

**The IEEE Antennas and
Propagation Society
1949-1982**

1984 AP-S Officers and Administrative Committee

Allan W. Love, President
Satellite Systems Division
D/793 SK86
12214 Lakewood Boulevard
Downey, CA 90241

Robert E. McIntosh, Vice President
Department of Electrical and Computer Engineering
University of Massachusetts
Amherst, MA 01003

Daniel H. Schaubert, Secretary-Treasurer
Department of Electrical and Computer Engineering
University of Massachusetts
Amherst, MA 01003

Administrative Committee

1984
Richard C. Johnson*
Stuart A. Long
Allen C. Newell
Yahya Rahmat-Samii
Daniel H. Schaubert

1985
Keith R. Carver
William F. Gabriel
Robert C. Hansen*
Willard T. Patton
Calvin T. Swift

1986
P. J. B. Clarricoats
Lee J. Cooper
George H. Knittel
Helmut E. Schrank
Gary A. Thiele*

1987
Robert J. Mailloux*

*Past president with vote

A History of the History

In conjunction with the preparations for the IEEE Centennial, AP-S Historian, Ralph Hiatt, was asked to prepare a history of the society. In order to have the manuscript prepared in time for the centennial year, Ralph elected to terminate this record at the end of 1982. He and the others who have participated in the preparation of this monumental document regret the omission of recent events, but leave it for the next writing to record them in their proper perspective.

At its May 1983 meeting, the AdCom decided that the complete history, as prepared by Dr. Hiatt, should be published and distributed to all AP-S members. The AdCom also asked that a condensed version be prepared and published for the archives in our Transactions. That condensed version will appear later in the year.

The recording of historical events is difficult in a diverse and ever changing society and Ralph has asked that any errors or significant omissions be brought to the attention of himself or one of the society's officers. It is the intention of the officers, the AdCom, and the historian that this history be an accurate record of how we came to be what we are today. As you read this history, you may gain a better understanding of our society and what it means to you and to our profession.

Daniel H. Schaubert

The IEEE Antennas and Propagation Society 1949–1982

Ralph E. Hiatt, AP-S Historian

**1519 Brooklyn Avenue
Ann Arbor, Michigan 48104**

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Ralph E. Hiatt AP-S Historian

Ralph E. Hiatt (M'47, SM'59, F'67, LF'80) was born in Portland, Indiana April 12, 1910. He received his AB degree from Indiana Central University in 1932 and his AM degree from Indiana University in 1939, both in physics. He taught in the Indiana public schools until 1942 at which time he joined the Massachusetts Institute of Technology Radiation Laboratory. While there, his work was on microwave radar antennas. During the last two years of WW II, he was chief of the MIT Antenna Station at Ipswich, Massachusetts.

He joined the Air Force Cambridge Research Center late in 1945 as Head of the Ground Antenna Branch. While there he performed and directed research on antennas and on radar cross section problems. He was Chief of the Antenna Laboratory (now the Microwave Physics Laboratory) of the Center when he resigned in 1958 to join the University of Michigan.

As Associate Director of the Radiation Laboratory of the Department of Electrical Engineering at the University of Michigan, he established an experimental facility for the study of antenna and radar scattering measurements. From 1961 until 1975 he was Director of the Radiation Laboratory and in this position he continued to perform and direct research on antennas and in electromagnetics. From 1966 until his retirement in 1980 he was Professor of Electrical and Computer Engineering and taught along with his research.

In his IEEE activities, Professor Hiatt served as Chapter Chairman and in several other capacities in the Southeastern Section of Michigan. He was elected to the AP-S AdCom in 1964 and continued as a member for nine years. During this time he served as Chairman of the Constitution and By Laws Committee (two terms -- 1966-1967 and 1975-1977), as Chairman of the Awards Committee, as Newsletter Editor and as Vice-Chairman and Chairman of the AdCom and is presently serving as AP-S Historian. He served as the Chairman of the International AP-S/URSI Symposium held in Ann Arbor in 1967.

He became a Fellow in IEEE in 1967 and is now a Life Fellow. He was elected as a Fellow in the American Association for the Advancement of Science in 1969. He is a member of Commission B of URSI, of Eta Kappa Nu, Sigma Xi and Tau Beta Pi.

He married Elloise Kunz of Bloomington, Indiana in 1940 and they have three children, Robert, David and Jean and they have two, soon to be three, grandchildren. As Professor Emeritus of the University of Michigan, he does some consulting but devotes most of his time to non-technical work and his hobbies such as gardening, traveling, reading and photography.

Chapter I

Introduction

In an editorial I wrote when I first became NEWSLETTER Editor, I noted that L. C. Van Atta had prepared an interesting history of the Antenna and Propagation Society from 1949 to 1962. I wrote then that it was time that our history was updated and I called for a volunteer historian. As none appeared, I began to collect items of historical interest on my own. A few years ago, I started writing the history but with fairly long gaps in between my writing. To make my position official, the Administrative Committee (AdCom) annointed me as the AP-S Historian at their June 1977 meeting in Palo Alto (April 1978 Newsletter p. 8).

The history referred to above dealt with the first thirteen years of our organization, then called the Professional Group on Antennas and Propagation (PGAP). It was contained in a special letter prepared by R. C. Hansen and sent to all the Group members in February 1962. Dr. Van Atta was the ideal person to present that period of our history as he was the founder of our Group and also our first Honorary Member. The 1962 publication provides an excellent introduction for our current history and the following excerpts are verbatim quotations from the Van Atta History.

