

## THE IEEE ANTENNA AND PROPAGATION SOCIETY FROM 1949 THROUGH 1982

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In 1949 Dr. L. C. Van Atta was director of an antenna laboratory at the Naval Research Laboratory. As such he was desirous of establishing a better means of maintaining communications with interested colleagues at other organizations. The IRE Board of Directors had just recently approved the professional group principle of operation and Van Atta found this to be an opportune way to improve interaction with workers of like interests at other locations. Working with other leaders in the antenna and propagation field he soon had a group of 56 men who signed a petition which resulted in the formation of the IRE Professional Group on Antennas and Wave Propagation. In approving the Group's constitution on August 9, 1949, the IRE Executive Committee changed the name to Professional Group on Antennas and Propagation (PGAP). PGAP was the third professional group to be formed under the new IRE plane. (The Audio Group was formed in June 1948 and the Broadcast Transmission Group was formed the following month).

A list of the 56 charter members of PGAP is included in an early history of the Group prepared by Van Atta and published in a special letter sent to all PGAP members in February 1962 (Reference 1). Several excerpts from this early history are contained in a more detailed AP-S

history published in a special issue of the March 1984 AP-S Newsletter [2].

The objective of the new organization as provided in the constitution was to promote close cooperation and the exchange of technical information among the members and to hold meetings for the presentation of papers and their discussion. The stated field of interest was experimental and theoretical advances in electromagnetic theory and in the radiation, propagation, scattering and diffraction of radio waves and in the devices, media and fields of application pertinent thereto such as antennas, plasmas and radio astronomy systems (radio astronomy was not included in the field of interest until a few years after the birth of the organization).

The constitution provided that the Group should be managed by an Administrative Committee (AdCom) with a chairman and a vice-chairman as elected officers and with a secretary-treasurer to be appointed by the chairman. During the first four years, the AdCom was composed of six members plus the officers. Later this was expanded to ten and still later to twelve plus ex-officio members. The ex-officio members now includes the Honorary Members plus the last four AdCom Presidents (or Chairmen). The officers who were first to serve PGAP (6/1/49 to 5/31/50) were L. C. Van Atta, Chairman; Newbern Smith, Vice-Chairman; and Delmer Ports, Secretary-Treasurer. The first AdCom was composed of C. R. Burrows, A. E. Cullum, P. S. Carter, S. Frankel, D. E. Kerr and W. E. Kock. Under the constitution, AdCom officers are elected for a term of one year and AdCom members are elected to serve a three-year term.

Following is a list of the AdCom Chairmen and Presidents who served from 1949 through 1982. A complete list of all the AdCom members serving during this period is included in [2].

<u>Chairmen/ Presidents</u>	<u>Term</u>	<u>Chairmen/ Presidents</u>	<u>Term</u>	<u>Chairmen/ Presidents</u>	<u>Term</u>
L.C. Van Atta	1949-50	E.C. Jordan	1960-61	J.B. Damonte	1972
Newbern Smith	1950-51	Harry Fine	1961-62	C.J. Sletten	1973
George Sinclair	1951-52	S.A. Bowhill	1962-63	C.H. Walter	1974
A.H. Waynick	1952-53	R.C. Hansen	1963-64	W.H. Kummer	1975
P.S. Carter	1953-54	W.E. Gordon	1964-65	Raj Mittra	1976
D.C. Ports	1954-55	A.T. Waterman	1965-66	E.A. Wolff	1977
D.C. Ports	1955-56	K.M. Siegel	7/66-12/67	A.C. Schell	1978
H.G. Booker	1956-57	K.S. Kelleher	1968	L.J. Ricardi	1979
J.I. Bohnert	1957-58	D.R. Rhodes	1969	R.C. Johnson	1980
R.L. Mattingly	1958-59	R.E. Hiatt	1970	R.C. Hansen	1981
Arthur Dorne	1959-60	C.T. Tai	1971	G.A. Thiele	1982

