the first few

sentences of the conversation.

It is important to dress properly. Understand the dress code for the situation and be in tune with most of the group. Clothes should be coordinated, clean, and well pressed. Complementary colors and good taste should be used.

Paying more for quality clothes is a good investment because they last longer and look better. Shoes should always be polished. Casual dress is appropriate for some environments.

A successful conversationalist listens twice as much as they talk. Ask genuine questions and listen to the answer. Play back and rephrase comments to show interest. These are excellent tools to put a little more polish on the image of your personality.

Talk in "style." Don't limit your comments to technical subjects. Consider the world around you and tune in. Use new information for more polish on the image. Introduce a technical subject only when it relates to other people. Even in technical situations, good communication skills still should be used.

Engineers spend from 20% to 75% of their working time in meetings. Much of our business takes place in small, informal groups. We attend conventions, workshops and seminars. Unfortunately, many meetings are very dismal and unproductive.

"Who called this meeting?" is often spoken when a small group is involved in an informal discussion. This may be said in jest, but there is also wisdom in this saying.

The first question to ask when considering a meeting, is "is this meeting really necessary, and will it be the most productive and effective way to accomplish the desired goal?" In other words, what is the purpose of the meeting.

A well established agenda is an important start to more effective meetings. A written agenda helps to establish the purpose of any meeting. Agendas are helpful in determining who should attend and what should be communicated to each attendee.

Selection of meeting attendees should be based on those who will contribute to or receive information from the meeting. Limit levels of management to encourage a feeling of freedom to participate.

Publish the agenda and time schedule to each

attendee well before the meeting to help them be prepared to participate effectively. Make it clear in the beginning of the meeting that the agenda will be used to control the direction and time use of the meeting, and then stick to the agenda. Don't let the meeting run over the original time limit. Work to have closure on discussion topics or schedule additional meetings to accomplish results.

The selection of speakers and participants is important. Quality of attendees may take precedence over quantity. For conferences, invitations should be given to those with the most to gain in the meeting or in discussion groups. Panel discussions and break-out sessions add more personal or informal atmosphere to meetings.

Attending and participating in seminars and conferences can be an effective method to continue our education process and to establish important networks. Unfortunately, engineers often give testimony to their poor communication skills in their attempts to provide conference presentations. This is further demonstrated with the use of "visuals" which are completely illegible even to the speaker standing at the screen.

Formal presentations provide opportunities for engineers to make significant positive changes in their images. The focus should be on the audience. Who are they, why are they there, what language do they understand, how can they benefit from the presentation?

These questions should be answered before developing the presentation. With the audience in mind, select and use the proper style of presentation and visuals. Rehearse until the material is familiar. Allow 25 to 30 times the length of time of the presentation for writing, preparing visuals and rehearsing. Use visuals for notes and minimize or eliminate reading from a script or note cards. Visuals should be used properly. It is important to be familiar with their location in the presentation and to practice timing of displaying each one. Use gestures, and interact with visuals to add emphasis. Know how to operate audio/visual equipment by checking it out before the meeting begins.

Keep it simple and do not bore the audience with more than they really want to hear. Hand out a written copy of the presentation to add more explanation and retention.

Engineers who plan and coordinate conferences need to use effective communication with everyone involved in the meeting. Planning includes a check list of tasks to be completed and assignments to individuals. A flexible attitude is important to adjust to changes as needed. If a large group is expected, success comes with clear communications within the planning committee or group, and feedback to keep activities on track.

The most important aspect of publicizing a meeting is the timeliness of each step of communication. Information for all meetings should be communicated as early as possible. Large conferences and workshops should be publicized several months ahead. It should be clear when the meeting will start, the expected length of the meeting and the exact location with directions as needed.

Meetings can result in disaster from poorly planned facilities and arrangements. Nothing should be taken for granted. Promises of those who provide meeting rooms, equipment, food and other arrangements are often misunderstood or forgotten. Program planners should be responsible and take control of the situation to see that all details are completed.