"History of the Professional Group on Antennas and Propagation"

"As the Fiftieth Anniversary of the Institute of Radio Engineers is approaching, it is appropriate that we review the much shorter history of the Professional Group on Antennas and Propagation. This is one of twenty-eight daughter societies formed within the Institute of Radio Engineers as a part of the dramatically successful professional group movement. The petition for the formation of a Professional Group on Antennas and Wave Propagation (G-3) was approved by the IRE Executive Committee on February 1, 1949. A brief history of ideas and events preceding that Act and of the PGAP subsequently should be of some interest to its members."

"When the IRE was formed in 1912 by the union of two local societies, radio engineers were provided with an international forum for the exchange of ideas and information. At that time engineers were broadly interested in one another's activities to a greater extent than is possible today."

"In the course of the enormous growth of the radio field a great deal of specialization and divergence of interest has been inevitable. You are well aware of the large number of specialized fields, their growing complexity, and the impossibility for anyone to maintain a real familiarity with more than two or three."

"The Institute of Radio Engineers had grown with the radio field until by 1950 its membership approached 30,000. On purely quantitative grounds any complete exchange among so many engineers was obviously impossible. It was likewise difficult for any single engineer to encompass mentally, let alone con-

tribute actively, to the entire radio field. Under these conditions it would be natural for engineers to form, in addition, small, more compact groups on the basis of professional interest."

"The need for specialized societies was recognized by the IRE Board of Directors when it adopted the professional group principle of operation. The professional groups within IRE were intended to provide for specialized professional needs without losing the economy of size in meeting overhead expenses. In addition, there was the desire to preserve the important over-all unity of interest appropriate to the field of communication and electronics."

"The first two professional groups, those on audio and broadcast transmission systems, were formed in June and July of 1948. Next came the professional group on antennas and propagation in February 1949. Within two months the number of professional groups had grown to six and within the next two years to 16. By March of 1953 there were 19 professional groups with an average membership of 1400."

"Let us return now to the formation of PGAP. Originally, there were to be two professional groups, one on antennas and one on wave propagation. Two petitions were prepared and two sets of signatures obtained. The possibility of combining the two groups was suggested and this suggestion was adopted by the petitioners. As a result, we have the first example of the combination of two professional groups occurring actually before the professional groups had been approved. As a matter of interest, a list of signers of the combined petition is appended."

Following is a list of the signers of the petition for the formation of the Professional Groups on Antennas and Wave Propagation. Company affiliations were included in the original list but are omitted here.

| | | |
|-----------------|-----------------|----------------|
| R.J. Adams | R.L. Hammett | P.O. Portmann |
| R.B. Adler | P. Hines | D.C. Ports |
| E.W. Allen, Jr. | A.G. Kandoian | R.J. Renton |
| F.W. Albertson | M. Katzin | D.L. Ringwalt |
| R.E. Baluta | D.E. Kerr | J.G. Rountree |
| T.M. Bloomer | W.E. Kock | B. Salzberg |
| J.I. Bohnert | N.E. Lindenblad | M.W. Scheldorf |
| A.K. Bohren | C.A. Martin | J.P. Shanklin |
| C.R. Burrows | R.L. Mattingly | W.M. Sharpless |
| P.S. Carter | F.A. McIntosh | W. Sichak |
| L.J. Chu | J.M. Miller | A.J. Simmons |
| A.B. Crawford | J.F. Morrison | B.I. Small |
| A.E. Cullum, Jr | O. Norgorden | Newbern Smith |
| G.C. Davis | D.T. Olmstead | P.H. Smith |
| Jess Epstein | J.D. Parker | O.A. Tyson |
| R.M. Fano | D.A. Peterson | L.C. Van Atta |
| H.T. Friis | H.O. Peterson | C.A. Warren |
| S. Frankel | J.F.P. Martin | W.E. Withrow |
| H.M. Hall | | H.J. Zimmerman |

"On August 9, 1949, the IRE Executive Committee approved the proposed constitution and the request of the group to change its name to Professional Group on Antennas and Propagation. Beginning on June 1, 1949

the first slate of officers was L. C. Van Atta, Chairman; Newbern Smith, Vice Chairman and D. C. Ports, Secretary and Treasurer. For the sake of the record, the officers and administrative committee for the entire period June 1, 1949 to March 31, 1962, are appended". NOTE: Only those who served in the first term are listed here. In a later chapter on the Administrative Committee a complete list of all AdCom Chairmen and Presidents and their terms of office is included. In addition, all those who have served on AdCom are included in a separate alphabetical listing.

PGAP Officers and Administrative Committee

6-1-49 to 5-31-50

CHAIRMAN - L. C. Van Atta
VICE-CHAIRMAN - Newbern Smith
SECY-TREASURER - D. C. Ports

ADMINISTRATIVE COMMITTEE

| | |
|--------------|------------|
| C.R. Burrows | S. Frankel |
| A.E. Cullum | D.E. Kerr |
| P.S. Carter | W.E. Kock |

"The PGAP membership has grown from 910 members in 1950 to 3,699 members and four affiliates as of November 30, 1961. In the meantime, the charter of the group had been expanded to include the important field of radio astronomy."