The organization has operated under a number of different names since its beginning. The petition which resulted in the formation of the group used the name Professional Group on Antennas and Wave Propagation. As indicated above, the IRE Executive Committee dropped the word Wave from that name and the group was PGAP. The group operated as PGAP until January 1, 1963. Then, with the union of AIEE and IRE and the birth of IEEE, most of the professional groups became "professional and technical groups". PGAP became the Professional and Technical Group on Antennas and Propagation (PTGAP). By July 1964, the

"T" had been dropped and it was again PGAP. A few months later the name became the Group on Antennas and Propagation (G-AP). In September 1973, the Group on Antennas and Propagation became the Antenna and Propagation Society (AP-S) and it has continued with this name.

In continuing this history, the outline to be followed will be somewhat similar to that used in the longer version [2]. Following will be discussions of the Society's finances, the Transactions, the Newsletter, symposia, membership, local chapters and the distinguished lecturer program, standards, the awards program and the constitution and bylaws.

#### AP-S Finances

In 1962 Van Atta [1] made the following comments regarding the group's financial situation:

"Through the greater part of its history PGAP has been in financial trouble. The support formula adopted by IRE Headquarters had not taken into consideration the publication activity of six of the professional groups including PGAP. As a result, one administrative committee after another spent most of its time on financial problems working under intolerable handicaps. These handicaps included a lack of detailed knowledge as to the sources of charges placed against them at IRE Headquarters, a lack of assurance as to whether budgetary supplements would be approved, and a vacillating policy regarding permission to advertise in the Transactions. More recently, a more favorable attitude

towards support of the professional groups on the part of the IRE Executive Committee, and particularly a more favorable support formula for those groups that are heavy publishers, worked out by Dr. Ernst Weber, should for the first time put PGAP in a reasonable financial position. As a result, its administrative committees may now be able to divert their primary attention from financial matters to such more significant matters as publications, meetings and membership."

Unfortunately the new IRE support formula did not solve the financial problems. As a way of measuring the Group/Society's financial health, the Society's Treasurers have been using a gauge referred to as "Reserve per member". They obtain this number by dividing the year end reserve funds by the number of year end members. For the early years, this number was quite low, sometimes even negative; it was generally less than five dollars until about 1970. The reserve per member doubled in 1971 and doubled again in 1972 and remained around \$20 until 1977. For the following four years, it was about \$40 and for the years 1981 and 1982 it was over \$50. This remarkable improvement did not come easy. AdCom tried many ways to better the financial situation. Member dues were raised from four to six dollars in 1961, to eight in 1972 and to ten dollars in 1977. The number of members had increased from 1000 in 1950 to about 4000 in 1960. For most of the time since then, the number of members ranged between 4000 and 5000 but by the end of 1982 there were almost 5500 members. By this time membership fees

amounted to about 13 percent of the Society income. Efforts were again made to sell advertising in the Transactions but IRE Headquarters discouraged this. Symposium fees were increased and eventually this source provided about fifteen percent of the Society income. The financial situation began to improve when Headquarters approved in the early sixties a voluntary charge for pages printed in the Transaction. Initially, this charge was \$50; it was increased to \$60 in 1970 and to \$70 in 1975. It was increased to \$85 in 1981 and by this time the income from page charges amounted to about 15 percent of the Society income. The sale of non member subscriptions of the Transactions to libraries, etc., increased significantly in the late sixties and in the seventies and by 1981 this was the largest source of the Society revenue, amounting to almost 40 percent of the total income. The Society was in a very sound financial position by the end of 1982 with a year end surplus of \$319,000. AP-S members who deserve the most credit for the improved finances are those who have served as the Society Secretary-Treasurer. The men who have served in that position are listed in [2] along with more details on the Society's financial problems and successes.

### The Transactions

The birth of the Transactions was announced in a special issue of the News and Views (May 1953) a copy of which was sent to all 1100 PGAP members. In 1952, the year before the appearance of the Transactions the Group had published four volumes of papers known as PGAP-1, PGAP-2, PGAP-3 and PGAP-4. These publications contained copies of papers

presented at previous symposia or conventions. These were, respectively, the 1951 IRE Western Convention, the 1951 URSI-IRE Meeting at Cornell University, the 1952 URSI-IRE Meeting in Washington, D.C., and the 1952 IRE Western Convention. The Tables of Contents from these publications are included as an appendix in [2].

