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The Antennas and Propagation Society 1949-2004: A Chronology

When I was asked to be the historian of the IEEE Antennas and Propagation Society in 2003, I knew I would not be able to approach the level of insight and richness of detail that Ralph E. Hiatt (1910-1998) achieved with his excellent history of the Society, covering the years 1949-1982. Ralph was involved in AP-S governance from 1964 through his presidency of the organization in 1970, and beyond. He knew many of the founders and early leaders of the Society, and this familiarity brought a warmth and color to his description of the Society's formative years that cannot be duplicated. Anyone interested in the early years of the Society should consult his history first, and I have relied on it heavily in compiling an extension. Hiatt's 1949-1982 history is available both in abridged form in the August, 1984, issue of the *IEEE Transactions on Antennas and Propagation* (pp. 769-774), and unabridged on the AP-S *Digital Archive* two-DVD set issued in 2001, which also contains nearly every publication of the society up to the year 2000.

Hiatt's history was in narrative form, and was compiled largely before the advent of word processors and searchable text files. To make the updated history more accessible for reference purposes, I have chosen to compile it in the form of a chronology of the Society, which is organized by year. The chronology contains the following information for each year, as appropriate:

- Names of the President, Vice President, Secretary/Treasurer, and members of the Administrative Committee (AdCom)
- Dates and locations of AdCom meetings
- Total number of members
- Date and location of annual Symposium, and names of General Chair and Technical Chair
- Page counts of major publications (*Transactions*, *Newsletter/Magazine*) and Editors thereof
- List of major awards, awardees, and titles of prizewinning papers

Each entry in the chronology is accompanied by a citation of the source of information. This chronology runs to over 60 single-spaced pages, too long for an article in the *IEEE Antennas and Propagation Magazine*. However, it will be made available in the next edition of the AP-S *Digital Archive* DVD.

In researching the early records of the organization, I found that the minutes of meetings prior to 1959 had never been published. IEEE Archivist Kathy Colabaugh kindly provided copies of the originals, and we plan to make these minutes available on the next *Digital Archive* DVD, as well. The minutes for meetings held after 1958 have been carried almost without exception in the *Antennas and Propagation Society Newsletter*, which became this *Magazine* in 1990. For convenience in locating these minutes – which are not always adequately indexed in electronic databases such as IEEE *Xplore* – I have compiled a table that lists the date, location, and reference for meeting minutes of every AdCom meeting since the founding of the organization. Again, this table is too long for inclusion here, but will appear in the next *Digital Archive* DVD.

Some samples of newly compiled information about the Society are given in the figures and tables that accompany this article. Figure 1 shows the total AP-S membership by year from 1949 through 2003. An effective petition drive at the founding of the organization yielded nearly a thousand members in its first year. Of course, membership was a little cheaper then: free until 1951, at which time the AdCom voted to assess each member the grand sum of two dollars a year [1]. Even this income proved to be insufficient for the ambitious publication program that the Professional Group on Antennas and Propagation embarked on in the next few years, and for some time afterward, the financial status of the organization was perilous. But throughout the 1950s, membership continued to grow, and eventually the fiscal problems stabilized. For the next twenty years or so, membership hovered between four and five thousand. Around the time Ronald Reagan was elected US President, the number began a steady climb that continued throughout the decade, peaking at the end of the Cold War in 1990. Since that time it has entered another doldrums, zigzagging