"From the beginning, publications have loomed large in PGAP. Before the familiar brown covered Transactions appeared in July 1953, four blue covered, multilithed issues were produced. PGAP-1, published in February 1952, contained papers from the August Western Convention at San Francisco. PGAP-2 appearing in March 1952, similarly contained papers of the URSI-IRE meeting at Cornell University in October of the previous year. PGAP-3 dated August 1952, contained the April 1952 URSI-IRE meeting at NBS, Washington. Finally, PGAP-4 in December 1952 contained Western Convention papers for 1952, this time from Los Angeles. Since July 1953, 47 issues, including one special supplement, of the IRE Transactions on Antennas and Propagation have been published, with the yearly volumes numbered AP-1, AP-2, etc. This publication was issued quarterly until January 1960, when a bimonthly schedule was established. The aforementioned special supplement contained the papers presented at the Symposium on Electromagnetic Wave Theory held June 15-20, 1959, in Toronto. The papers from the 1955 Electromagnetic Wave Theory Symposium, held at the University of Michigan, appeared in one regular issue of the Transactions. From the beginning, the Transactions Editor was John Smyth of Smyth Research Associates, San Diego. After many years of unstinting service, in 1959, John handed the task to Sidney Bowhill of Pennsylvania State University. Bowhill is the current Editor."

"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 memberships."

"In addition to the Electromagnetic Theory Symposia, the Professional Group on Antennas and Propagation has co-sponsored the URSI Spring and Fall meetings since 1949, as well as the following symposia: Symposium on Communication by Scatter Techniques, November 14-15, 1955, Washington, D.C. (co-sponsored with PGCS and the George Washington University, The Optical Society of America, and the Office of Navy Research); Symposium on Propagation of Very Low Frequency Radio Waves, January 23-25, 1957, Boulder, Colorado (co-sponsored with the National Bureau of Standards); National Symposium on Extended Range and Space Communications, October 6-7, 1958, Washington, D.C. (co-sponsored with PGCS and the George Washington University)."

"Twenty chapters of the PGAP have been organized in various sections and areas of the IRE. Eight of these chapters are joint with PGMTT as indicated in the following table." NOTE: The table is omitted here; see the later chapter on 'Chapters.'

"In 1958 the PGAP annual award was established for the purpose of stimulating the submission of high-quality technical papers to its Transactions, and consists of an appropriately worded certificate and an honorarium of \$200. This year, by action of the PGAP Administrative Committee, the annual prize award was named "The John T. Bolljahn Memorial Award" in memory of the late Dr. John T. Bolljahn, and the amount of the prize was increased by the proceeds from a fund supported by contributions. Tax deductible contributions for this purpose may be made to the John T. Bolljahn Memorial Foundation, John Bohnert, Treasurer, 3334 Erie Street, S.E. Washington, D.C."

This is the end of the excerpts from the Van Atta history.

Our organization has operated under a number of different names since its beginning. The petition which resulted in the formation of our group first used the name Professional Group on Antennas and Wave Propagation. The name was changed to the Professional Group on Antennas and Propagation (PGAP) by the IRE Executive Committee when they approved the petition. The Group operated as PGAP until January 1, 1963. Then, with the union of AIEE and IRE and the birth of the Institute of Electrical and Electronics Engineers (IEEE) most of the IRE professional groups became the professional and technical groups of IEEE. Our group became the Professional and Technical Group on Antennas and Propagation (PTGAP). By July 1964, the 'T' had been dropped and we were again PGAP. A few months later we were G-AP, the Group on Antennas and Propagation. In September 1973, the Group on Antennas and Propagation became the Antenna and Propagation Society (AP-S) and to date, we are still the AP-S. In writing this history, my letter designations for our organization may not always be appropriate. It is my intention, however, to use PGAP or G-AP in the early part of our history and AP-S for our activities since 1973.

In the chapters which are to follow, there will be discussions of the early beginnings and later developments of the major concerns and activities of our Society. Areas to be covered include the Administrative Committee, the Constitution and Bylaws, Membership, Finances, the Transactions, the Newsletter, Symposia, Local Chapters and the Distinguished Lecturer Program, Standards and our Award program.

Chapter 2

The Administrative Committee

From the beginning, the Group has been under the direction of an Administrative Committee (AdCom) elected by the members. The committee has three officers; Chairman, Vice-Chairman and Secretary-Treasurer. The latter officer is appointed by the Chairman. After the group became a Society, the terms President and Vice-President were used in lieu of Chairman and Vice-Chairman. During the first four years, there were six additional AdCom members. Later this number was expanded to ten and still later to twelve plus ex-officio members. The ex-officio members included the Honorary Member(s) of PGAP plus the last four AdCom Chairmen. Prior to May 1959 only the last three Chairmen were ex-officio members.

Each year the President appoints or reconstitutes a Nominating Committee. The membership of the Committee consists of the four most junior AdCom Presidents. This Committee prepares a slate of nominees which is submitted to the membership for their vote. The slate includes one nominee for President and two for Vice-President and nominees for the AdCom member vacancies. Prior to 1980, only one candidate was nominated for Vice-President (Oct. 1979 Newsletter, p. 20). At first, there was a single nominee for each AdCom member vacancy but later, the voters chose four new AdCom members from the eight nominees submitted by the Nominating Committee. The details of this process are given in the Constitution and Bylaws.

The Annual Meeting of the AdCom is held each year at the time of the Annual Symposium of the Society. In general there is one other AdCom Meeting each year. At one time the second meeting was held in conjunction with the IEEE Convention in New York. In recent years, it has been held at the time of the URSI meeting in Boulder. In an AdCom meeting, reports are heard or presented by the President, Secretary-Treasurer and by fifteen or so others who are chairmen of committees within AdCom. Although the meetings are planned to follow a well organized agenda, controversial items that come up occasionally generate some quite lively debates.