The name of the Transactions has changed slightly during its history. The journal designations and volume numbers of past publications are as follows:

<u>Year</u>	<u>Name</u>	<u>Volume Designations</u>
1952	Transactions of the IRE Professional Group on Antennas and Propagation	PGAP-1 to PGAP-4
1953-1954	Transactions of the IRE Professional Group on Antennas and Propagation	AP-1 and AP-2
1955-1962	IRE Transactions on Antennas and Propagation	AP-3 through AP-10
1963-1982	IEEE Transactions on Antennas and Propagation	AP-11 through AP-30

In 1953 with the start of the publication of the first regular issues of the Transactions, only two issues were published. Four issues were published each year from 1954 through 1959 and since then six issues have been published each year except that in 1974 seven issues were published. The average number of pages published per year in the first ten years was 497, in the second ten years the average was 868 and in the 1973-1982 period the average number of pages was 983 with a peak of 1313 pages in 1982.

For most members and for the outside professional community, the publication of the Transactions is, by far, the most important activity of the Society. Many consider the Transactions to be the leading journal on antennas and an IEEE evaluation committee has ranked it third in the

propagation area. Prior to publication, the papers are carefully reviewed by a large and dedicated group of members. The names of those reviewing papers in a particular issue are carried on the inside of the back cover. An effort is made to include coverage of all aspects of the ongoing work on antennas, propagation and electromagnetics in general. In addition, tutorial papers are published from time to time. The most frequent criticism of the Transactions is that it is too theoretical and that there are not enough hardware papers published. Transaction editors and the AdCom are well aware of this and are constantly seeking to attract more hardware type and experimental papers for the journal.

As the first Transactions Editor, John Smyth served almost twice as long as any editor since then. The following tribute was paid to him in the November 1959 Newsletter: "John Smyth who has been Editor of our Transactions for the past seven years has recently resigned. Under his leadership the Transactions were created and brought to its present position as a foremost professional journal. No position with-in the Professional Group is more difficult or taxing than the one he has been filling for us for so many years.---Frequently the circumstances under which he worked were inexpressibly trying; the financial difficulties which beset us for a number of years were focussed upon the editorial function". Much of the above is also true for those editors who have served since Dr. Smyth.

Following is a list of past Transaction Editors along with their period of service:



John Smyth	1952 - 1959	Leon Ricardi	7/71 - 7/74
Sidney Bowhill	1960 - 1962	William Croswell	7/74 - 7/77
Herman Cottony	1963 - 8/65	Walter Kahn	7/77 - 7/80
John Ruze	8/65 - 7/68	Raj Mittra	7/80 - 7/83
Alan Schell	7/68 - 7/71		

Those who have served as Associate Transactions Editors are listed in [2].

From time to time, special issues of the Transactions are published. Fifteen or so have been published over the last twenty years and these also are listed in [2]. Three cumulative indices have been published. They are as follows:

1952 to 1958	Volume AP-17, No. 6, Part II, published December 1969
1969 to 1973	Volume AP-22, No. 5, Part II, published September 1974
1974 to 1979	Volume AP-29, No. 2, Part II, published March 1981

In addition, each year the final issue of the Transactions contains an index of the papers published in the journal during that year.

#### The Newsletter

The Group on Antennas and Propagation came into existence in February 1949 but it had no newsletter for the first nine years of its history. During this period, items of the type now carried by the Newsletter were published in the Transactions in a section entitled "News and Views". This feature was included in all Transaction issues from 1953 until April 1958 except for the July 1956 issue. The birth of the Newsletter was announced in the April 1958 Transactions with the statement that it would be issued bi-monthly with Arthur Dorne as the editor. One undated three page newsletter was published in 1958; it showed no volume number or issue number. Following is a quotation from

the editor: "This Newsletter is inaugurated with the hope that it will assist in defining and solving problems. Its purpose will be to tell what PGAP and its members are doing and thinking. Everyone is urged to contribute relevant material. Suggestions, complaints, observations and, in particular, expressions of what you as a member would like from PGAP will be all of value and needless to say, more than welcome".