When making arrangements for the meeting program, speakers should be informed of meeting details and feedback should be received to indicate their understanding of their role in the activities. All speakers' needs should be carefully discussed to assure that final arrangements are as expected. However, it is equally important that speakers understand the needs of the audience and the allocated time for their presentation.

The time allocations should be strictly enforced, and speakers need to understand the ground rules before taking the stage. Remember, the purpose of the meeting is to communicate to the **AUDIENCE**.

All planning and implementation of the meeting should focus on that purpose. Holding professional meetings can make a positive impact on the perception of engineers and certainly polish our image. It is important to be creative and to find new, imaginative ways to influence others. This brings us back to the crow and the pitcher.

Did the crow spill the water?

No, not a drop.

He just filled it with pebbles,
'til it rose to the top.

So, what is the secret of success? Is it learning as much technical information as possible throughout our career? Yes. Is it learning how to use many non-technical skills? Absolutely. The secret of success is learning how to blend these two very important skill areas into a balanced lifestyle.

Our image will be improved and success will be enjoyed when we learn and practice more effective interactive skills. This starts with a philosophy of being as interested in people as we are in technology. If we focus on the use of technology, this will help to enhance our desire to be of service to others.

One final thought for consideration! Developing a sense of balance in our lives is an excellent method of improving our image and increasing our level of success. We are often accused of being narrow and working most of our waking hours.

Successful engineers find time for those who are the most important in their lives. This includes time for family activities; for taking an active part in the community; for working in their profession and contributing to their professional society; for their faith to secure an inner peace and strength; for music, art and other non-technical life enhancing activities; and for themselves.

The secret of success is joining these two important skill areas into a winning duo. A balanced approach of knowing as much about your technical field as possible over a life-long career and building networks by applying effective interpersonal and many other communication skills will maximize your career success.

This balanced approach will add one additional benefit. At the end of your career, you can sit back and reflect on the fact that you contributed your best to your profession. You developed positive impressions within your circle of friends and associates. You provided for your personal and family needs, and were able to enjoy the fruits of your labor. This would be considered by many as an excellent example of success.

About the Author

Jim Watson, P.E., is President of WATSON ASSOCIATES. He received a Bachelor's Degree in Electrical Engineering from Purdue University. He is a Registered Professional Engineer, a Senior Member of IEEE, a member of IEEE Professional Communications Society, a charter member of IEEE Student Professional Awareness Committee, member of the 1997 IEEE President's Vision 21 Project Team, an S-PAC speaker, and an IEEE Distinguished Lecturer.

Following a 36 year career with Ohio Edison Company, in which he held numerous engineering and staff positions, Jim left to devote full-time to his consulting activities. Founded in 1989, Watson Associates provides consulting services in communication and management skills.

He is the author of the WRITETALK COMMUNICATION SYSTEM designed to incorporate communication skill development and exercises within the university engineering curriculum. Watson Associates has directed the use of this communications program at several major Universities including California State Uni-

versity - Northridge, Lehigh University, Temple University, and The University of Toledo.

Awards received by Jim include the IEEE-USA Certificate of Appreciation for professionalism in 1984, the Citation of Honor for "Exemplary Contributions Toward Securing Recognition of Professional Activities in the United States" in 1987, and the Professional Achievement Award for activities in 1990. Jim also received the Innovation Award, the highest award provided by the IEEE Regional Activities Board, in 1991 for his multi-media presentation, "IEEE - From Pole to Pole and Sea to Sea to Sea," at the 1990 Sections Congress in Toronto, Ontario, and the 1995 Outstanding Service Award from IEEE Educational Activities Board.

Jim has provided more than 1,150 presentations in 43 states, District of Columbia, 3 Canadian Provinces, Puerto Rico and Hong Kong to a total audience of over 63,000. This includes 178 presentations at Student Professional Awareness Conferences and 390 presentations at other student meetings to a total audience of more than 30,000 students.

DONALD E. BENTLY

RECIPIENT OF NUMEROUS RECENT AWARDS AND ACCOLADES

When it rains, it pours. Donald E. Bently, owner, founder, and Chief Executive Officer of Bently Nevada Corporation is no stranger to accolades. His pioneering entrepreneurial efforts forty years ago, to introduce superior instrumentation for observing rotating machinery vibration behavior, gave birth to an entire industry.

He's never looked back, and it has put him atop that industry's leading company—Bently Nevada Corporation—the \$200 million per year success story that bears his name. However, the last 24 months have been a downpour of particularly noteworthy awards, events, and recognition to Bently's credit.

Recipient of the American Society of Mechanical Engineers's (ASME's) R. Tom Sawyer Award in 1999.

Listed in Standard & Poor's *Register of Corporations, Directors and Executives*; *Marquis Who's Who in the West*, *Who's Who in Finance & Industry*, *Who's Who in Science and Engineering*, *Who's Who in America*, and *Who's Who in the World*.

Keynote speaker at the Texas A&M Turbomachinery Symposium in September 1998; and Recipient of the N.O. Myklestad award from ASME in 1997.

Mr. Bently is a registered Professional Engineer in Electrical Engineering in Nevada (#1591) and California (#5242). He is a senior member of IEEE and a member of ASME, Sigma Xi, Eta Kappa Nu, (Beta Iota chapter in Iowa City, IA) Tau Beta Pi, and Sigma Alpha Epsilon. He served in World War II as a member of the U.S. Navy Seabees and received five battle stars.

His education credentials include a Bachelor's Degree in Electrical Engineering (with honors) in 1949 and a Master's Degree in Electrical Engineering in 1950, both from the University of Iowa. He has done graduate work at the University of California at Berkeley, and in 1987 was awarded an honorary Doctorate in Engineering from the University of Nevada, Reno. Bently also received an honorary AA Degree from Western Nevada Community College in 1998.

MANAGEMENT SKILLS

The engineer's power booster to enhanced professional achievement

A Tutorial by Dr. Henry Metzner

There is no doubt that practicing engineering as an individual contributor is very rewarding. You have the challenge of solving technical problems. You own the problem and its solution. You are your own master, budgeting your own time and effort. You can take pride in the practice of skills that are rare, highly prized, and in demand. You succeed or fail on your own effort.

A one-man effort is the limited amount of hours and energy that can be brought to bear on a single problem. After all, there are only 168 hours a week, no matter who you are; and much of that time is spent in sleeping, eating and "having a life."

More than that, splitting a task among many heads and hands increases the efficiency and decreases the time to complete projects. Just consider that splitting a project into several tasks, though it may require time and resources to coordinate, monitor and combine the final efforts, will probably result in fewer clock hours, even if it increases the total man-hours. Moreover, the tasks can be tailored to the skill levels, specializations, and preferences of individuals involved. This allows more experienced senior people to guide the project's newer practitioners in best practice to avoid many blind alleys. It allows those with special skills, knowledge, or abilities to make more efficient or sophisticated contributions than those who have had little practice with them. Consider the design of a motor vehicle. Certainly an individual could do all the elements of design; but an engine specialist, a drive-train specialist, and a structural specialist would decrease the time involved by working in parallel, and produce a more sophisticated product by applying the wisdom of prior designs.

Early in the twentieth century, Henri Fayol, a French mining engineer and administrator, analyzed and reported on managerial activities that were instrumental in multiplying his unique effectiveness through industrial-scale organizations. His five "elements," planning, organizing, command, coordination and control, are the cornerstone of managerial thinking, even today. Application of these elements to

the organization of people's efforts facilitates efficient and effective goal completion, both in professional and in private circumstances. Apply them at work, apply them at home, apply them at play, and get more done, better.

Planning is the selection of the goals of organization and the actions required to realize them. Plans are road maps, schedules, work breakdowns, and other tools for determining *which* of many objectives an organization may choose to accomplish results; and *how*, in detail, these objectives will be reached.

Organizing is the design of a structure of interrelated roles for people. As individuals do the tasks that define their jobs, the work of the organization will get done. Some of the tasks are meant to move the organization closer to its goals. Design engineering, selling, manufacturing, and distributing the finished product are examples. Other tasks serve as sustaining roles that maintain and continue the organization. *Filling* the organization's positions, *training* new hires to do their jobs, *maintaining* production equipment, or *paying* taxes are examples of tasks that sustain a firm.

Command is the function which provides unification.

Coordination provides the interfacing among individuals or groups as they accomplish their work. People need to work together and not with cross-purposes. When the output of one group becomes the input to another, both groups must understand and agree with the process, or misunderstandings will occur that can be costly or disruptive.

Control assures that the organization is progressing toward the goals it is designed to meet, and is doing so as efficiently as possible. Organizations change over time in response to changing environmental pressures and opportunities. They need to be periodically assessed, reorganized and redirected. Providing measures of inputs and outputs, revenues, and costs of activities, allows for comparison of planned outcomes to actual ones. If there is a discrepancy, planning can be initiated to correct the functioning or the course of the firm.

A NIGHT IN MARATHON

by G.W. Swensen, Jr.

We'd spent a fine week in southern Texas. It was late winter and the birding along the Gulf Coast was great. Three days in the spectacular desert and mountain scenery of Big Bend National Park had left us inspired and refreshed. After a fascinating visit by rowboat across the Rio Grande to the isolated Mexican village of Santa Elena, Janice and I decided to head for San Antonio and then home to Illinois. No hurry, though. We'd have time for another morning to drive the remaining segment of Park road, and to seek out a few more roadrunners and cactus wrens. After that, the drive north to Marathon and the Interstate Highway takes only a couple of hours.

We have a reservation at the Gage Hotel, a 'twenties hostelry with carefully preserved cowtown authenticity: Spanish colonial architecture, worn rawhide furniture, mesquite fire flanked by javelina and pronghorn heads. To top it off, the half-dozen loungers in the lobby are exactly what one would expect if the trail herd had just been delivered to the railhead: lean, tanned men in scuffed boots, spurs, faded jeans and battered Stetsons. It's almost as though the hotel or the chamber of commerce had hired them for atmosphere.

Anyway, Janice and I whispered to each other in appreciation of this additional taste of the Old West. It's almost too good to be true!

But hold on a minute! Spurs? Quiet conversation and Coca-Cola? And one of them is sitting at a table in the corner writing letters. Something strange here. Not exactly what one would expect from a bunch of cowhands after a hard day's work. We sat in the lobby for a while and discussed a number of possibilities, none of which seemed likely.

Our bedroom was in an annex a couple of blocks from the hotel proper, which had apparently been entirely reserved for a large group. As we walked out to the parking lot we passed a large truck labeled "Acme Grippage and Lighting Co." or something like that. What's grippage? More food for thought.

Later, returning for dinner, we noticed men unloading spotlights from the truck into a roped off area of the outdoor cocktail patio where two of our "cowhands" posed casually on a section of rail fence, cigarettes nonchalantly in hand. The truth finally began to dawn, and the desk clerk confirmed that the hotel had been taken over for the entire week by the Marlboro advertising agency.

Well, they really did look authentic, at least by 1950's grade B movie standards, and the Tex-Mex buffet the hotel had organized for their benefit suited us, too.

A Life Subscription to the BRIDGE is available at a modest cost of \$60. Send a check with name and address to:

HKN BRIDGE
P.O. Box 2107
Rolla, MO 65402

Nominations Invited for The Ninth Vladimir Karapetoff Eminent Members' Award



Dr. Vladimir Karapetoff

Nominations for the ninth Vladimir Karapetoff Eminent Members' Award are now being solicited. Nomination forms and guidelines may be obtained from Donald Christiansen, Eminent Member Committee Chairman, 434 West Main Street, Huntington, NY 11743.

In 1991, the Eta Kappa Nu Board of Directors announced the establishment of an award in honor of Vladimir Karapetoff, an Eminent Member of HKN and Fellow of IEEE, who died in 1948. The first award was given on April 27, 1992.

The award, the Eta Kappa Nu Vladimir Karapetoff Eminent Members' Award, is made annually to an electrical engineering practitioner who has distinguished him/herself through an invention, a development, or a discovery in the field of electrotechnology. The fund to support the award was initiated through a bequest from Dr. Karapetoff's wife, R. M. Karapetoff Cobb, herself a distinguished chemical engineer.

A monetary honorarium is provided to the recipient (or shared by the recipients) of the award.

Factors that will be weighed by the jury will include the impact and scope of applicability of the invention, development, or discovery; its impact on the public welfare and standard of living and/or global stability; and the effective lifetime of its impact.

Dr. Karapetoff was born in St. Petersburg, Russia, January 8, 1876. His father was an engineer and his mother a

student at a military medical school. Dr. Karapetoff emigrated to the United States in 1902, and became a naturalized citizen in 1909.

In 1904 he joined the engineering faculty of Cornell University as an assistant professor. In 1908 he was made a full professor and continued in that capacity until he retired from active teaching in 1939.

In an account of Dr. Karapetoff's career, his Cornell University colleagues R. F. Chamberlain, N. A. Hurwitz, and Everett M. Strong, recalled his continuing dedication to Eta Kappa Nu. During World War II he was commissioned a Lt. Commander in the U.S. Navy. But beginning in 1942, Kary, as he was known to his associates, began to lose his sight in both eyes, and despite temporary relief through operations, he ultimately lost his sight and schooled himself in Braille and "talking books."

Even after his blindness he seldom missed the annual Eta Kappa Nu Award dinner in New York City, and would address them in "refreshingly original and lucid expositions" of his technical interests. Fellow HKN members viewed these occasions as sort of a "national Kary reunion." His handicap notwithstanding, his cheerfulness, determination, and ingenuity prevailed.

His colleagues remembered him as an accomplished musician on piano, violincello, and double bass. He toured the country giving recitals and lectures on Wagner, Liszt, and other major

composers, and developed a five-string cello on which violin music could be played. He received an honorary Doctor of Music degree from New York College of Music.

Professor Simpson Linke, writing in the Winter 1984-85 *Engineering Cornell Quarterly*, cited the following excerpt from Karapetoff's *Electrical Laboratory Notes*, published in 1906, as reflective of the flavor of EE studies in that era:

In coming to the laboratory, bring with you a slide rule, an inch rule or tape, a speed counter, a screw driver and a pair of plyers [sic]. This will save you time and trouble of looking for them or borrowing them. Do not forget to have a pocket knife for skimming off wire; a bicycle wrench is also sometimes very handy to have.

Dr. Karapetoff was the author of several standard texts on electrical engineering that were widely used and revised through several editions, as well as other texts on electrical and magnetic currents, electrical testing, and engineering mathematics.

He was a member of AIEE, the Franklin Institute, the AAAS, the American Mathematical Society, the Mathematical Society of America, the American Physical Society, the U.S. Naval Institute, and the U.S. Naval Reserve Officers' Association.

Eminent Member Listing

Eminent Member	Date Inducted	TITLE AND AFFILIATION	Bridge Vol.	Bridge Number	Bridge Page
V. Bush	01-30-50	President, Carnegie Inst. of Washington	46	3	1
R. W. Sorenson	"	Prof. E.E., California Inst. of Technology	"	"	"
V.K. Zworykin	"	VP. RCA Laboratories	"	"	"
F.E. Terman	01-22-51	Dean, Stanford University	47	3	5
J. Slepian	"	Assoc. Dir. Res., W.E. Corp	"	"	"
K.B. McEachron	"	Mgr. GE Co. Transformer Division	48	2	4
S.H. Mortenson	"	Chief E.E., Allis Chalmers Mfg. Co.	"	"	5
W.H. Timbe	"	Prof. Retired; M.I.T.	"	"	5
L. Deforest	05-02-52	Inventor	48	3	1
C. Molina	01-19-53	Bell Telephone Laboratories	49	2	9
H. Pender	"	Dean, Moore School U of Pennsylvania	"	"	10
C.A. Powel	"	Ass't. To V.P.; Westinghouse Electric Corp.	"	"	12
P. Sporn	"	President, American Gas & Electric Company	"	"	13
W.R.G. Baker	01-18-54	V.P. General Electric Company	"	"	"
M.J. Kelly	"	President, Bell Telephone Laboratories	"	"	"
R. Rudenberg	"	Professor Emeritus, Harvard University	"	"	"
J.B. Black	04-20-54	President, Pacific Gas & Electric Co.	50	4	14
A.A. Potter	10-16-54	Dean EM., Purdue University	51	3	26
E.B. Paine	"	Prof. EM., University Illinois	"	"	"
E.S. Lee	"	Director Engr'g.; G.E. Co.	"	"	"
E.F.W. Alexanderson	01-31-55	Retired, General Electric Co.	51	3	14
A.N. Goldsmith	"	Consultant	"	"	16
H.S. Osborne	"	Bell Telephone Laboratories	"	"	18
H.S. Winne	"	V.P. Retired General Electric Co.	"	"	20
J.B. Whitehead	"	Johns Hopkins University	"	"	19
H.H. Beverage	10-05-55	Director Radio Res., RCA Laboratories	52	1	19
L.N. McClellan	"	Chief Engr., Bureau of Reclamation	"	"	19
W.D. Coolidge	01-30-56	Ass't. Dir. Research Labs., G.E. Co.	52	3	12
H. Niquist	"	Ass't. Dir. Systems, AT&T	"	"	14
L.N. Brilouin	"	Dir. Electronics, IBM	"	"	12
J.G.H. Dellinger	10-03-56	Ch. Radio Technical Commission of Aeronautics	53	2	14
W.B. Kouwenhoven	"	Prof. EM., Johns Hopkins	"	"	15
D.A. Quarles	10-14-58	U.S. Deputy Secretary of Defense	55	2	29
C.F. Hood	10-30-58	President, United States Steel Corp.	"	"	33
P.L. Alger	04-02-60	Retired, General Electric Co.	56	4	10
G. Starr	10-29-60	President, Atomics International	57	2	17
A.D. Moore	09-10-61	Professor, University of Michigan	58	2	18
J.L. Burns	11-14-61	President, RCA	58	2	15
J. Hillier	11-17-61	V.P. RCA Laboratories	58	1	23
C.F. Wagner	11-20-61	Consulting Engr. Westinghouse Elect. Corp.	58	2	17
J. Bardeen	03-29-62	Professor, University of Illinois	58	4	10
I.V. Berkner	"	President, Graduate Research Center, S.W., Dallas	"	"	10
E.M. Percall	"	Gerhard Gade Professor, Harvard University	"	"	10
J.B. Wiesner	10-10-62	Director Research Lab. for Electronics, M.I.T.	"	"	10
E. Webber	11-05-62	President, Polytechnic Institute of Brooklyn	59	2	17
G.S. Brown	03-25-63	Dean, M.I.T.	59	4	6
W.L. Everitt	10-30-63	Dean, University of Illinois	"	"	"
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J.A. Stratton	11-05-64	President, Massachusetts Institute of Technology	"	"	21
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E.T.B. Gross	04-06-76	Philip Sporn Professor of Power Engineering, RPI	72	1	12
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Howard Sheppard	1984	Vice President, Rumsey Electric Co.	81	3	19
S. Reid Warren	1984	Vice President for Eng'g. University of Pennsylvania	81	3	19
Donald Christiansen	1985	Editor and Publisher, IEEE Spectrum	82	3	19
Marcus Dodson	09-13-86	Engineer, Los Angeles Water & Power Co.	83	3	24
William E. Murray	09-19-87	Principal Staff Engr. Douglas Aircraft Co.	84	4	8
Berthold Sheffield	04-18-93	Consultant, Senior Engineer, Retired, RCA	89	3	6
Robert W. Lucky	04-18-93	Vice President, Bellcore	89	4	5
Nick Holonyak, Jr.	12-04-98	John Bardeen, Chr. Prof. EE&CompE& Physics, Cntr. for Adv. Study, Prof. EE & CompE	95	2	8

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