The recorded minutes of the meetings are distributed to AdCom members and they generally appear in a later Newsletter but some few have not been published. This is unfortunate; the AdCom minutes are one of the best sources for those interested in the history of the Society. A copy of the minutes is filed at IEEE Headquarters with the Technical Activities Board (TAB). This office has copies of the PGAP and AP-S minutes starting with one dated July 15, 1949. Arrangements for reading these minutes can be made with TAB (212: 705-7890) but they cannot be removed from their office. TAB reports, however, that there are some gaps in their collection resulting from the failure of the PGAP or AP-S Secretary to submit the minutes.

In the beginning the PGAP Administrative year extended from July to the end of June in accordance with the IRE calendar. This was changed in 1967 and starting with 1968 the administrative year was the

same as the general calendar. To make the necessary transition, officers whose terms started in July 1966 continued in office through December 1967. In the list below, the names and terms of office of the past AdCom Chairmen and Presidents are given. The Constitution and Bylaws makes it possible for an AdCom Chairman to be elected to serve a second term. Only two among the following have been so honored.

| Chairmen/Presidents | Term |
|---------------------|------------|
| L.C. Van Atta | 1949-50 |
| Newbern Smith | 1950-51 |
| George Sinclair | 1951-52 |
| A.H. Waynick | 1952-53 |
| P.S. Carter | 1953-54 |
| D.C. Ports | 1954-55 |
| D.C. Ports | 1955-56 |
| H.G. Booker | 1956-57 |
| J.I. Bohnert | 1957-58 |
| R. L. Mattingly | 1958-59 |
| Arthur Dorne | 1959-60 |
| E.C. Jordan | 1960-61 |
| Harry Fine | 1961-62 |
| S.A. Bowhill | 1962-63 |
| R.C. Hansen | 1963-64 |
| W.E. Gordon | 1964-65 |
| A.T. Waterman | 1965-66 |
| K.M. Siegel | 1966-12/67 |
| K.S. Kelleher | 1968 |
| D.R. Rhodes | 1969 |
| R.E. Hiatt | 1970 |
| C.T. Tai | 1971 |
| J.B. Damonte | 1972 |
| C.J. Sletten | 1973 |
| C.H. Walter | 1974 |
| W.H. Kummer | 1975 |
| Raj Mittra | 1976 |
| E.A. Wolff | 1977 |
| A.C. Schell | 1978 |
| L.J. Ricardi | 1979 |
| R.C. Johnson | 1980 |
| R.C. Hansen | 1981 |
| G.A. Thiele | 1982 |

Those who have served as members of AdCom are listed alphabetically in the table below. From an examination of the records, it appears that 117 members have served on AdCom. Their regular term is for three years but several of those listed have been elected to serve additional terms. According to the Constitution and Bylaws, the nominees for President and Vice President must be chosen from among those who have been elected to serve as AdCom members. In AP-S as in many organizations, the member who serves as Vice-President in one year is almost always elected to the presidency for the following year.

Past or Present AdCom Members

| | | |
|----------------|----------------|---------------|
| R.J. Adams | J.T. Bolljahn | J.S. Brown |
| M.D. Adcock | H.G. Booker | C.R. Burrows |
| E.A. Altshuler | S.A. Bowhill | C.M. Butler |
| K.G. Balmain | K. Bowles | P.S. Carter |
| D.E. Barrick | R.N. Bracewell | T.E. Charlton |
| J.I. Bohnert | G.S. Brown | D.K. Cheng |

| | | | | | |
|----------------|-----------------|-----------------|-----------------|----------------|-----------------|
| L.J. Chu | N.J. Gamara | E.C. Jordan | R.L. Mattingly | J. Ruze | T.E. Tice |
| H.V. Cottony | E.S. Gillespie | R. Justice | R.E. McIntosh | C.E. Ryan | L.G. Trolese |
| A.B. Crawford | W.E. Gordon | E.V. Kahn | K.K. Mei | D.H. Schaubert | E.M. Turner |
| W.F. Crowell | G. Goubau | D.E. Kerr | G.H. Millman | A.C. Schell | L.C. Van Atta |
| A. Dorne | F.T. Haddock | K.S. Kelleher | R. Mittra | J.P. Shelton | O.B. Villard |
| G.A. Deschamps | P.W. Hannan | D.D. King | R.K. Moore | K.M. Siegel | A.T. Villeneuve |
| J.B. Damonte | R.C. Hansen | H.E. King | T. Morita | A.J. Simmons | J.R. Wait |
| R.H. DuHamel | R.F. Harrington | R.W.P. King | R.E. Munson | G. Sinclair | C.H. Walter |
| R.B. Dyce | R.A. Helliwell | S.M. King | A.C. Newell | C.J. Sletten | A.T. Waterman |
| J.D. Dyson | J.W. Herbstreit | H.C. Ko | D.T. Paris | E.K. Smith | A.H. Waynick |
| R.D. Egan | R.E. Hiatt | W.E. Kock | I.C. Peden | N. Smith | H.W. Wells |
| R.S. Elliott | G. Hyde | W.H. Kummer | D.C. Ports | J.B. Smyth | M.S. Wheeler |
| V.R. Eshleman | W.A. Imbriale | R.L. Leadabrand | W.H. Radford | R.C. Spencer | E.A. Wolff |
| R.L. Fante | A. Ishimaru | C.A. Levis | Y. Rahmat-Samii | A.W. Straiton | |
| L.B. Felsen | R.B. Jaques | Y.T. Lo | D.R. Rhodes | C.T. Swift | |
| J.W. Findlay | R.C. Johnson | S.A. Long | L.J. Ricardi | C.T. Tai | |
| H. Fine | E.M.T. Jones | A.W. Love | V.H. Rumsey | F.M. Tesche | |
| H.A. Finke | H.S. Jones | R.J. Mailloux | W.V.T. Rusch | G.A. Thiele | |

Chapter 3 Constitution and Bylaws

Information on who prepared our original Constitution or who was responsible for the early amendments is not presently available. To my knowledge neither the Constitution or the Bylaws or any of the amendments appeared in any of the Group's publications prior to the July 1968 Newsletter. A copy of the first known Constitution and Bylaws with amendments through 1963 is included in the AP-S Historian's file. As stated in the Van Atta History, the Group's first Constitution was approved by IRE in August 1949. The Constitution was amended July 7, 1953, October 21, 1958 and July 10, 1963. By 1963 six Bylaws had been added and these had been amended in May 1959. These dates were obtained from the file copy of the 1963 Constitution and Bylaws.