In the same issue under the heading "Message from the PGAP Founder" L. C. Van Atta states that "I am happy to learn that PGAP is going to have a Newsletter. A closely knit group of professional people has lots of interesting and important non-technical information to exchange; a Newsletter seems to be the proper medium".

Newsletter Editors have served from two to four years each. Those who followed Arthur Dorne as Editor are: R. C. Hansen, W. H. Kummer, H. N. Chait, R. E. Hiatt, R. C. Johnson, R. C. McIntosh and D. H. Schaubert. The dates of their terms and other information on their editorship is given in [2]. The number of pages published by the Newsletter per year has increased significantly since the beginning. Prior to 1970, the average number of pages per year was 28.5; since then the average has been 121.6.

The objective of the Newsletter has been to serve as a vehicle for two-way communication between members of the Group/Society and their administrative officers. There is some interchange of ideas and comments between AdCom and the members at symposia and other meetings but it is only through the Newsletter that contact can be made with all members for the discussion of non-technical subjects. Following is a list of the features that have been or are now included in the Newsletters:

Message from the President	Call for papers
Editorials	Letters to the editor
AdCom Minutes	Names in the News
Lists of AdCom members	Technical reports
Introduction of new AdCom Members	Potpourri
Chapter News	Opinion Column
Division Director's report	Meeting announcements
Awards earned by members	Review or abstracts of books and reports
Help wanted advertisements	Meeting announcements
Short course announcements	Miscellaneous items
Institutional listings	Advertisements

From time to time, the Newsletter has published the Constitution and Bylaws of the Group/Society and amendments are published as they are approved. On a few occasions, the Newsletter has published a complete list of all Group/Society members. R. E. McIntosh provided a thoughtful discussion of the Newsletter and its recent developments along with questions on desired future trends. This appeared in the February 1982 Newsletter, pages 9 to 11.

#### Symposia

The annual symposia held by the Society is one of its most important activities. During the early years, the Group cooperated with IRE and arranged for one or more sessions in the National Conventions in New York and in WESCON. In addition, the Group frequently co-sponsored symposia with other organizations having related interests. The

Van Atta history [1] contains a brief review of the first ten years of symposia activity. The Group did not sponsor the symposium on Electromagnetic Theory held at the University of Michigan in 1955 but their involvement and interests were such that they published the papers presented at the symposium (July 1955). The Group was a co-sponsor of the next major symposium on Electromagnetic Theory. This was held at Toronto in 1959 and the papers were published in a special issue of the Transactions in December 1959 as AP-7. The International Scientific Radio Union (URSI) was also a major sponsor of these two symposia. The association between URSI and PGAP began about 1951 and has continued since then as a very beneficial relationship. This cooperation has contributed in a large measure to the success, both technical and financial, to many meetings held jointly by the two groups.

Following PGAP's participation in the Toronto meeting, they continued to arrange for sessions each year at the National Convention in New York and at WESCON and at URSI meetings. Papers presented at the IRE sessions are contained in the Convention records for ten or so years ending about 1965.

At the August 1961 AdCom meeting of PGAP, the committee voted to have its own national symposium and they appointed Arthur Dorne as chairman of the organizing committee. That which may be termed as the announcement of the birth of the Society's national or international symposia appeared in the January 1963 Newsletter. Quoting "In the past, antenna papers have been scattered in a great many meetings. Antenna people have lamented this fact since it made it either impossible or

extremely exorbitant in both time and money for them to attend many of these meetings wherein are presented only a few antenna papers. The first PTGAP International Symposium is an attempt to consolidate the presentation of original contributions in one meeting. We can show our support by submitting our own papers as well as soliciting them from our colleagues".

"The 1963 PTGAP International Symposium will be held on July 9, 10, and 11, 1963 at the Boulder Laboratories of the National Bureau of Standards in Boulder, Colorado. The theme will be Space Antennas".

The Boulder meeting was very successful; it was the first in a series of annual meetings that have come to be, by far, the most important Society meeting of the year. Many of the features initiated at Boulder have been adopted at later symposia, for example, the holding of multiple or simultaneous sessions, the annual banquet, a program for the visiting spouses, etc.

At the AdCom meeting in September 1964, a committee was appointed to explore the possibilities of having the annual fall URSI meeting in conjunction with the PGAP annual symposium. As a result of this, several URSI commissions joined with PGAP for the 1966 symposia in Palo Alto. This was the first of a new type of annual symposia in which part of the program was organized by PGAP and part by the interested commissions of URSI. Joint URSI/PGAP or URSI/AP-S meetings have been held annually since 1966. On a few occasions the AP-S Symposium has been held in conjunctions with other groups in addition to URSI.

The location of the annual symposia has moved from place to place. Following the meeting at Boulder, the locations have been as follows:

Long Island, Washington D.C., Palo Alto, Ann Arbor, Boston, Austin, Columbus, Los Angeles, Williamsburg, Boulder, Atlanta, Urbana, Amherst, Palo Alto, College Park, Seattle, Quebec, Los Angeles and in 1982 at Albuquerque. Reference [2] contains a table with information on symposia dates, the general chairman, the program chairman, the number of papers presented, number of attendees and the surplus funds generated by the meeting.

#### Chapters and the Distinguished Lecturer Program

Chapters were started in the Society very early. Within three years of the birth of the Society, two chapters had been formed and were operating. Fifteen chapters were organized during the first ten years of the Society's history. In all, more than forty PGAP/AP-S chapters have been organized, many were joint organizations with other groups or societies. Unfortunately, the health and life of these chapters has been uncertain--frequently affected by the prevailing economic conditions. The first fifteen chapters to be formed in the Group was as follows: Chicago, Los Angeles, Albuquerque, Philadelphia, Orange County, Washington D.C., Denver, San Diego, Akron, Syracuse, Boston, San Francisco, Dayton, Nebraska and Columbus. A complete list of the current AP-S Chapters is given in [2]. The list includes three chapters outside the United State (Benelux, Montreal and Tokyo).

The following quotation from Leo Young (December 1973 Newsletter, page 11) stresses the importance of chapters to the Society. "The importance of Chapters to the operation of the Groups and Societies and indeed to the Institute is recognized by everyone. Only through Chapter

meetings can we conveniently meet our peers in our own specialty on our own home ground at interesting technical-cum social occasions. Our Chapter officers are nearly always a dedicated and conscientious group of people who work for all of us and deserve our full support." No doubt, those AP-S members who deserve the most credit for the continued strength and activity of the Society chapters are those who serve as Chairman of the Chapter Activities Committee. These men have been very diligent in their efforts to encourage growth and activity in the continuing chapters and in helping with the organization of new chapters. For many years, they have been responsible for collecting and publishing information on the chapter officers and their technical meetings. Those who have served as Chapter Activities Chairman or are now serving are E. K. Smith, T. E. Tice, G. O. Chadwick, E. M. Turner, G. A. Deschamps, K. K. Mei, W.V.T. Rusch and W. G. Scott.

IEEE provides some financial support for chapters by giving a membership allowance of 70 cents per chapter member per year and a meeting allowance of \$20 per meeting. AP-S has, for some time, provided financial support for its chapters. In the early years, a subsidy of \$100 per chapter per year was available and this was increased to \$200 in 1975. This money was generally used to support outside speaker expenses. At the 1982 AdCom meeting at Albuquerque, the support for each chapter was increased to a maximum of \$500 per year and it was also agreed that the number of Society supported speakers that each chapter could invite per year would be increased from one to two.