AP-S Membership

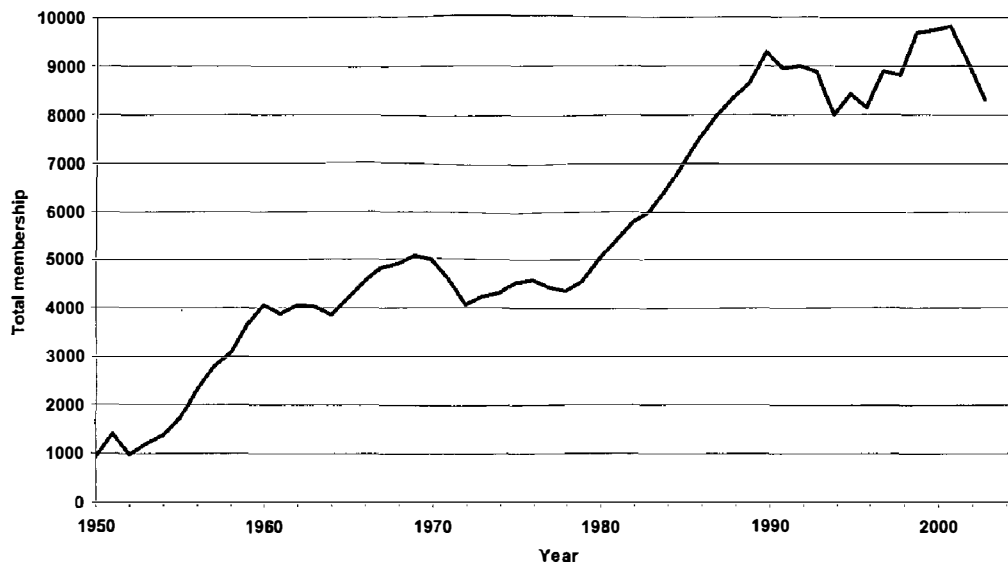


Figure 1. The total AP-S membership by year, 1949-2003. Sources: various AdCom meeting minutes, R. Hiatt's history, and IEEE Archivist data (sources for each year appear in the chronology).

between eight and ten thousand. Whether this represents the maturing of our field or whether it is poised for another growth spurt is difficult to predict.

Table 1 shows the names of the President, Vice President, Secretary/Treasurer (which office has always been a combined one) and Editor of the Society's flagship publication, the *IEEE Transactions on Antennas and Propagation*. In 1958, the tradition of voting the current Vice President in as President the following year was begun, and has been followed without exception ever since. Only one person has served as President for two nonconsecutive terms: Robert C. Hansen. Oren B. Kesler holds the record for longest-serving Secretary/Treasurer: seven years, from 1992 to 1999. In the 1950s, when the *Transactions* was a smaller publication than it is now (it was published quarterly, with a yearly page count of about 700 in 1956), J. B. Smyth also served a record seven years as *Transactions* Editor, a record that has never been surpassed. Around 1958, the need was felt for a publication that would supplement the archival technical material of the *Transactions* with news about the PGAP and its members, administrative matters, and eventually, helpful tutorials and other items of general interest. Arthur Dorne, of Dorne & Margulin, founded the *Antennas and Propagation Society Newsletter*, and the first issue, all of three pages, was mailed to members in November of 1958. Dorne was followed by a sequence of other editors: R. C. Hansen (1960-1963), W. H. Kummer (1964-1968), H. N. Chait (1968-1971), R. E. Hiatt (1972-1974), R. C. Johnson (1975-1978), R. E. McIntosh (1979-1981), D. Schaubert (1982-1983), and, last but by no means least, W. Ross Stone (1984-1989). With the February, 1990, issue, the *Newsletter*, now grown to a publication of comparable size to the *Transactions*, became the *Magazine* you are reading. As of 2006, Stone entered his twenty-third year as Editor, a record of continuous volunteer service in one position that is certainly unsurpassed within AP-S and possibly in the entire IEEE.

Many of the same names who serve in the roles described above also appear as Chairs of the annual Symposia listed in Table 2. From 1949 to 1962, the Professional Group on Antennas and Propagation was a part of the Institute of Radio Engineers (IRE), which held its annual convention in New York City. During that time, the PGAP sponsored one or more sessions of the convention, often in collaboration with other groups, such as Microwave Theory and Techniques. Not shown in the table is the long-standing association with the Union Radio Scientifique Internationale (URSI, the International Union of Radio Science), an organization that predates the Antennas and Propagation Society by about thirty years. Since this compilation is a history of the AP-S and not URSI, the latter organization does not appear extensively in it. However, it should be noted that most, if not all, annual AP-S Symposia have been held in conjunction with the appropriate National Committee (US or Canadian) of URSI, and many members of AP-S are also active in URSI.