In 1967-68 there was a major revision of the Constitution and Bylaws. At this time the Bylaws were expanded from less than one page to five pages. The revision was approved by AdCom and later by IEEE and first 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 1974 and the complete publication was included in the February 1975 Newsletter. A substantial amendment of the Bylaws having to do largely with awards was published in the December 1975 Newsletter. Another series of amendments was published in the April 1981 Newsletter.

When P. E. Mast was serving as Secretary-Treasurer (1962-65) he was assigned responsibility for the Constitution and Bylaws as an additional duty. Since then, the Constitution and Bylaws Committee has been one of the AP-S standing committees. R. E. Hiatt served as chairman of this committee from 1966 through 1969. Others to follow him included L. J. Ricardi (1970-71), E. M. Turner (1972), W. Kahn (1971-74), R. E. Hiatt (1975-77), Ed Wolff (1978), G. S. Brown (1979-80), W. D. Burnside (1981) and R. I. Wolfson (1982 to the present).

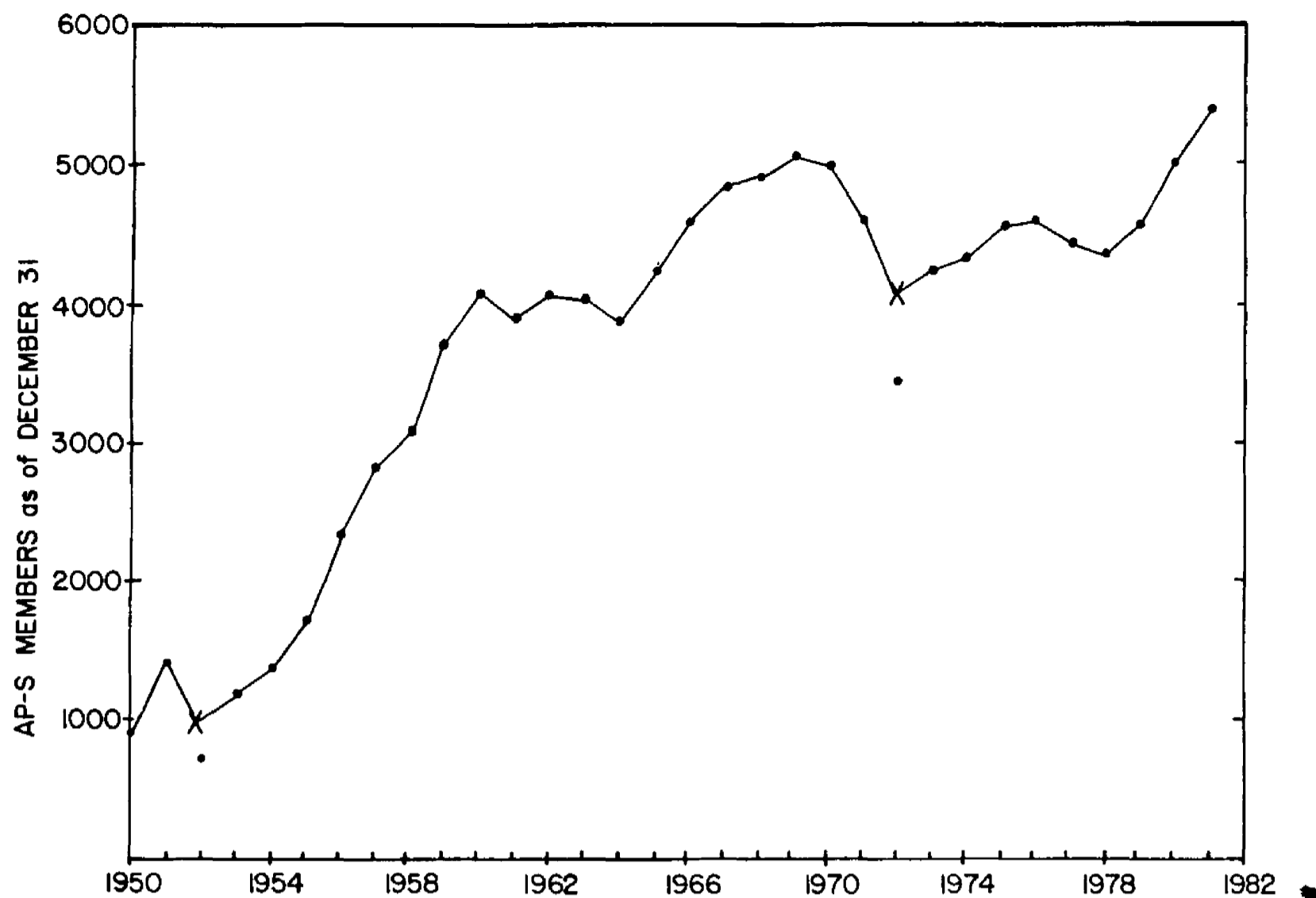
According to R.I. Wolfson the complete, updated Constitution and Bylaws will again be published in the near future.