For the last several years, the AP-S Chapter Activities Chairmen have sponsored a competition among the chapters resulting in the giving

of an annual AP-S Best Chapter Award. The winners of this competition, listed in order of their award winning year are San Francisco, Denver/Boulder, Denver/Boulder, San Francisco, Benelux, Washington D.C., Baltimore, Albuquerque and Boston.

At the March 1973 AdCom meeting in New York, the committee voted to institute a program of national lecturers for the chapters. The purpose--to make it possible for the chapters to hear distinguished experts speaking on topics of current interest in the field of antennas and propagation. All expenses of the visits to the chapters was to be paid by AdCom through its National Lecturer Fund. A budget of \$2500 per year was established for the program. Shortly after its establishment the name of the program was changed to Distinguished Lecturer Program. The program was re-evaluated recently and it was concluded that it was indeed worthwhile. As indicated earlier, AdCom now makes it possible for each chapter to invite two speakers per year at the Society's expense.

Those who have administered the Distinguished Lecturer Program are E. C. Jordan, C-T Tai, K. K. Mei, R. L. Fante and D. C. Chang. Those who have served as Distinguished Lecturers are listed in [2].

#### AP-S Standards

The oldest and probably the most active committees in our Society have been the Standards Committees. These committees have been active and productive since before the formation of the Antenna and Propagation Group in 1949. Among the standard committees of the IRE in the forties were the Technical Committee on Radio Wave Propagation and the Technical



Committee on Antennas. In 1948, the latter became the Antenna and Waveguide Committee. In 1945, IRE published the first "Standards on Radio Wave Propagation". This was prepared by the first of the above committees. In 1948, IRE published "Standards on Antennas; Methods of Testing" and "Standards on Antennas; Definition of Terms". This work was done under the general chairmanship of the late P.S. Carter, one of the charter members of PGAP. In 1953 the "Standards on Waveguides; Definition of Terms" was published by IRE, having been prepared by the Antenna and Waveguide Committee. After PGAP became active, these two committees became a part of the Group, however, the work on waveguides soon became the responsibility of the Group on Microwave Theory and Techniques.

Under the revised PGAP Constitution and Bylaws adopted in 1968 a Standards Coordinating Committee was established. It was the responsibility of this committee to coordinate the standards prepared the Antenna Standards Committee and the Wave Propagation Committee and any other standards committees formed by the Group. These two committees have from fifteen to thirty members each. Both committees have sub-committees assigned to work on separate standards or on other projects, for example, on measurement procedures, mini-reviews etc. It is not practical to record the names of all those who have worked on the various standards committees but their names are available on the official publications of the committees. Those who have served as chairmen of the Wave Propagation Committee are C. R. Burrows, A. W. Straiton, S. W. Schelkunoff, A. E. Cullum, C. R. Burrows, H. G. Booker, Newbern Smith, M. G. Morgan, T. J. Carroll, M. L. Phillips, Harry Fine and Kurt Toman.

Those who have served as chairmen of the Antenna Standards Committee are P. S. Carter, R. L. Mattingly, P. H. Smith, P. W. Hannan, W. V. Tilston, H. V. Cottony, C. J. Sletten and E. S. Gillespie.

In a short article by Julius Green entitled "IEEE Standard Publications and Activities of Interest to G-AP Membership" [3] the author gives some background information on standards and tells of the status of G-AP standards activity as of 1971. The leading sentence in the article is noteworthy. It is "In a 1968 poll, IEEE members indicated that standards were one of the most important Institute activities." An excellent summary of the work of the Standards Committees prepared by P. W. Hannan when he was Chairman of the Standards Coordinating Committee is given in the September 1973 Newsletter, pages 6 to 8.

The more recent publications of the Wave Propagation Standards Committee include the following:

Std. 211-1977 Definition of Terms for Radio Wave Propagation. This is a revision of Std. 211-1950 and 211-1969; the latter standard was published in the Transactions [4]. Std. 211.1977 was distributed to all AP-S members in 1979. Additional copies of this and other standards may be purchased from IEEE. A catalog of all IEEE standards is also available from IEEE.

Std. 291-1969 Standards Report on Measuring the Field Strength in Radio Wave Propagation; published in the Transactions [5].

Std. 302-1969 Methods of Measuring Electromagnetic Field Strength below 1000 MHz.

Std. 356-1974 Radio Methods of Measuring Earth Conductivity; published in the Transactions [6].

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John T. Bolljahn Award. The Best Paper Award was established by a vote of the AdCom at their April 1958 meeting. At the December 1960 AdCom meeting it was decided that the name of the award would be changed to the John T. Bolljahn Memorial Award (JTBM Award) in memory of the nationally known and highly respected antenna engineer who had died in June 1960. At the September 1968 AdCom meeting, Dr. L. C. Van Atta, Chairman of the John T. Bolljahn Memorial Foundation, discussed the JTBM Award. According to his proposed plan which was later adopted by AdCom, future JTBM Awards would be given in recognition of some outstanding contribution to the field of antennas and propagation. The selection of the award winner would be made by the JTBM Award Committee. The award would not necessarily be given every year. It was to be international in scope and in recognition of significant work whenever or wherever published. At this meeting also, the original name of the Best Paper Award was reinstated.

Two JTBM Awards have been given, the first to Dr. Sergi Schelkunoff. A paper presented in association with the presentation of the award was published in the Transactions [11]. The second of these awards was made to Professor Samuel Silver. The paper that he presented at the time that he received his award was also published in the Transactions [12].

It is not possible to list all of the winning papers and the award recipients for the first four AP-S awards mentioned above. They are, however, listed in the longer version of this history. A table in [2] lists the titles of the winning papers, when and where they were published along with the names of the award winners and other pertinent information.

A major responsibility of the AP-S Awards Committee is involved with the IEEE Fellow nominations. The committee must review and evaluate all those IEEE members who are nominated for the Fellow Grade where the nominations are submitted for AP-S sponsorship. The number of nominations evaluated each year by the AP-S Awards Committee may vary from fifteen to thirty. Of these, the number of AP-S members who have become Fellows during the past several years has ranged from about 5 to 15 or so per year. AP-S members who are Fellows are listed in [2].

In addition to the above awards, the Antenna and Propagation Society has, on two occasions, made a very special award--that of Honorary Life Member. The AP-S Bylaws provide that the Society may elect present or former AdCom members to be Honorary Life Members of AdCom. Dr. L. C. Van Atta was given this honor in 1956 and Professor E. C. Jordan was so honored in 1975.

#### Constitution and Bylaws

Information on who prepared the Society's original constitution is not presently available. It appears that neither the Constitution or the Bylaws or the amendments appeared in any of the Group's formal publications before July 1968. Copies of the 1963 Constitution and Bylaws with amendments, were given to the writer by Professor P. E. Mast. This appears to be the earliest version of the document now available. In 1967 and 1968 there was a major revision of the Constitution and the Bylaws were expanded from less than one to more than five pages. The official version of this was published in the July 1968 Newsletter. After amendments in 1968, 1969 and 1970 the entire Constitution and Bylaws were published in the November 1970 Newsletter.

Additional amendments were made in 1972 and in 1974 and the complete document was included in the February 1975 Newsletter. Other amendments were approved and published in the December 1975 and in the April 1981 Newsletter.

AP-S members who have served as Chairmen of the Constitution and Bylaws Committee are listed in [2].

#### Conclusion and Acknowledgements

The Society can be proud of its growth and accomplishments during its first thirty three years. The Society is fortunate to have a strong and effective leadership and a continuing supply of capable members who are willing to become involved as AdCom members or officers. Two objectives were posed for the leadership to consider in the conclusions of the longer version of this history and they are repeated here. First--endeavor to arouse more interest and activity in the local chapters and second--continue to seek to attract more hardware and experimental type papers for the Transactions.

It is a pleasure to acknowledge the helpful suggestions and information provided by so many AP-S members in the preparation of this history. In particular, the author thanks Dr. L. C. Van Atta and Dr. D. L. Sengupta for their many generous contributions. Many others who have helped are listed in [2].

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