With the merger of the Institute of Radio Engineers (IRE) and the American Institute of Electrical Engineers (AIEE) in 1963, the Institute of Electrical and Electronics Engineers (IEEE) was born. This merger led to other reorganizations, which included a name change for the PGAP, which then became the Professional Technical Group on Antennas and Propagation (PTGAP). This was soon simplified to the IEEE Antennas and Propagation Society. The Society's first stand-alone convention was held in Boulder, Colorado, in July of 1963. Boulder should be considered the "home away from home" for the AP-S, since so many of its AdCom meetings have been hosted by members of the National Bureau of Standards laboratories there (now the National Institute of Standards and Technology). Since then, the sites for Symposia have ranged all over the continental US, with four meetings in Canada.

Table 1. The AP-S President, Vice President, Secretary/Treasurer, and Transactions Editor by year, 1949-2004.

Year	President	Vice President	Secretary/ Treasurer	Transactions Editor
1949	L. C. Van Atta	Newbern Smith	D. C. Ports	
1950	Newbern Smith		D. C. Ports	
1951	George Sinclair		D. C. Ports	
1952	A. H. Waynick	P. S. Carter	D. C. Ports	J. B. Smyth
1953	P. S. Carter		P. H. Smith	J. B. Smyth
1954	D. C. Ports	H. G. Booker	P. H. Smith	J. B. Smyth
1955	D. C. Ports	H. G. Booker	R. L. Mattingly	J. B. Smyth
1956	D. C. Ports	H. G. Booker	R. L. Mattingly	J. B. Smyth
1957	J. I. Bohnert	R. L. Mattingly	C. Goatley	J. B. Smyth
1958	R. L. Mattingly	A. Dorne	K. S. Kelleher	J. B. Smyth
1959	A. Dorne	E. C. Jordan	K. S. Kelleher	J. B. Smyth
1960	E. C. Jordan	H. Fine	K. S. Kelleher	S. Bowhill
1961	H. Fine	S. Bowhill	K. S. Kelleher	S. Bowhill
1962	S. Bowhill	R. C. Hansen	K. S. Kelleher	H. V. Cottony
1963	R. C. Hansen	W. E. Gordon	P. E. Mast	H. V. Cottony
1964	W. E. Gordon	A. T. Waterman, Jr.	P. E. Mast	H. V. Cottony
1965	A. T. Waterman, Jr.	K. M. Siegel	P. E. Mast	H. V. Cottony
1966	K. M. Siegel	K. S. Kelleher	J. B. Damonte	J. Ruze
1967	K. M. Siegel	K. S. Kelleher	J. B. Damonte	J. Ruze
1968	K. S. Kelleher	D. R. Rhodes	J. B. Damonte	J. Ruze
1969	D. R. Rhodes	R. E. Hiatt	J. B. Damonte	A. C. Schell
1970	R. E. Hiatt	C. T. Tai	J. B. Damonte	A. C. Schell
1971	C. T. Tai	J. B. Damonte	T. Morita	A. C. Schell
1972	J. B. Damonte	C. J. Sletten	T. Morita	L. J. Ricardi
1973	C. J. Sletten	C. H. Walter	W. R. Crosswell	L. J. Ricardi
1974	C. H. Walter	W. H. Kummer	W. R. Crosswell	L. J. Ricardi
1975	W. H. Kummer	R. Mitra	C. T. Swift	W. Crosswell
1976	R. Mitra	E. A. Wolff	C. T. Swift	W. Crosswell
1977	E. A. Wolff	A. C. Schell	E. A. Kuhlman	W. Crosswell
1978	A. C. Schell	L. J. Ricardi	G. A. Thiele	W. Kahn
1979	L. J. Ricardi	R. C. Johnson	G. A. Thiele	W. Kahn
1980	R. C. Johnson	R. C. Hansen	G. A. Thiele	W. Kahn
1981	R. C. Hansen	G. A. Thiele	R. E. McIntosh	W. Kahn/R. Mitra
1982	G. A. Thiele	R. J. Mailloux	R. E. McIntosh	R. Mitra
1983	R. J. Mailloux	A. W. Love	R. E. McIntosh	R. Mitra/R. L. Fante
1984	A. W. Love	R. E. McIntosh	D. H. Schaubert	R. L. Fante
1985	R. E. McIntosh	A. J. Simmons	D. H. Schaubert	R. L. Fante
1986	A. J. Simmons	G. H. Knittel	D. H. Schaubert	R. L. Fante
1987	G. H. Knittel	G. S. Brown	D. H. Schaubert	R. J. Pogorzelski
1988	G. S. Brown	I. C. Peden	D. H. Schaubert	R. J. Pogorzelski
1989	I. C. Peden	D. C. Chang	J. K. Schindler	R. J. Pogorzelski
1990	D. C. Chang	H. E. Schrank	J. K. Schindler	R. E. McIntosh
1991	H. E. Schrank	W. L. Stutzman	J. K. Schindler	R. E. McIntosh
1992	W. L. Stutzman	R. J. Pogorzelski	O. B. Kesler	McIntosh/ Marhefka
1993	R. J. Pogorzelski	D. G. Bodnar	O. B. Kesler	R. Marhefka
1994	D. G. Bodnar	Y. Rahmat-Samii	O. B. Kesler	R. Marhefka
1995	Y. Rahmat-Samii	S. A. Long	O. B. Kesler	Marhefka/Uslenghi
1996	S. A. Long	E. S. Gillespie	O. B. Kesler	P. L. E. Uslenghi
1997	E. S. Gillespie	R. J. Marhefka	O. B. Kesler	P. L. E. Uslenghi
1998	R. J. Marhefka	D. H. Schaubert	O. B. Kesler	Uslenghi/Pearson
1999	D. H. Schaubert	T. Milligan	O. B. Kesler	L. W. Pearson
2000	T. Milligan	P. L. E. Uslenghi	M. Shields	L. W. Pearson
2001	P. L. E. Uslenghi	M. Iskander	M. Shields	L. W. Pearson
2002	M. Iskander	L. W. Pearson	M. Shields	A. W. Glisson
2003	L. W. Pearson	J. L. Volakis	M. Shields	A. W. Glisson
2004	J. L. Volakis	R. W. Ziolkowski	M. Shields	A. W. Glisson

Table 2. The dates, location, General Chair, and Technical Program Chair of AP-S Symposia, 1949-2004.

Year	Dates	Location	General Chair	Technical Program Chair(s)
1951	Aug. 22-24	San Francisco, CA	(Sessions at IRE Wescon sponsored by PGAP)	
1952	Aug. 26-29	Los Angeles, CA	(Sessions at IRE Wescon sponsored by PGAP)	
1953	Mar. 23-26	New York, NY	(Sessions at IRE Natl. Conv. spon. by PGAP)	
1954	Mar. 22-25	New York, NY	(Sessions at IRE Natl. Conv. spon. by PGAP)	
1955	Mar. 21-24	New York, NY	(Sessions at IRE Natl. Conv. spon. by PGAP)	
1956	Mar. 19-22	New York, NY	(Sessions at IRE Natl. Conv. spon. by PGAP)	
1957	Mar. 18-21	New York, NY	(Sessions at IRE Natl. Conv. spon. by PGAP)	
1958	Mar. 24-27	New York, NY	(Sessions at IRE Natl. Conv. spon. by PGAP)	
1959	Mar. 23-26	New York, NY	(Sessions at IRE Natl. Conv. spon. by PGAP)	
1960	Mar. 21-24	New York, NY	(Sessions at IRE Natl. Conv. spon. by PGAP)	
1961	Mar. 20-23	New York, NY	(Sessions at IRE Natl. Conv. spon. by PGAP)	
1962	Mar. 26-29	New York, NY	(Sessions at IRE Natl. Conv. spon. by PGAP)	
1963	July 9-11	Boulder, CO	J. W. Herbstreit	H. V. Cottony
1964	Sept. 21-24	Brooklyn, NY	H. Jasik	N. A. Spencer
1965	Aug. 30-Sept. 1	Washington, DC	E. A. Wolff	R. J. Adams
1966	Dec. 5-7	Palo Alto, CA	R. D. Egan	R. Leadabrand
1967	Oct. 17-19	Ann Arbor, MI	R. E. Hiatt	T. B. A. Senior
1968	Sept. 9-11	Boston, MA	E. A. Alshuler	L. J. Ricardi
1969	Dec. 9-11	Austin, TX	A. W. Straiton	A. H. LaGrone
1970	Sept. 14-16	Columbus, OH	C. H. Walter	C. A. Levis
1971	Sept. 22-24	Los Angeles, CA	W. H. Kummer	V. H. Rumsey
1972	Dec. 11-14	Williamsburg, VA	W. Crosswell	C. T. Swift
1973	Aug. 22-24	Boulder, CO	S. W. Maley	J. R. Wait
1974	June 10-12	Atlanta, GA	D. T. Paris	R. C. Johnson
1975	June 2-4	Urbana, IL	G. A. Deschamps	R. Mitra, S. W. Lee
1976	Oct. 11-15	Amherst, MA	R. E. McIntosh	C. S. Sletten, R. L. Fante
1977	June 20-22	Palo Alto, CA	J. B. Damonte	K. K. Mei
1978	May 15-19	College Park, MD	G. Hyde	W. K. Kahn, I. Katz
1979	June 18-22	Seattle, WA	I. Peden	A. Ishimaru
1980	June 2-6	Québec, Canada	J. A. Cummins	K. G. Balmain
1981	June 16-19	Los Angeles, CA	R. S. Elliott	V. Galindo-Israel, A. Villeneuve
1982	May 24-28	Albuquerque, NM	C. E. Baum	K. F. Casey, B. K. Singaraju
1983	May 23-26	Houston, TX	S. A. Long	L. C. Shen
1984	June 25-29	Boston, MA	A. C. Schell	H. R. Raemer
1985	June 17-21	Vancouver, Canada	K. S. McCormick	S. J. Kubina
1986	June 8-13	Philadelphia, PA	C. C. Allen	A. Afrashteh
1987	June 15-19	Blacksburg, VA	W. L. Stutzman	C. W. Bostian
1988	June 6-10	Syracuse, NY	A. T. Adams	T. Sarkar
1989	June 26-30	San Jose, CA	R. King	K. Mei
1990	May 7-11	Dallas, TX	S. Sanzgiri	O. Kesler
1991	June 24-28	London, Ont., Canada	A. R. Webster	S. J. Kubina
1992	July 18-25	Chicago, IL	P. L. E. Uslenghi	A. Taflove
1993	June 28-July 2	Ann Arbor, MI	J. L. Volakis	L. P. B. Katehi
1994	June 19-24	Seattle, WA	G. E. Miller	L. Tsang
1995	June 18-23	Newport Beach, CA	W. Imbriale	R. Pogorzelski, T. Cwik
1996	July 21-26	Baltimore, MD	J. Moellers	J. Frank
1997	July 13-18	Montreal, Canada	S. Kubina, G. Delisle	P. Bhartia
1998	June 21-26	Atlanta, GA	A. F. Peterson	W. Pearson, A. Martin
1999	July 11-16	Orlando, FL	C. Christodolou	P. F. Wahid
2000	July 14-19	Salt Lake City, UT	M. F. Iskander	O. P. Gandhi, M. A. Jensen
2001	July 8-13	Boston, MA	R. V. McGahan	R. Fante, A. Fenn
2002	June 16-21	San Antonio, TX	R. Nevels	K. Michalski
2003	June 22-27	Columbus, OH	J. D. Young, J. Volakis	R. Marhefka
2004	June 20-26	Monterey, CA	H.-Y. Pao	Andrew J. Poggio

Table 3. The winners of the AP-S Distinguished Achievement Award, 1985-2004.

Year	Winner
1985	John D. Kraus
1986	Chen-To Tai
1987	Georges Deschamps
1988	Robert S. Elliot
1989	Roger F. Harrington
1990	James R. Wait
1991	Ronald W. P. King
1992	Harold A. Wheeler
1993	R. E. Collin
1994	Robert C. Hansen
1995	Akira Ishimaru
1996	Yuen Tze Lo
1997	Jean Van Bladel
1998	Leo B. Felsen
1999	Robert G. Kouyoumjian
2000	Thomas B. A. Senior
2001	Peter Clarricoats
2002	Raj Mittra
2003	John D. Kraus
2004	Allan W. Love

Although there is not space to present the complete list of awardees here, some idea of the changing fields of interest to AP-S members can be gained by a sampling of prize-winning paper titles over the years. In April of 1958, the AdCom voted to establish an annual Best Paper award, with a prize of \$200. The first award went to R. H. DuHamel for his paper, "Logarithmically Periodic Arrays," published in the 1958 Wescon Convention Record, Part 1 [2]. The story of prize-winning paper topics is intimately associated with the advances in computational power, which made it possible to analyze more complex structures and configurations as time went on. In 1972, the R. W. P. King Award was established in honor of the famed Harvard professor who has probably graduated more PhDs in the field of antennas than anyone else. Charles Elachi won the first such award with his paper, "Dipole Antenna in Space-Time Periodic Media," which appeared in the *Transactions* in May of 1972 [3]. Three years later, in 1975, a Best Application Paper Award was established. These papers were more concerned with practical solutions of real-world problems than with finer points of theoretical analysis, and also tended to have more coauthors. The first such award went to J. S. Ajoika, D. M. Joe, H. Tang, and N. S. Wong for their paper, "Arbitrarily Polarized Slot Radiators in Bifurcated Waveguide Arrays," published in the

Transactions of March, 1974. Later, the Best Paper award was renamed the S. A. Schelkunoff Transactions Prize, and the applications paper award was named after Harold A. Wheeler. In 1983, the AdCom voted to establish a Distinguished Achievement Award to honor anyone whose overall service to the profession merited such a distinction. Winners of this award are listed in Table 3. The first awardee was John D. Kraus in 1985, who was the only person to receive the award twice (he received it a second time in 2003). Several other awards, such as the Chen-To Tai Distinguished Educator Award and the John Kraus Antenna Award, have been created in recent years, and the winners of these awards are also listed in the full chronology.

Ralph Hiatt's history contains chapters about standards committees, financial issues, and...Chapters. While these and other matters form a vital part of the life of the Society, its size and scope have grown to such an extent that to give an adequate historical treatment to these matters would now require a book, not just a magazine article or a chronology. Such a book may be written some day, but I have found that the only way to bring a history project to an end and publish something is to stop! I plan to do yearly updates to the chronology and the tables, and to publish them as appropriate. A project that I have not yet undertaken, but which would be valuable, is to compile an index of the obituaries that have appeared in the *Magazine* from time to time. These memorials provide one of the best sources of material on the leaders of the organization, and should be consulted by anyone whose interest in historical matters goes beyond the scope of the chronology.

I wish to thank L. Wilson Pearson, former President of AP-S, for asking me to take on this task. Former Secretary/Treasurers Dan Schaubert and Oren Kesler have provided useful reference material, and current Secretary/Treasurer Mike Shields has been helpful at several times. Finally, I thank *IEEE Antennas and Propagation Magazine* Editor W. Ross Stone for his suggestions and comments, as well as his patience in awaiting the fruition of this project, which has taken somewhat longer than anyone anticipated.

References

1. Minutes of AP-S AdCom meeting April 18, 1951.
2. *PGAP Newsletter*, May 1959.
3. R. Hiatt, *History of the AP-S 1949-1982*, p. 22. ©