Chapter 4 AP-S Membership

As noted earlier, PGAP began with 56 Charter Members and the membership increased to 910 in the following year (1950). During the next ten years or so the membership grew to approximately four thousand. Prior to the end of 1953, all who had indicated interest in the group were considered to be members. At the end of that year there were 1215 paid members; all others were removed from the membership list. (T-AP2, April 1954, p. 44). In the years since then our membership chairmen have made vigorous efforts to increase the number in the group. Despite this, the group size has tended to stay between four and five thousand until very recently. Of this number, ten to fifteen percent were students. In the beginning, members of an approved list of professional societies other than IRE were permitted to become affiliate members of PGAP. The number of affiliates has always been small, less than ten or so, and in 1967 the group ceased to allow affiliate members. (In recent years, affiliate members have again been included in the membership.)

To encourage others to join the group, various methods have been used. Recruitment campaigns have been publicized in the Newsletter and both the Newsletter and the Transactions carry membership application forms. Recruitment at Chapter meetings is encouraged and publicity material and application forms are made available. New membership booths are maintained at symposia and other major meetings. Membership Chairmen correspond with non group members who publish in the Transactions in an effort to have them join the Group. Also former members are contacted from time to time with invitations to rejoin the Group.

In the accompanying curve the level of the membership during the first 33 years is shown. The number of paid members varies considerably during each calendar year (December 1973 Newsletter, p. 19). To the extent possible, the curve represents the number of members at the end of the year. Currently about 27



The dots represent official data provided by the Secretary-Treasurer (R. E. McIntosh, private communication, November 1982). For the curve, more realistic numbers were used for two points - 1952 (News and Views T-AP 6, April 1958, p.160) and 1972 (AP-S Newsletter, November 1974, p. 17).

percent of our membership lives outside the United States and about 18 percent are students.

Much credit is due those who have served as our Membership Chairmen. Those who have served in this capacity are listed below:

Membership Chairmen

| | |
|-----------|-------------------------|
| 1949-1957 | apparently no appointee |
| 1958 | R.J. Mattingly |
| 1959 | |
| 1960 | R.J. Adams |

| | |
|-----------|----------------|
| 1961 | |
| 1962 | R.C. Hansen |
| 1963 | |
| 1964 | G.A. Deschamps |
| 1965 | P.H. Smith |
| 1966-1969 | P.H. Smith |
| 1970 | W.F. Crowell |
| 1971 | C.P. Wu |
| 1972-1975 | R.J. Garbacz |
| 1976 | E.S. Gillespie |
| 1977-1979 | C.T. Swift |
| 1980-1981 | D.H. Schaubert |
| 1982 | L.J. Cooper |

Chapter 5 Fees, Finances, and the Secretary Treasurer

The financial history of our Society had a rocky beginning. One of the first references to the situation is the following quotation by Chairman George Sinclair: "In order to finance the activities of the Group, particularly in regards to publications, it has been decided by the Executive Committee of the Group to assess all members \$2.00. The assessment is not to be regarded as dues, since membership in the Group is not contingent on its payment. However, only those who pay the assessment are assured of receiving the publications of the Group. The assessment is intended to be a temporary measure designed to provide an initial operating fund for the Group until other means of raising funds are explored." (T-AP 1, February 1952, p. 2)

Shortly after this (See T-AP 1, July 1953, p. 2) the dues were set at \$4.00. This, however, did not solve the financial problem. Following is a summary of the financial difficulties experienced in the early sixties. This is a quote from the April 1961

Newsletter, p. 1: Financial Problems -- "Financial situation was discussed at length in the last New York meeting, with the conclusions that the Transactions Editor should continue publishing full issues for the next two months and a committee appointed to study methods for overcoming financial difficulties. At the Washington meeting, possible immediate and long-term remedies were presented by the Ad Hoc Committee. The most promising recommendations involved a page charge and increased advertising. The page charge was rejected by Headquarters in June and in October, Headquarters' ruling of no advertising in the Transactions was made. A great deal of effort went into a budget based upon an additional \$7,700 subsidy from Headquarters. The request for a subsidy received mixed reaction at Headquarters and at the present time, no definite conclusion can be reached. Meanwhile, we are trimming the number of pages."

In the May 1961 AdCom meeting, the Treasurer reported that there was a deficit of \$3,640 at the

beginning of the year and that it was necessary to get an additional subsidy of \$8,900 from IRE. A budget of \$32,000 was allocated for publications.

Note the comment by L. C. Van Atta in the 1962 quotation given in the introductory chapter of this history. The leading sentence in the pertinent paragraphs is "Through the greater part of its history, PGAP has been in financial trouble, etc. etc."

In the minutes of the March 1967 AdCom meeting (August 1967 Newsletter p. 4) under Financial Planning it is stated that "For the last several years, G-AP has been operating on a deficit budget basis, mostly due to the large number of Transaction pages printed. G-AP's annual dues are \$6.00. The cost to the Group for the Transactions in 1966 was \$7.84 per member. If we are to operate on a balanced budget we must find some additional sources of income. Sources mentioned were (1) additional support from TAB; (2) increasing Group fees; (3) advertising; and (4) page charges. It was agreed that G-AP should request authority from TAB to institute a \$10 per page charge."

At the October 1967 AdCom meeting (February 1968 Newsletter p. 3) it was announced that "Voluntary page charges of \$50 per page will be requested for all editorial material published in the Transactions." This, I believe, was the result of an IEEE ruling and it was not restricted to G-AP alone. It was stated also at this same AdCom meeting that "IEEE Headquarters will continue to monitor the quality of all transactions published and will amend their support of these transactions to encourage and reward those of highest quality. G-AP can be proud of the fact that of three possible ratings, our Transactions were rated in Category I--doing a good job, give all feasible support."

Another pertinent paragraph in these same minutes is the following "IEEE HQ is requesting that each group build a surplus in the amount of one year's dues--approximately \$25,000 for G-AP. We can achieve this goal over the next five years if we:

- (a) encourage the payment of page charges;
- (b) maintain high quality standards for the Transactions, thus insuring HQ support;
- (c) maintain tight budgetary control of expenses.

Secretary-Treasurer, J.B. Damonte"

In the September 1968 AdCom minutes it is noted that page charges were being collected starting with March 1968 AP-16. (February 1969 Newsletter p. 3) In the minutes of the March 1969 AdCom meeting it is noted that \$17,200 were collected from page charges in 1968 (May 1969 Newsletter p. 4).

In the June 1972 Newsletter the following statement is made on page 5 in reference to 1971: "Although membership declined and the IEEE support decreased this was offset by an increase in page charge collections and a decrease in costs. In 1971, 51.7% of the T-AP pages were paid for by the authors."

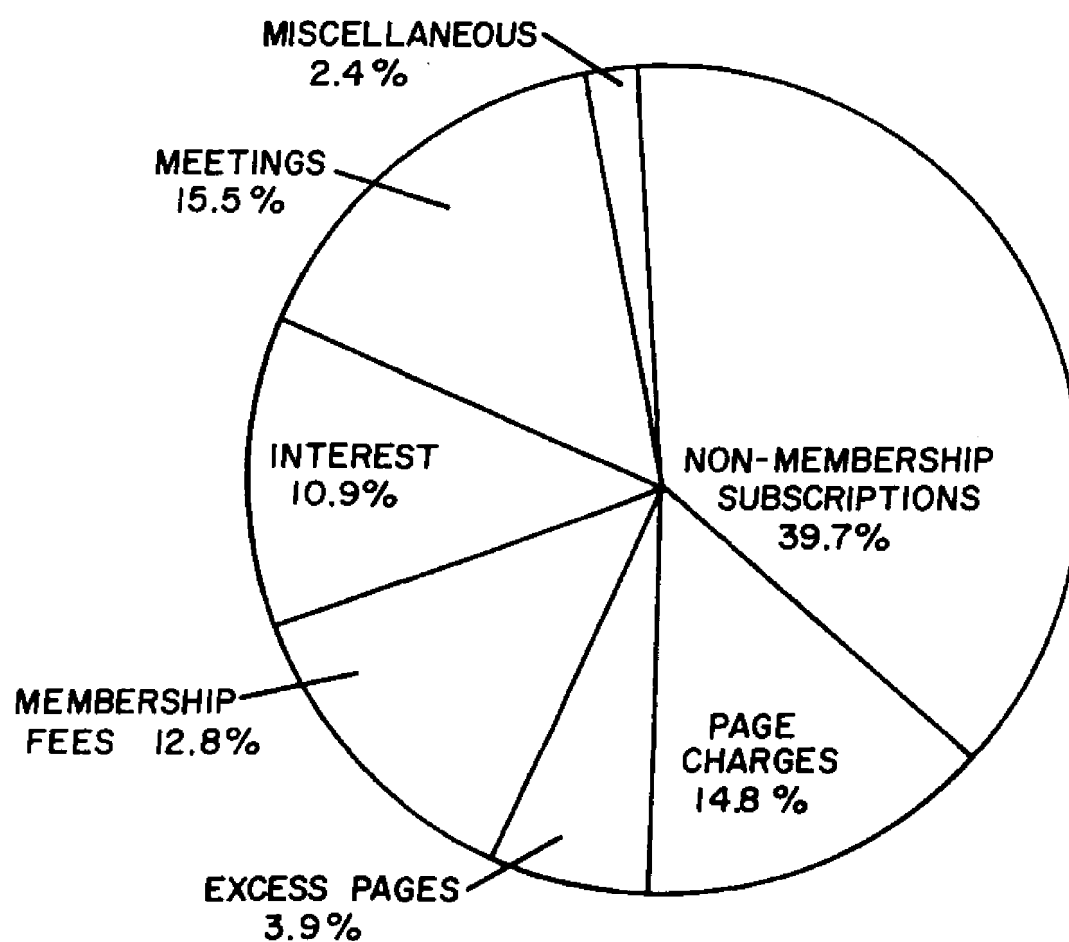
Since 1970, AP-S has been fairly successful with respect to its finances. That year ended with a Treasury balance of \$27,900 and since that year the surplus has increased significantly almost every year. As of December 1981 the AP-S balance or reserve was \$244,000. During the eleven year period the Society Reserve per member increased from \$5.55 to \$53.00.

Factors which contributed most significantly to the improved financial picture included:

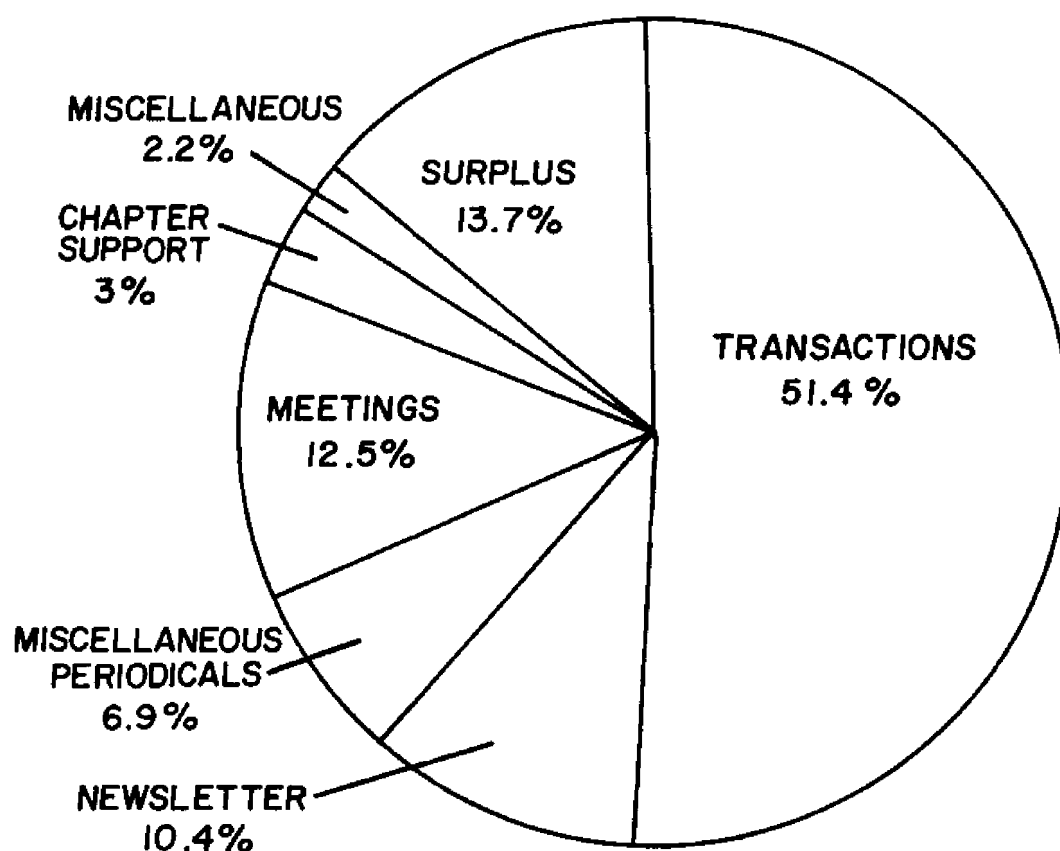
- (1) greatly increased revenues from the sale of non-membership (library) subscriptions;

- (2) increased page charge revenues; this was due to higher rates set by IEEE and the increased participation in the payment of page charges.
- (3) increased interest on savings and investments; this increased from a trivial amount in 1970 to an amount comparable to the membership dues in 1981. This was due, of course, to the higher interest rates and the much greater sums being invested.

The pie graphs shown below (borrowed from R. E. McIntosh, June 1982 Newsletter p. 16) portray very nicely and in the proper proportion the income sources and the expenditures for 1981. For further information on the AP-S financial history, see McIntosh's article in the June 1981 Newsletter, pp 12-14.



AP-S Sources of Income for 1981



AP-S Expenses and Surplus for 1981

In giving the Financial Report of the Long Range Planning Committee, C. T. Swift states (August 1982 Newsletter p. 13), "If financial matters are left to themselves, the AP-S will continue to enjoy healthy surpluses and annual increases in the net worth of the Society." He concluded his report by suggesting a number of ways to use part of the surplus in increased service to members. In the May 1982 AdCom meeting action was taken on some of Swift's recommendations (August 1982 Newsletter pp 14-15) as follows:

- (1) Transaction pages to be increased to 1250 pages in 1982 and to 1400 pages in 1983;
- (2) Funds available to chapters to be increased;
- (3) Membership dues to be reduced from \$10 to \$8.

In the following table, information is given on fees, year end reserves, reserves per member and on those who have served as Secretary-Treasurer for the 1950 to 1982 period.

| Year | Secretary-Treasurer | Fee | Year End Reserve | Reserve/Member |
|---------|---------------------|------|------------------|----------------|
| 1950-51 | D.C. Ports | \$ 2 | ----- | ----- |
| 1951-52 | D.C. Ports | 2 | ----- | ----- |
| 1952-53 | D.C. Ports | 2 | \$ 2,874 | \$ 3.99 |
| 1953-54 | P.H. Smith | 4 | 6,033 | 4.95 |
| 1954-55 | R.L. Mattingly | 4 | 6,808 | 5.07 |
| 1955-56 | R.L. Mattingly | 4 | 11,029 | 6.96 |
| 1956-57 | R.L. Mattingly | 4 | 3,448 | 1.46 |
| 1957-58 | C. Goatley | 4 | (235) | -.08 |
| 1958-59 | K.S. Kelleher | 4 | 1,889 | .61 |
| 1959-60 | K.S. Kelleher | 4 | 6,668 | 1.77 |
| 1960-61 | K.S. Kelleher | 4 | (3,640) | -.86 |
| 1961-62 | K.S. Kelleher | 6 | 10,182 | 2.68 |
| 1962-63 | E. Mast | 6 | 12,773 | 3.10 |
| 1963-64 | E. Mast | 6 | 19,926 | 4.86 |
| 1964-65 | E. Mast | 6 | 15,343 | 3.97 |
| 1965-66 | J.B. Damonte | 6 | 15,370 | 3.60 |
| 1966-67 | J.B. Damonte | 6 | 15,397 | 3.34 |
| 1967 | J.B. Damonte | 6 | 11,977 | 2.45 |
| 1968 | J.B. Damonte | 6 | 22,094 | 4.48 |
| 1969 | J.B. