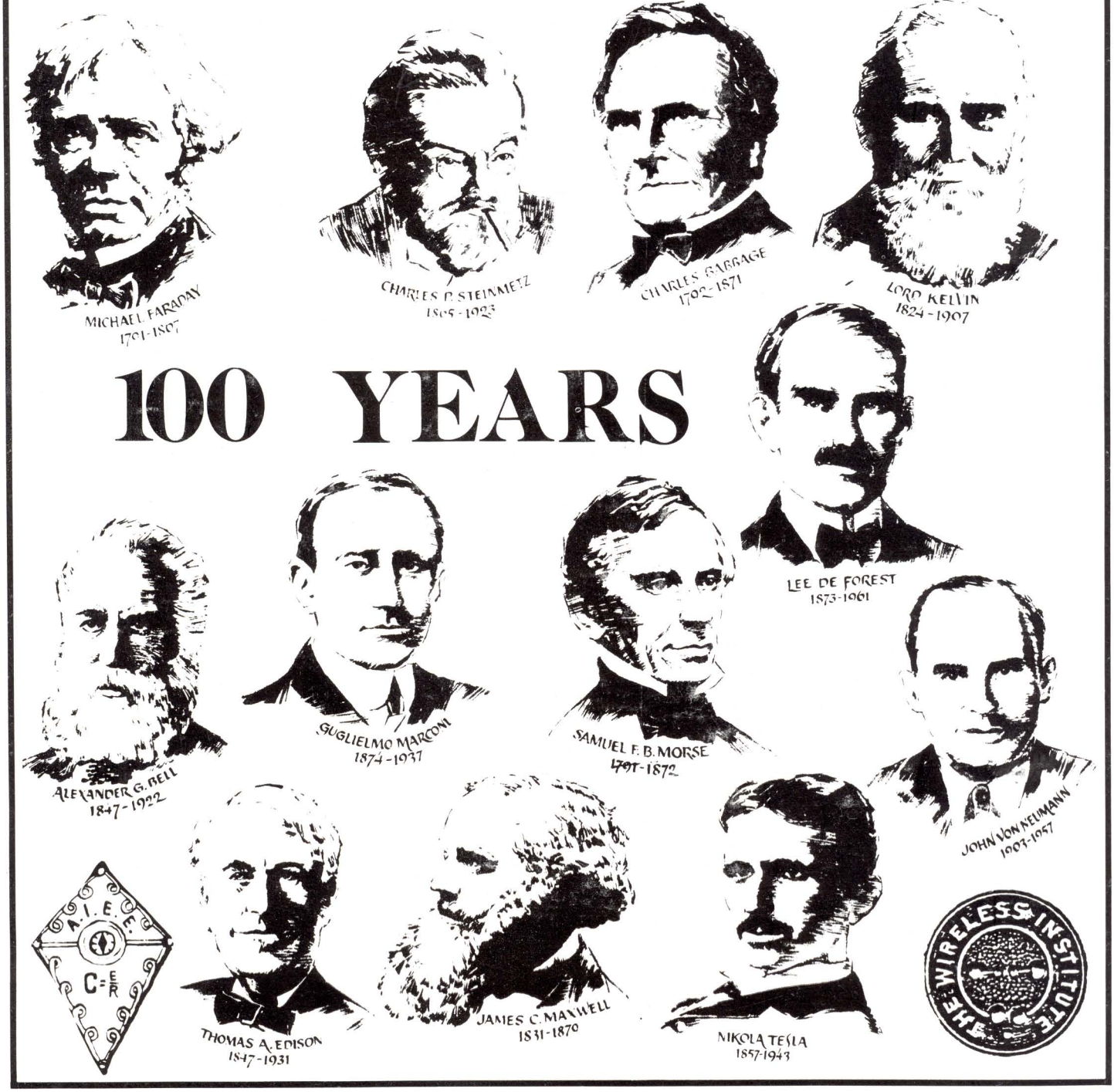
1884 1984
A CENTURY OF ELECTRICAL PROGRESS

ORLANDO SECTION NOTES

VOLUME XX NUMBER 2
OCTOBER 1984



PUBLISHED BY ORLANDO SECTION
INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS

CHAIRMAN'S CORNER

IEEE
CENTENNIAL SALUTE

This year IEEE is 100 years old. This special CENTENNIAL issue of the SECTION NOTES commemorates this occasion with articles on the origins of our society and items of engineering history in the Central Florida area.

One hundred years ago May 13, 1884, the forerunner of IEEE, The American Institute of Electrical Engineers (AIEE) was formed. On October 7, 1884, the first technical meeting of the new society was held.

Today, IEEE is the largest technical society in the world. It has almost a quarter million members in 132 countries. It published over 100,000 pages of technical material last year.

In the following pages you will read about the accomplishments of this international Institute. These accomplishments are all the more impressive when you consider that they result mainly from volunteer effort. Hundreds of individual Electrical Engineers participating at the local level form the backbone of IEEE. These individuals joined by a common bond of appreciation of technology, are proud to be among those who have contributed so much to the world -- the Electrical Engineering Community.

Here, in the Orlando Section, we owe our thanks to the Centennial Chairman, Deen Khandelwal and his Centennial Committee -- George McClure, Russ Theisen, Dave Flinchbaugh, John Gilbert, and Ed Ellis. These volunteers exemplify what makes IEEE what it is. They have donated many hours of their personal time to mark this anniversary of IEEE in a special way. Some of the events they organized include High School Student Essay Contests; donations of reference volumes and an Electrical Engineering Exhibit to the Orlando Public Library; and the upcoming satellite groundstation reception of the IEEE Centennial Program. These, and the many other activities they have orchestrated will surely promote our profession to the general public. In addition to many hours of interviewing, accumulating, documenting and organizing material for this special publication, they have planned special programs for the local Life Fellows, who, I am sure, have a more intimate appreciation of this "Century of Electrical Progress". To the Orlando Centennial Committee -- a sincere THANK YOU! !

Frank Fluet
Chairman, Orlando Section

GUEST EDITOR'S COMMENTS

When I volunteered to serve as guest editor for this centennial issue of the Orlando Section Notes, I expected contributions to flow in, all typed neatly and ready for typsetting. I did learn during WWII not to volunteer for anything, but to make such a mistake this soon after is --- well ---

I have enjoyed it. There is a wealth of EE history and EE expertise residing in central Florida. Some facts I have been unable to follow through before press time, but it was felt more important to publish what we had rather than continue forever more gathering details.

Engineers generally appear (to me, at least) to be very selective as to reading material outside their own small area of specialization, and to be very selective as to the types of activities to expend time on outside business hours. I hope that every member of the Orlando Section will take the time to read this issue from cover-to-cover — not because I put it together, but because the contributors have each done such an excellent job. I also hope at least 200 — 300 of you show up for our October 20 get-together. Although not a centennial year program, I also hope at least 100 — 150 of you come out November 1 to hear Mischa Schwartz.

Ed Ellis — Guest Editor

Centennial Year Souvenir Issue
Orlando Section Notes

Contents

The Orlando Section Notes is published monthly except July, by the Orlando Section of the Institute of Electrical and Electronic Engineers, and is distributed free to all members of the Orlando Section. This centennial issue includes material copyrighted by the IEEE. Advertising rates are as follows:

	1-2 Insertions	3-10
1/4 page (5½ x 2)	$45	$40
1/3 page (5½ x 2¾)	55	50
1/2 page (5½ x 4¼)	65	60
2/3 page (5½ x 5¾)	75	70
3/4 page (5½ x 6¼)	85	80
1 page (5½ x 8½)	100	95
1 sheet preprinted insert	60	60

ORIGINS OF THE ORLANDO SECTION

1984, the Centennial year of the IEEE, is also the Silver Anniversary of the founding of the Orlando Section. An IRE section was chartered in late spring, 1959, and an AIEE section chartered on Sept. 26, 1960. Records of the initial chairman of the IRE have eluded the editor, as have the names of the AIEE chairman for 1962-63, but for those of you who may be able to fill the missing names, the list on page 5 identifies most of the chairs and award recipients through the years.

The drive for forming the AIEE section was led by R.R. Rowell, Jim Layne, J.O. (Bill) Lucius and A.J. Faron. From its inception, the section included two technical groups. The Power group was led by J.L. Munroe, Vic Gardner, A.J. Faron, K. Canell and Bill Lucius; the Communications group was led by W.E. Hahn, Bill Jamieson and M.C. Loper. There were also a Missile Elecrical Systems-East Coast Group and a Missile Electronics Systems-Central Group, but we have no record of their activities.

In 1963, IRE and AIEE were merged nationally. At the section level, E.O. Houseman, John Tracy and Jim Walter from IRE and Jim Layne, Bob Rowell and Bill Jamieson from AIEE had a series of meetings to form a joint section, the Orlando Section of the IEEE. Just as there was at the national level, the local groups were each unsure whether merger was in the best interest of their membership. However, since the merger, the Orlando section has progressed to the point that much of the Florida Council looks to our section for its leadership and for ideas on maintaining a healthy and active section.

Centennial Medal Recipients

The following members of the Orlando Section have been awarded Centennial Medals by the IEEE in recognition of their contributions to our profession. The nominating entity is shown with each recipient:

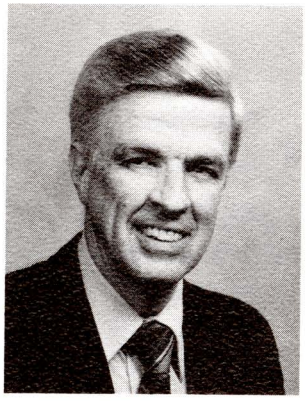
E. E. Erickson	Orlando Section
Joe Massett	Orlando Section
George McClure	Orlando Section
Don Mendorf	Orlando Section
Russ Theisen	Computer Society
Herman Van deVaart	Sonics/Ultrasonics Society
Carl Flick	Section
D. A. Smith	Section

SECTION CHAIRMEN AND HONORED ENGINEERS

	Chairman				Engineer of the Year	Outstanding Service Award
1959-60	IRE					
1960-61	IRE	Al Gray	AIEE	Robert R. Rowell		
1961-62	IRE	Bob Matzinger	AIEE	Robert R. Rowell		
1962	IRE	W. L. Arbuckle	AIEE			
1963	IRE	Wes Eddy	AIEE			
1963-64	IEEE		Ernest Houseman			
1964-65	IEEE	Robert R. Rowell				
1965-66		Bill Jamieson				
1966-67		Jim Walter				
1967-68		John Tracey				
1968-69		J. W. Dees				
1969-70		M. J. Taylor				
1970-71		Joe Pullara				
1971-72		Jim Gay			Bruce Mathews	
1972-73		E. V. Dashiell			Tom Bayston	
1973-74		Karl Lohman			John Boynton	John Tracey
1974-75		J. C. Wiltse			Ed McCarter	Jim Walter
1975-76		H. E. Downing			Dick Harden	Joe Pullara
1976-77		Ed McCarter			George McClure	Russ Theisen
1977-78		Bill Rhoden			Herb Towle	Bill Cram
1978-79		Russ Theisen			Russ Theisen	George McClure
1979-80		Ernie Erickson			Ben Patz	Bill Rhoden
1980-81		George McClure			Don Mendorf	Mannie Connell
1981-82		Ben Patz			Ernie Erickson	
1982-83		Mannie Connell			Dave Flinchbaugh	Joe Massett
1984-84		Ed Ellis			Don Malocha	
1984-85		Frank Fluet				

M. STANLEY BALDWIN
Life Fellow
Fellow 1981.

Born: December 20, 1921, St. Louis, MO. Degrees: B.S.E.E., 1949, Washington University at St. Louis. Fellow Award "For the Development of Analysis Techniques for Power System performance during system disturbances." Member Power Generation Committee, Station Design Subcommittee, IEEE Auxiliaries Systems Working Group. Presently Advisory Engineer, Westinghouse Steam Turbine Generator Division, investigating unit-power system interactions and power system disturbances which affect the generating unit, with responsibility for recommending protection schemes to minimize probability of damage to generating units during abnormal operating or fault conditions.



GEORGE F. McCLURE
Fellow 1981.

Born: February 9, 1933, Jacksonville, FL. Degrees: B.E.E., 1954, M.S. (Eng.), 1961, University of Florida.

Fellow Award "For contributions to mobile telephone communications systems engineering and the creation of new and more effective methods of spectrum utilizaiton."

Employed by Martin Marietta, Mr. McClure is very active in the Orlando section, having served as Section Chairman and as Chairman of numerous committees. He is a member of the board of directors of the Vehicular Technology Society and has served as editor of the IEEE Transactions on Vehicular Technology since 1975. He was general chairman of the 1977 Vehicular Technology Conference and the 1981 IEEE AUTOTESTCON. He has received the Engineer of the Year Award (1977) and Outstanding Service Award (1979) from the Orlando section, and received the first Outstanding Service Award ever presented by the Vehicular Technology Administrative Committee. Since 1978, he has served on the Joint Telecommunications Advisory Committee (JTAC)

GEORGE W. BAUGHMAN
Life Fellow
AIEE Fellow 1957

Born: February 11, 1900, Gilboa, Ohio. Degrees: B.E.E., 1920, E.E., 1924, Ohio State University.

Fellow Award "For his contributions to the design and application of railway control systems"; Elmer A. Sperry Award, 1971. Other Awards: Eta Kappa Nu, 1919; Tau Beta Pi, 1920; Sigma Xi, 1935; Fellow, Institute Railway Signal Engineers, Great Britain; Lamme Medal, Ohio State University, 1978; Who's Who in Engineering, Who's Who in the World, Who's Who in America, American Men of Science. The contributions referred to as basis for the Fellow Award were. largely because of his pioneering work in centralized traffic control for railroads. There was rapid acceptance by all of the principal railroads in the U.S. and later by all major railroads in the world. Now retired, Mr. Baughman holds 110 U.S. Patents.

A. HAMILTON POWELL
Life Fellow
Fellow 1964

Born: December 24, 1914, Boston, Mass. Degrees: B.S.E.E., 1937, Worcester Polytechnic Institute.

Fellow Award "For development of high-power switching equipment and advancement of high voltage power systems." Other Awards: Tau Beta Pi, 1936; Associate Member, Sigma Xi, 1937; Certificate of Commendation, U.S. Dept. of Navy, 1947.

Now retired, most of Mr. Powell's professional career was spent with General Electric in high voltage system work, including design and manufacture of HV switches, relays and control systems, and outdoor stations. Since retirement he has been a volunteer, doing design of electrical systems for mission and hospital facilities in the U.S., Kenya, Italy and Ecuador. He is a registered professional engineer in three states and holds 15 U.S. Patents.

DAVID S. RAU
Life Fellow
IRE Fellow 1960

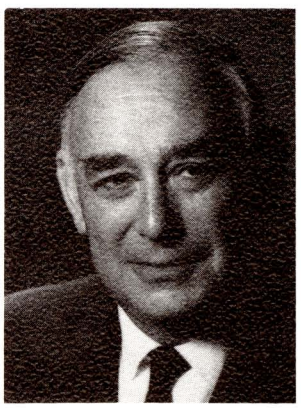
Born: April 23, 1899, Little Egg Harbor, N.J. Degrees: B.S., 1922, United States Naval Academy.

Fellow Award "For contributions to international radio communications systems." Other Awards: Commendation Ribbon, U.S. Dept. of Navy, 1946; Achievement Award, Communications Technology Group, 1969.

Mr. Rau joined the Radio Corporation of America when he was graduated from the United States Naval Academy at Annapolis in 1922. He was assigned to the Rocky Point high power transmitting station as one of its first student engineers.

Mr. Rau has served in numerous engineering capacities with R.C.A. in New York, California, and the Philippines. At the outbreak of World War II, he returned to active duty with the U.S. Navy and rose from the rank of lieutenant commander to captain on the staff of the Director of Naval Communications.

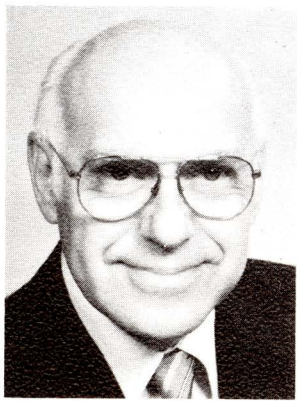
Subsequent to the war years, he returned to the engineering department of RCA Communications, Inc., and was promoted through various levels of management until, in 1952, he was elected vice president and chief engineer of the company, which position he held until retirement in 1964.



HANNS H. WOLFF
Life Fellow
Fellow 1972

Born: December 19, 1903, Berlin, Germany. Degrees: Cand.Ing., 1926, Dipl.Ing., 1928, Dr.Ing., 1945, Dr.Ing.habil., 1946, Technical University, Berlin.

Fellow Award "For contributions and leadership in the field of simulation systems for training." Other Awards: Radio Amateur; Adjunct Professor, Polytechnic Institute of Brooklyn. At the time of his retirement in 1975, Dr. Wolff was Technical Director of the Naval Training Equipment Center in Orlando, where he had worked for twelve years. His earlier professional years included assignments in automatic telephone switching, vacuum tubes, precision measurements and theoretical physics. In recent years he has done consulting in display and printing systems and in non-technical fields.



ROBERT S. WISEMAN
Fellow 1970

Born: February 27, 1924, Robinson, Illinois. Degrees: B.S., 1948, M.S., 1950, Ph.D., 1954, University of Illinois.

Fellow Award "For scientific leadership and research and development in devices for image detection in darkness." Other Awards: Fellow, Illuminating Egnineering Society; Honors Bronze Tablet, University of Illinois, 1948; Outstanding and Sustained Performance Awards, Dept. of Army, 1959 through 1981; Meritorious Civilian Award, Dept. of Army, 1965; Research and Development Achievement Award, Dept. of Army, 1965; Exceptional Civilian Service Award, 1968; Dept. of Defense Distinguished Civilian Service Award, 1969; President Senior Executive Service Distinguished Executive Award, 1980; Distinguished E.E. Alumni Award, University of Illinois, 1980.

Dr. Wiseman started working in image intensification at the U.S. Army Research facilities in Ft. Belvoir in 1954 and at the time of receiving the fellow award was technical director for the U.S. Army Electronics Command in Ft. Monmouth. In 1979 he was named Assistant Deputy for Science and Technology, U.S. Army Material Development and Readiness Command Headquarters, in charge of technology based programs. He resigned this position in 1981, and joined Martin Marietta where he is presently Director, Electro-Optics Engineering, managing the company's work in infra-red, lasers, TV and related signal processing. He is also Deputy Director of Research and Technology at Martin Marietta.

HUGH E. WEBBER
Life Fellow
Fellow 1965

Born: July 11, 1914, Ludlow, Ill. Degrees: B.A., 1937, Ohio State University.

Fellow Award "For pioneering work in fundamental microwave measurements"; Engineer of the Year Award, Central Florida Section, 1963. Other Awards: Associate Fellow, American Institute of Aeronautics and Astronautics, 1960; "Who's Who in America," 1963; Citation, Florida Engineering Society, Central Florida Chapter, 1964; "Who's Who in Engineering," Engineers Joint Council, 1977; "Who's Who in the South," 1984.

Mr. Webber was one of the principals involved in establishing electronics research and development facilities in Central Florida, including that at Martin Marietta, and was a pioneer in persuading the state to add engineering educational facilities as a prerequisite to luring research operations to the state.

Standard Waveguide Sizes

A recollection by Hugh E. Webber

W. W. Hansen and the Varian brothers had just brought the Klystron tube from Stanford University to Sperry Gyroscope Co. on Long Island for instrument landing purposes when the U.S. entered W.W.II. S-band radar was quickly developed but it soon became extremely urgent to put X-band radar on our bombers in greatest secrecy. Bill Hansen sent the writer to the headquarters of Revere Copper and Brass, in Connecticut, to select "hand rail" sizes and to assure that inside dimensions of these "hand rails" were better controlled.

In short, hand rails for which inside dimensions came closest to our needs for S-, C-, X- and K-bands, were selected to provide immediate availability. Revere could only wonder at why the military would pay a premium for die replacements to assure accuracy of the inside dimensions on hand rails.

What's Watts

A recollection by Hugh E. Webber

A part of my initial assignment by Bill Hansen at Sperry in 1940 was to find a way to measure the output of the new Klystron microwave tubes. There were no wattmeters at all but the two-cavity Klystrons frequently worked so well that the technique of putting a finger over the coaxial output would tell one how well the tube was tuned — up to the point where volunteers became scarce. Water type calorimeters were useful and reasonably accurate, but slow, particularly for the tuning process. After many failures, the writer came up with the barreter and its bridge circuit. This instrument became the international standard microwave wattmeter and was the basis of several patents.

During this period, Sperry was manufacturing a small number of Klystrons for other companies, including Bell Laboratories. Bells qualification required tube certification as including output measurement to verify output as specified by Bell. Bell retested the tubes, but consistently reported lower outputs than that measured by the "Webber barreter wattmeter" at Sperry. Klystrons were in short supply, so were generally accepted despite the measurement discrepancy which would normally disqualify the tubes, but not without complaints about their output being in "Webber Watts", rather than "Watts Watts". It was not until the U.S. Bureau of Standards and the English Bureau of Standards had both adopted the Webber barreter as standard, that the smaller "Webber Watts" were acceptable to Bell as a real "Watts Watt".

LIFE MEMBERS IN ORLANDO SECTION

As of September 15, 1984, the Orlando Section of IEEE has 69 Life Members. The breakdown under various categories is as follows:

Life Fellows	6
Life Senior Members	33
Life Members	29
Life Associates	1

Life membership is granted retired members of IEEE if the sum of their age and years of membership equals or exceeds 100. These qualifications automatically imply that in our life members we have a great wealth of history, of experience, and of interesting stories. We attempted to gather information from as many of these 69 members as could be reached.

Some of these Life Members have provided us a brief write up of their major professional accomplishments and contributions. We have summarized these here for general interest. Photographs of our Life Fellows and a brief biographical description is covered on pages 6-10 of this special issue.

Robert L. Batts, Sr.

Designed and built the first successful mobile police radio. It was built forthe Detroit Police Department and was first on the air on April 7, 1928. Detailed story is available with the guest editor. Mr. Batts' first major career was with Indianapolis Police and Fire Communication (22 years) and his second major career was with Motorola (21 years).

George W. Baughman

44 years with Union Switch and Signal and its parent company Westinghouse Air Brake. He placed in service (commercially), the first copper oxide rectifier for automatic train control (1925), has 110 U.S. patents and foreign patents and had been very active in IEEE Pittsburgh section and on various IEEE boards and committees. He received Elmer A. Sperry award in 1971 and B.G. Lamme Gold Medal from Ohio State University in 1978. A working model of one of his systems for Remote Control of Railway Signals is at the Smithsonian Institute. Mr. Baughman's professional carrier included assignments as Chief Engineer of Union Switch and Signal and as Vice President of Westinghouse Air Brake.

Hugh E. Webber

Inventor of Microwave wattmeter with several patents in the area of Microwave power measurement, which earned him the award of a Fellow of IEEE. Mr. Webber's career includes leadership in research and development at Sperry and later starting the research and development departments at Martin Marietta. He was instrumental in persuading the state to establish Florida Southern University.

Homer R. Denius

Co-founder of Radiation Inc. in Melbourne, FL in 1950, which was sold to Harris in 1967 when there were 4500 employees with over 1000 engineers. Mr. Denius led to founding of the First National Bank of Melbourne in 1958 and was instrumental in establishing Florida Institute of Technology. In 1960, he established Denius Foundation which supported FIT and charitable and medical organizations. He continues to enjoy riding, hunting, and fishing, and has participated in many ocean races as a sailor and navigator.

John L. Glauber

Through IRE meetings in New York, he met such celebrities as Thomas Edison, Lee de Forest, Edwin Armstrong, Louis Hazeltine, etc. Mr. Glauber has been active in amateur radio since 1921.

A. Hamilton Powell

Technical activities in the area of high voltage power systems including design and manufacture of outdoor stations, power circuit breakers, current limiting power fuses and control systems. Since retirement, he has been involved in designing and installation of electrical systems for mission work around the world. He keeps up-to-date in the power area through IEEE magazines.

James O. Pease

Actively served IEEE Washington Section of AIEE heading various committees and section chairs for about 25 years while he was first the manager of the Washington D.C. office and later Division Vice-President of Utility Division of Rumsey Electric Co. of Philadelphia. He retired in the early 1970s, moving to Winter Park in 1977.

ORIGINS OF THE IEEE

The International Electrical Exhibition, sponsored by the Franklin Institute in Philadelphia in 1884, was the event that spurred the founding of the American Institute of Electrical Engineers. Telegraph communications had spread across America and through undersea cable to Europe and electric lighting was expanding in application from Thomas Edison's original generating station on Pearl Street in New York. The exhibition would attract foreign visitors in electrical technology who would expect to find an "American electrical national society" as a counterpart to the existing societies for civil, mining, and mechanical engineers.

Thirty electrical practitioners met in New York on April 15 to organize the electrical engineering society. The following month organizational rules were adopted, the first general meeting was held, and officers were elected. The president of the Western Union Telegraph Company, Norvin Green, was elected president. Thomas A. Edison and Alexander Graham Bell were elected as two of the six vice presidents.

The first AIEE technical session was held on October 7-8 at the Franklin Institute during the Exhibition. The papers presented were published in the first volume of *Transactions of the AIEE*, issued in 1884. The first paper, "Notes on Phenomena in Incandescent Lamps," discussed the Edison Effect, the phenomenon that became the foundation of electronics.

The development of standards was an important activity of the AIEE. The AIEE's first action in standardizing units was to adopt the name "henry," after Joseph Henry, secretary of the Smithsonian Institution, as the unit of inductance, in 1890. The Committee on Standardization was established in 1898 to set up acceptance test standards for electrical machinery.

In 1902 the first local sections were formed, in Chicago and Ithaca, New York. The first student branch was formed that year at Lehigh University. The following year the first section outside the U.S. was formed in Toronto.

The Institute of Radio Engineers was formed in 1912 out of remnants of The Wireless Institute and the Society of Wireless Telegraph Engineers. Robert H. Marriott was elected president and, for 41 years, Alfred N. Goldsmith served as editor of *The Proceedings of the Institute of Radio Engineers,* first published in 1913. The IRE consciously attempted from the outset to become an international society. By 1915 there were 83 members from eleven countries other than the United States. Its first Fellow, chosen in 1914, was Jonathan Zenneck, of Germany.

The first student branches were formed in 1947. The first two Professional Groups were formed in 1948, "Audio" and "Broadcast Engineers". These formed the basis for the later IEEE technical Societies. Although one of the smallest of the major engineering societies for the first 30 years of its existence, as electronics technology expanded the IRE's membership soared past that of the AIEE after World War II. In 1963 members of both the AIEE and IRE approved a merger to form the Institute of Electrical and Electronics Engineers.

CENTENNIAL ACTIVITIES IN ORLANDO SECTION

CENTENNIAL SOUVENIERS

To commemorate its centennial, the IEEE has made available for purchase, a number of articles. To encourage the Orlando Section members to purchase these mementoes, samples of all the available items have been obtained for members' inspection prior to ordering. These samples are still accesible and if you would like to see, please contact Dr. Khandelwal at 356-2583. Our section has purchased two centennial banners and if you would like to borrow them for display during a function, please contact Frank Fluet at 843-7030.

LIFE MEMBERS AND CENTENNIAL

To encourage the participation of the IEEE Life Members in the centennial activities in the Orlando section, two meetings were held with the life members on March 14, and May 12, 1984. These meetings provided an unusual forum for the life members to remember the good old days and good old techniques in the professional atmosphere. In one of these meetings, the IEEE history slides were shown. This 33 minute very well prepared show entitled "A Century of Electricals" is still available for borrowing and screening by you for a group of your choice. To make arrangements, please contact Dr. Khandelwal.

IEEE STANDARDS IN PUBLIC LIBRARY

With support from IEEE Headquarters and Martin Marietta Orlando Aerospace, the Oralndo Section of IEEE has placed the complete set of IEEE/ANSI Standards (hard copies) in the Orlando Public Library for the use of our members as well as the public. In addition to these standards, the Orlando Section has placed the following additional books in the library.

1 Engineers and Electrons by Fink and Ryder
2 IEEE Standard Dictionary of Electrical and Electronics Terms
3 The Making of a Profession
4 IEC Multilingual Dictionary of Electricity
5 Land - Mobile Communications Systems Engineering, Edited by Sam McConoughey, George McClure and Denis Bodson

CENTENNIAL CONVOCATION

Arrangements have been made to bring the IEEE Centennial Convocation live via satellite from Franklin Institute in Philadelphia. The screening will be at the UCF Campus on Monday, October 8, 1984 at 8:30 pm for two hours. The event is brought to you free of charge. However, since the seating is limited, the admission is by reservation only. If you have not already made reservations, please call George Taack at 339-1600.

IEEE HISTORY POSTERS

We have procured one complete set of IEEE history posters. You are invited to borrow these for display in your place of work or for other activity. There are posters of approximately 2½ ft. x 4 ft. with such titles as: Thinking with Machines, The Test of War and Peace, The Ether in Harness, The Micro World, A Century of Electricals.

A DAY WITH LIFE MEMBERS

A day with life members is planned for Saturday, October 20, 1984 at Casselberry Senior Citizen Center at 11:00 am. This will be an open forum with Life Members to talk about their contributions to the history of IEEE. Engineers' Hall of Fame Honoree, Dr. John D. Ryder will also be present. Dr. Ryder, Chairman of the IEEE Centennial Task Force will be talking on "The AIEE - IRE Merger - An Event of Our Century" and will discuss several items of history which are not well known. Hearty hors d'oeuvres will be served, compliments of IEEE. All activities are free of charge. Please call Al Levy at 305-356-7411 to make reservations.

ELECTRICAL ENGINEERING EXHIBITION

An exhibition of pre-World War II electrical items is being put together first for display on October 29, 1984 during the observation of a day with Life Members. A number of items have been made available by our Life Fellow, Dr. H.H. Wolff and the display preparations are being made by the IEEE Student Branch at University of Central Florida.

MEETING NOTICE
ORLANDO SECTION IEEE
MTT & AP SOCIETY

SPEAKER
DR. OREN B. KESLER
ANTENNA LABORATORY
TEXAS INSTRUMENTS, INC.

There has been a renewed interest in reducing the radar cross section (RCS) of airframes, weapons and other targets. It has long been recognized that the reduction in the RCS is one of many tradeoff parameters that affect the success of a mission. However, only recently has there been a concerted effort to field new hardware designed with reduced RCS as a goal. Developments in Microwave Technology and Analysis are just two of the factors that have influenced the reduced radar cross section (RRCS) trend.

Dr. Kesler will give an overview of the problem of reducing the radar cross section and briefly describe the past work. Developments in mesurement techniques, particularly in compact range, will be discussed and data shown. Electromagnetic scattering analysis techniques and issues that affect RCS prediction will be considered and illustrated with examples. And, finally, projected trends in radar signature technology will be given.

TOPIC

RADAR SIGNATURE TECHNOLOGY

PLACE AND TIME: HEWLETT PACKARD COMPANY, LAKE ELLENOR DRIVE
NOVEMBER 15, 1984 5:30 P.M.
DINNER AT GARY'S DUCK INN AFTER THE TALK

IEEE CENTENNIAL LIFE MEMBERS DAY

TIME: **11 AM to 4 PM Saturday October 20, 1984**
LOCATION: Casselberry Senior Citizens Center
COST: FREE (Reservations Required)
SPEAKER: **Dr. John Ryder, Chairman IEEE Centennial Task Force**
RESERVATIONS: Al Levy 356-7411 (office) or 843-7619 (home)

ACTIVITIES FOR IEEE CENTENNIAL LIFE MEMBERS DAY

11:00 to 12:00 Dr. John Ryder's talk "The AIEE - IRE Merger - An Event of Our Century."

12:00 to 1:00 Luncheon

1:00 to 3:30 Round Table Discussion between life members, section members and Dr. Ryder.

3:30 to 4:00 Drawing for door prizes

The historical exhibit may be viewed at any time during the day.

Dr. John Ryder is the chairman of the IEEE Centennial Task Force and will address a meeting of the section members and life members on October 20th. Dr. Ryder received his BEE and MSEE degrees from Ohio State in 1928 and 1929 respectively. He was subsequently employed by GE, Schenectady , in vacuum and gas tube development. From 1931 to 1941, he worked at Bailey Controls in charge of industrial electronic applications. While there he received 24 patents covering small motor control and temperature measurement.

In 1941 he joined Iowa State University as an Assistant Professor of EE, received his doctorate in 1944 there and became a full professor. With a collaborator he designed the Iowa State High-Frequency Network Analyzer (10,000 Hz). This lead to close relations between the EE department at the university and midwest utilities. He was appointed Assistant Director of the Iowa Engineering Experiment Station in 1947.

In 1949, he became head of the EE Department, University of Illinois, and in 1954 was made Dean of the College of Engineering at Michigan State, East Lansing. In 1966-68 he served as Vice-Chief of the USAID Higher Education Project in Rio De Janerio, Brazil. Upon his return he became Professor of EE and moved to Florida in 1972. He has also taught at the University of Florida.

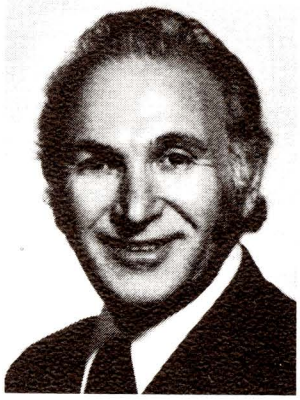
He is probably most famous as the author of a number of textbooks. He has written seven textbooks in electronics and circuit theory, as well as many technical papers. His most recent effort was a history of the electrical engineering profession with D. G. Fink, published by the IEEE press in February, 1984, as "Engineers and Electronics."

He was president of the IRE in 1955 and Editor of all IRE publications in 1958 and 1959. He was a member of the 14-man Merger Committee to form the IEEE from the IRE and AIEE, and was first Editor of their publications as well as a member of the first Board of Directors.

He has been chairman of IRE and IEEE Education Committees, Chairman of the IEEE Fellow Award Committee, and in 1976 was co-editor of the Proceedings Centennial Issue. In 1974, he was executive vice-president of the IEEE, and has received the Haraden Pratt Award of the IEEE in 1979.

In a 1983 poll conducted by Spectrum, Dr. Ryder was named as one of the ten all-time electrical educators.

JOINT MEETING
COMMUNICATIONS SOCIETY
AND ORLANDO SECTION



Thursday, November 1, 1984

TIME: Cash Bar 6:45 p.m.
Dinner 7:30 p.m.

MEETING LOCATION: Orlando International Airport Marriott (off S.R. 436)

SUBJECT: **Computer Communications Networks: Past, Present and Future**

SPEAKER: **Mischa Schwartz**

COST: **$15.00**

MEAL: Petite Filet
(If reservations are received by Friday, October 26, it may be possible to substitute a seafood entree, or arrangements can be made to substitute a vegetable plate (for religious reasons.)

Mischa Schwartz (S'46—A'49—M'54—SM'54—F'66) received the B.E.E. degree from Cooper Union, New York, NY in 1947, the M.E.E. degree from the Polytechnic Institute of Brooklyn, NY in 1949, and the Ph.D. degree in Applied Physics from Harvard University, Cambridge, MA in 1951.

From 1947 to 1952 he was a Project Engineer with the Sperry Gyroscope Company, working in the fields of statistical communication theory, radar detection, and radar design. From 1952 to 1974, he was Professor of Electrical Engineering at the Polytechnic Institute of Brooklyn, serving as Head of the Electrical Engineering Department from 1961 to 1965. During the year 1965-1966, he was an NSF Science Faculty Fellow at the Laboratoire de Physique, Ecole Normale Superieure, Paris, France. During the academic year 1973-1974, he was a Visiting Professor at Columbia University, New York, NY. He joined that institution in September 1974 as Professor of Electrical Engineering and Computer Science. For the 1980, calendar year, he was on leave as a Visiting Scientist with IBM Research.

Dr. Schwartz is a Fellow and former Director of IEEE, formerly Chairman of the IEEE Information Theory Group, on the Board of Governors of the IEEE Communications Society, was Vice-President and currently President of that Society. He is author or coauthor of six books on communications, signal processing, and computer communication networks, and has published extensively in the technical literature. He is on the editorial boards of Networks, Computer Networks, Performance Evaluation, and the Journal of Telecommunication Networks. He has lectured extensively both in this country and abroad on various aspects of communication theory, communication systems, digital communications, and computer communications. He was a recipient of a Distinguished Visitor Award in 1975 from the Australian-American Education Foundation. He is a Fellow of the AAAS, and past Chairman, Commission C, U.S. National Committee/URSI. He has been a consultant on communications, computer communications, signal processing and radar to many companies.

In 1983, Dr. Schwartz was the recipient of the IEEE's annual Education Medal. In a 1983 poll conducted by Spectrum, Dr. Schwartz was voted one of the ten all-time top Electrical Engineering Educators.

RESERVATIONS: Please make reservations by Monday, October 29, by calling:

George Taack 224-1389 or 849-3000 or
Ed Ellis 224-1203 or 849-3000

Student members should make their reservations with Dr. Madjid Belkerdid or Dr. Don Malocha at UCF, by Friday, October 26.

NOTE: Due to the cost involved, a reservation will constitute the same as a ticket sale. The person making the reservation will be responsible to pay for the event unless the commitment is withdrawn prior to the Section providing the guarantee count on October 29th.

MEETING NOTICE
ORLANDO SECTION IEEE
MTT & AP SOCIETY

SPEAKER
PROF. BEN MUNK
THE OHIO STATE UNIVERSITY
DISTINGUISHED AP-S LECTURER

ABSTRACT: Although various forms of phased arrays have been built, a number of fundamental concepts remain to be understood and developed. Among these is the impedance which varies greatly with scan angle in what was believed to be "nature's way." In fact, "proofs" to this effect have been readily presented in the general literature. It will be shown, however, that it is possible and even practical to place a scan compensating device between the elements and free space such that a reduction of the impedance variation is obtained. It will also be shown that by proper design, a VSWR less than 1.6 for scan angles varying $\pm$ 80° in any plane is possible. (without scan compensation a VSWR of approximately 5 would result.) Finally, some interesting results from a recent investigation concerning the finiteness of phased arrays will be given.

Benedikt A. Munk (M'61) was born in Fredericia, Denmark, on December 3, 1929. He received the M.SC.E.E. degree from the Polytechnical Institute of Denmark, Copenhagen, Denmark, in 1954, and the Ph.D. degree in Electrical Engineering from Ohio State University, Columbus, 1968. Dr. Munk is a member of Sigma Xi. He also holds several patents in the area of metallic radomes, phased arrays and atennas.

TOPIC

SCAN INDEPENDENT PHASED ARRAYS

PLACE AND TIME: HEWLETT PACKARD COMPANY, LAKE ELLENOR DRIVE, OCTOBER 18, 1984
5:30 P.M.
DINNER AT GARY'S DUCK INN AFTER THE TALK

THE EVOLUTION OF THE IEEE EMBLEM

Over the past 100 years the emblems used by the Institute of Electrical and Electronics Engineers and its predecessors have undergone several changes. The present badge is an amalgam of the designs used by the American Institute of Electrical Engineers and the Institute of Radio Engineers. Those badges were in turn preceded by earlier designs.

The first AIEE badge, adopted February 21, 1893, was replete with elaborate symbolism. The shape was taken from the kite Benjamin Franklin used to demonstrate the identity between lightning and electricity. The border of the kite formed a schematic representation of a Wheatstone bridge. In the center a tiny galvanometer represented magnetism and induction. The galvanometer needle was of blued steel, and was covered with an amber disk. The amber had a two-fold symbolism. It referred first to the discovery of static electricity by ancient Greek philosophers who noticed that when amber was rubbed it attracted light particles. It also referred to William Gilbert's coining of the word electricity from electron, the Greek word for amber. Finally, above the galvanometer were the letters AIEE, and below was the algebraic statement of Ohm's Law. (Note that C, not I, was used for current).

This elaborate emblem was apparently less than satisfactory, for in 1895 twenty AIEE members signed a petition asking that a better design be devised. On May 18, 1897 a new design was adopted and this simpler emblem survived, with slight modifications in proportions, until the merger of the AIEE with the Institute of Radio Engineers.

The symbolism of the new badge was summed up by Dr. Schuyler Skaats Wheeler, chairman of the committee which created the design. The form was chosen, said Wheeler, "after considerable thought, as a symbol of the broadest principle that could be found underlying our profession. Electricity always surrounds magnetism, and magetism always surrounds electricity and each forms a closed circuit; therefore the relation between them is always that of 2 closed links which pass through each other, and this holds true of course in every application of electricity or magnetism."

October 1984

Sun	Mon	Tue	Wed	Thu	Fri	Sat
First Quarter 1-31	1	2 EXECUTIVE COMMITTEE SECTION MEETING 5:30 PM 1200 W. COLONIAL	3	4	5	6 YOM KIPPUR
7	8 IEEE-FRANKLIN INSTITUTE CENTENNIAL TECHNICAL CONVOCATION VIA SATELLITE FROM PHILADELPHIA (see page 13)	9	10	11	12	13
14	15	16	17	18 AP/MTT PROF. BEN MUNK DISTINGUISHED LECTURER FREQUENCY SELECT. SURFACES & ARRAY ANTENNAS 5:30 PM HEWLETT PACKARD (see page 16)	19	20 LIFE MEMBER CENTENNIAL MEETING 11 AM — 3 PM LUNCH-TALK-EXHIBIT DR. JOHN RYDER (see page 14)
21	22	23	24	25	26	27
28	29	30	31 HALLOWEEN	Full Moon 9		

November 1984

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		New Moon 22	First Quarter 30	1 JOIN SECTION-COMMUNICATIONS CHAPTER MEETING MISCHA SCHWARTZ (see page 15)	2	3
4	5	6 Election Day EXECUTIVE COMMITTEE MEETING 5:30 PM ELECTION DAY	7	8	9	10
11 Veteran's Day	12	13	14	15 AP/MTT NAT'L LECTURER DR. OREN B. KESLER REDUCING THE RADAR CROSS SECTION (see page 13)	16	17
18	19	20	21	22 Thanksgiving Day	23	24
25	26	27	28	29	30	

CENTENNIAL HALL OF FAME

Today's electrical engineers select the major contributors — technical, industrial, and academic — to the profession and society

In 1983, as the IEEE approached its 100th anniversary, *IEEE Spectrum* invited its readers to help select an Electrical Engineering Centennial Hall of Fame. The announcement and ballot were included in the April issue of *Spectrum*. The inspiration for the Hall of Fame stemmed from a similar poll taken of its members at the turn of the century, when the American Institute of Electrical Engineers, one of the IEEE's predecessor societies, was barely 16 years old. At that time, of course, it was possible only to ask members to list the greatest names in electrical science and invention during the nineteenth century: no attempt was made to develop separate lists of technical, industrial, and academic contributors. The results of the recent poll are presented below. Note that two of the all-time top educators are scheduled to talk to the Orlando Section within the next 60 days.

TOP TECHNICAL CONTRIBUTORS

Prior to 1900	1900 through 1939	1940 to present
1. James C. Maxwell	1. Lee de Forest	1. William B. Shockley
2. Thomas A. Edison	2. Charles P. Steinmetz	2. Claude E. Shannon
3. Michael Faraday	3. Edwin H. Armstrong	3. John Bardeen
4. Nikola Tesla	4. Guglielmo Marconi	4. John R. Pierce
5. Guglielmo Marconi	5. Thomas A. Edison	5. Walter H. Brattain
6. Heinrich R. Hertz	6. Ernst F.W. Alexanderson Vladimir K. Zworykin	6. John von Neumann
7. Alexander G. Bell	7. Oliver Heaviside	7. Vladimir K. Zworykin
8. Andre M. Ampere Charles P. Steinmetz	8. Nikola Tesla	8. Edwin H. Armstrong
9. Oliver Heaviside Joseph Henry	9. Michael Pupin	9. John W. Mauchly
10. Georg S. Ohm	10. Harry Nyquist	10. Robert N. Noyce

ALL-TIME TOP ELECTRICAL ENGINEERS

Technical contributors	Industrial Contributors	Educators
1. James C. Maxwell	1. David Sarnoff	1. Frederick E. Terman
2. Thomas A. Edison	2. George Westinghouse	2. William L. Everitt
3. Charles P. Steinmetz	3. Thomas A. Edison	3. John D. Ryder
4. Michael Faraday	4. David Packard	4. Ernst A. Guillemin
5. Nikola Tesla	5. Simon Ramo	5. Michael Pupin
6. Alexander G. Bell	6. William Hewlett	6. Ernst Weber
7. William B. Shockley Edwin H. Armstrong	7. Alexander G. Bell	7. Jacob Millman
8. Heinrich Hertz	8. Werner Siemens	8. Vannevar Bush
9. John Bardeen Guglielmo Marconi	9. Charles A. Coffin	9. Mischa Schwartz
10. Lee de Forest	10. Gordon Moore	10. Arthur E. Kennelly

VEHICULAR TECHNOLOGY CHAPTER

A chapter of the IEEE Professional Group on Vehicular Technology was formed by petition in 1975 within the Orlando Section. This chapter reflected local activity in design of digital radio paging equipment and mobile telephone systems. It attracted the 1977 International Vehicular Technology Conference to Orlando, co-sponsored by the Orlando Section. The organizer of the chapter, its first chairman, and general chairman of the conference was George McClure. Melvin Kelch was elected the second chairman of the chapter, a position he has held ever since.

With the transfer away from Orlando of the mobile communications engineering activities that were the impetus for the chapter's formation, steps were taken to form a joint chapter for communications and vehicular technology. This was approved by both national societies but was never implemented by the chapters.

COMMUNICATIONS SOCIETY

The present Communications Society Chapter is a continuation of the older AIEE communications technical group. Membership through the years has been closely bound to Southern Bell, Winter Park Telephone/United Telephone, and in recent years Stromberg Carlson. Martin Marietta and FTU/UCF have also been a source of leadership and active participation in activities.

The Communications Society has fluttered between feast and famine, having had several "near-death" periods. Details of earlier famines have not been uncovered, but in the late 1970's participation lagged and was revived under leadership of Don Mendorf and Ed Ellis, of Stromberg-Carlson. With the split-up of AT&T, which affected the Southern Bell engineers then leading the group, the chapter again floundered in 1983 until Madjid Belkerdid and Michael Harris, of UCF picked up the reins.

POWER ENGINEERING SOCIETY AND INDUSTRY APPLICATIONS GROUP

The Orlando chapter of the Power Engineering Society (then part of the AIEE) was established in the early sixties mainly through the efforts of Homer Wilson (FPC) and the support of Hughes Supply Company. In 1969 Jim Gay (Consultant) succeeded in establishing the Industrial and General Application Group (now IAS) as a joint group with PES under the IEEE. The Industry group was formed because of the growing number of manufacturing firms moving to the Orlando area. In the early 70's Windell Dixon (OUC) played a major role in filling the program roster with interesting and current presentations. Bill Cram held office in the middle 70's and arranged many popular dinner meetings. The late 70's and early 80's were lean years for the group in terms of number of active members. During this period Geoff Dick (now of Martin Marietta) and Joe Miller (FPC) held the group together and provided vital and informative technical programs.

The program topics of the PES and of the PES/IA reflect the changes in the power industry during the past two decades: Think about being in Kissimmee on a fall day with steaks sizzling on the grill. The time is the early 60's and there is another record turnout of the PES at Roy Hansel's famous annual barbecue. Throughout the 60's the electric utility industry expanded rapidly with kilowatt consumption nearly doubling during the decade. Topics at the PES meetings dealt with means of coping with this high growth rate. They included voltage regulation and flicker, on-site generation, the use of digital computers in the electric utility industry and solid state switching and controls. Jump ahead now to 1978 and find an intense audience listening to W.M. Leaders explain his theory that deep under Winter Park there is uranium to be mined. In the 70's the environment impact and energy conservation influenced the power industry as evidenced by presentations on environmental monitoring, energy management and a discussion of ecology versus energy. Now skip ahead to 1983 and listen to Dr. Avelino Gonzalez explain and demonstrate how artificial intelligence is being applied to increase Turbine generator reliability. The 1980's promise to be a time when creative application of advanced technology will be a necessity in order to increase productivity in the utility and manufacturing industries.

ELECTRON DEVICES SOCIETY

The Electron Devices Society was organized under the guidance of Deen Khandelwal in 1980. Upon receiving their charter, Mickey Mindock was elected Chairman, and has continued in this post. Under his guidance, the Electron Devices Society has been active in promoting solid state device technology in Florida. The Chapter has sponsored numerous technical meetings featuring recognized experts. Topics for the meetings have included superlattice characterization, ionized cluster beam technology, metal silicide formation, fiber optic sensors, IMPATT diodes and SAW devices. Speakers for the meetings have been drawn from local universities and industry as well as from across the United States, Canada and Japan.

The Society has actively assisted the Central Florida Council for High Technology. In cooperation with the Orlando Section a one day seminar of high technology in Central Florida was organized in 1983. This meeting featured Dirk Hansen, author of "The New Alchemist", as guest speaker. In 1984 a session on device technology was organized for the Southcon Meeting.

The Orlando Chapter in its four years of operation, has among its membership two recipents of the Orlando Section's "Engineer of the Year" Award and one recipent of the Orlando Section's "Chapter Chairman of the Year" award. It consistently leads the section in number of technical meetings held and average attendance.

MICROWAVE THEORY AND TECHNIQUES SOCIETY

The Orlando Chapter of the IRE-PGMTT was initially organized in the fall of 1960, and in January 1961 became the first subgroup of the IRE to be chartered as a chapter in the Orlando Section. The founding chairman was Ernest O. Houseman, Jr. Ernie served as chairman until mid 1962 when Robert E. Johnson was elected chairman of the chapter.

John E. Tracy was elected chairman of the chapter in mid 1962. John served during the period of time when the IRE merged with the AIEE; thus, John has the distinction of being the first chairman of the Orlando Chapter of the IEEE-MTT. In mid 1964 J. W. Dees was elected chapter chairman.

During the 60's and the early 70's the Orlando chapter was in its hey day. Their enthusiasm and good work attracted the attention of the national headquarters and in 1978 Orlando was the site for the MTT national symposium.

In 1982 Al Fowler petitioned the national headquarters to allow the Orlando chapter of Antennas and Propagation Society to be combined with the MTT chapter. Al was the first chairman of the combined AP/MTT section.

RECOLLECTIONS

Near-Collapse PES/IA - A Recollection by Bill Cram

Shortly after the beginning of the OPEC oil crisis in the early 1970's, the Orlando Section was fortunate to have the chairman of the Florida Public Service Commission speak at one of our banquets. The speech, on the subject of having the public utilities hold down costs to the public, was beautifully written and perfectly presented. It was well received by all, including wives.

It was somewhat of a jolt when a few weeks later, it was a learned that this same commissioner had persuaded the PSC to force the utilities to halt sponsoring employee membership in such professional organizations as the IEEE. Bill Cram, chairman of the PES/IA at the time, reports there was a sudden drop in participation, and the PES/IA almost collapsed.

AC—DC — From an anonymous source

Nicola Tesla arrived in the United States in about 1900 to work for Thomas Edison. Their relationship rapidly deteriorated over the AC-DC issue. Edison was promoting DC machinery, no doubt because he had many installations of it. Tesla early recognized that sparking commutators on DC generators and motors were not the way of the future. Instead, he felt that brushless, AC induction machines were the way to go and he promoted them, despite Edison's objections. In the bitter struggle which followed, Thomas Edison is reputed to have hired young boys to catch dogs and cats so that he could electrocute them with AC power before newsmen, thereby endeavoring to frighten the public about AC.

Orlando Section a Pioneer

Since its establishment in 1959 the Orlando Section has been the scene of pioneering activity on technical, organizational, and political fronts. Many of the early advances in the use of pulse code modulation and time division multiplexing for telemetry were made in Orlando, the home of Dynatronics (later merged with General Dynamics/Electronics and moved to San Diego) and Radiation, Incorporated's Instrumentation Division (later moved to Melbourne and merged with Harris Corporation).

The establishment of the Florida Council of IEEE was fostered by Joe Pullara and Jim Walter from the Orlando Section. Jim Walter was chairman of the predecessor Area 4, serving under appointment by the Region 3 director. Joe Pullara petitioned for the establishment of the Florida Council, whose officers are elected by the twelve sections located in the state of Florida. Other chairmen of the Council from Orlando have included Dr. David Flinchbaugh and George McClure (the current chairman).

The idea of portable pensions for engineers was first discussed in the Orlando Section and was communicated upward through IEEE. Dr. Leo Young, IEEE President in 1980, carried the idea forward to Washington where it became the basis for the Individual Retirement Accounts authorized by the Congress and now available to all employed persons.

PROFESSIONAL ACTIVITIES

Restored Funding for ACTS Program Urged

Speaking before the Senate Subcommittee on HUD and Independent Agencies on May 7, Theodore R. Simpson, Vice Chairman of the IEEE Research and Development Committee, and Richard G. Gould, Vice Chairman of the IEEE Communications and Information Policy Committee, urged that funding for NASA's Advanced Communications Technology Satellite (ACTS) Program be restored. They claimed that the ACTS program will provide the knowledge and, more importantly, the practical space experience with frontier communications satellite technologies. "Our experience has indicated that these technologies will be needed and that our foreign competitors are seeking a technological edge that will position them to become preferred suppliers of such advanced systems." Copies of the testimony can be obtained from the IEEE Washington Office.

Department of Energy R&D Programs Reviewed

William D. Lang and Dr. Charles F. Lawrence appeared before the Senate Subcommittee on Energy Research and Development on behalf of the IEEE Energy Committee on April 14, urging that the Senate subcommittee adopt the funding levels already approved by the House Science and Technology Committee for the Department of Energy Research and Development programs for FY 1985. The House Committee approved funding for Solar, Conservation, Fusion, Electric Energy and Energy Storage Systems research programs at levels no higher than seven percent over FY 1984 authorizations. The issues of increasing energy efficiency and diversifying energy sources were addressed in the statement, which said, in part, "Along with the established industries there are important energy alternatives which require strong Federal research support. It is important that such technologies are available when the economic need develops to avoid economic disruptions." Copies of the testimony can be obtained from the IEEE Washington Office.

Concern For Improving Pre-College Math and Science Education

There is widespread agreement that students are not learning enough mathematics and science for the United States to maintain its world leadership in economic and military matters. Rapidly advancing technology and economic competition in a global arena are swiftly causing the obsolescence of old skills and necessitating improved levels of education, particularly in mathematics and science, for all people. Yet since the 1960s, America has allowed the teaching of math and science to decline through apathy.

There is no lack of quality among incoming engineering students, as engineering programs are drawing the best of the high school graduates.

At the pre-college level, in contrast, the problems are much greater and will require a national resolve for action to overcome fully.

Almost every state has reported a shortage of mathematics teachers, and none has indicated even a slight surplus.

While the problem of teacher shortage is most critical in mathematics, it also exists in the sciences. There is a considerable shortage of secondary school teachers in physics and chemistry, and a shortage in biology. In contrast, there is a surplus of elementary school teachers and a considerable surplus of physical education teachers. In 1978, colleges in the South graduated 7,502 coaches and physical education majors, but only 445 mathematics education majors. The problem is persistent, since there has not been a change in the situation over the last five or more years.

A complete solution to increasing the number of math and science teachers could easily take a generation or more of effort.

In the short-term, however, a great deal can be done. There are about 3.3 million engineers and scientists in the labor force. These people are experts in the content of secondary school math and science. Located in virtually every community in the nation, engineers and scientists can be a valuable resource to local educators and school administrators. They can serve on curriculum committees, offer to be guest lecturers on specific topics, provide career guidance, organize and serve as judges at engineering and science fairs, and engage in one-on-one tutoring, among other activities. Harb Hayre, National PACE Chairman, suggests things that IEEE members, and other professionals, can do in their communities.

Professional societies can play an especially effective role in helping to mobilize the scientific and engineering communities on this problem. The societies comprise one of the main sources through which engineers and scientists identify with their respective professions and frequently have good channels of information with their members. IEEE recognizes its responsibility, both as an organization with a need for educating the next generation of electrical and electronics engineers and as a responsible corporate citizen interested in the improved education of all people in the nation. Dick Gowen, IEEE President during this centennial year, has set excellence in education as a priority for the Institute.

IEEE EXECUTIVE COMMITTEE SEPTEMBER MEETING SUMMARY ORLANDO SECTION

Summary of Minutes:

Meeting called to order at 5:45 pm by Frank Fluet, Chairman. The necessary quorum was present. The minutes of the August meeting were accepted.

Geoffrey Dick has been re-elected by chapter's chairmen to continue in his current position as Chapters chairman.

The satellite feed of the IEEE convocation will be held in the TV studio in the basement of the library at UCF on October 8. Facilities will hold only a limited number of attendees, making reservations mandatory.

The awards committee will be considering plaques for outgoing Executive Committee members in lieu of certificates. Costs are to be determined.

Student/faculty picnic was very successful with good participation. The students beat the faculty in softball by a score of 14 to 9. Approximately 30 students are participating in the Satellite Receiver project. Further assistance in the student project is strongly solicited and any members or associates who can aid should contact D. Malocha.

There are currently 950 members in our local section. New members joining the section should use our section number since we obtain a rebate for new members.

The 1984-85 operating budget is attached. Because of the many activities planned for the IEEE centennial year, a rather large deficit is anticipated. Sources of additional income are needed and will be sought. Any information concerning upcoming IEEE sponsored conferences should be directed to the section chairman.

BUDGET SUMMARY, 1984-85

I. Expenses

1. Publications (Section Notes)	$ 6945
2. Secretary	$ 100
3. Chapters	
Chapter's Chairmen	$ 75
AES	$ 150
COMM	$ 750
COMP	$ 150
ED	$ 200
AP/MTT	$ 200
PE/IA	$ 200
4. Public Relations	$ 200
5. Awards Comm.	$ 250
6. Pace Comm.	$ 100
7. Student Activities	$ 230
8. Education Comm.	$ 0
9. Membership Development	$ 100
10. Centennial Comm.	$ 850
11. Programs Comm.	$ 2750
12. Historian	$ 100
13. Miscellanous	$ 500
14. Student Project Support (Seed)	$ 170
15. FCIEE	$ 0
TOTAL	**$14020**

II. INCOME

1.	Rebate from IEEE	$ 3136
2.	Advertising in Section Notes	$ 1800
3.	Interest on deposits	$ 480
4.	Converences (to be determined)	$
5.	AEA rebate	$ 250
6.	Potential PACE rebate	$ 1400
	TOTAL	**$ 7066**

III. EXCESS (DEFICIT)

1.	Deficit	($ 6954)

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Awards	Ben Patz	275-2816	855-3685
Fla. Eng. Soc. Liaison	Richard Harden	855-0881	855-5775
Prof. Act. Comm.	John Gilbert	365-2363	859-5492
Student Act. Comm.	Don Malocha	275-2414	862-5693
Education	Fred O. Simons	275-2405	678-1796
Membership Develop.	Woody Carter	843-7030	831-4591

SPECIAL COMMITTEES

SOUTHCON	Bruce E. Mathews	275-2156	645-0549
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Historian	Russell E. Theisen	356-4320	671-4139
Member at Large	William C. Cram		647-4123
Centennial	Deen Khandelwal	356-2583	277-5959

SOCIETY CHAPTER OFFICERS

AES	**Chmn.**	Dave Flinchbaugh	1-268-7252	859-4855
COMMSOC	**Chmn.**	Madjid A. Belkerdid	275-2787	273-8527
	V. Chmn.	Michael Harris	275-2787	671-1849
	Secy.	Mike Oleyar	628-9884	876-3582
Computer	**Chmn.**	Steve Forsythe	244-1166	830-8853
	Mbr. V. Chmn.	Jorge Medina	834-9600	277-8929
Electron Dev.	**Chmn.**	Ralph M. Mindock	862-8182	862-7764
	Mbr. V. Chmn.	Donald C. Malocha	275-2414	862-5693
	Prog. V. Chmn.	Dick Zanowick	356-2914	645-0831
AP/MTT	**Chmn.**	Fred Wilcox	356-2328	857-0098
Power Engineering/	**Chmn.**	Michael V. Haddad	281-2393	851-3719
Industry	**V. Chmn.**	Avelino Gonzalez	281-2982	365-6812
Applications	**Secy.**	Sally M. Merry		629-1901
Student Section	**Chmn.**	Steve McKenna	275-2786	277-1396
Student Comp. Chap.	**Chmn.**	Ron Krauskopf		677-4213
	Treas.	Don Vincent		678-4603

The Executive Committee meets the first Tuesday of each month, except July, at AUTOMATION INTELLIGENCE, INC., 1200 W. COLONIAL DRIVE (corner of 441 and Colonial), at 5:30 p.m. All IEEE members are welcome to attend.

ORLANDO SECTION NOTES
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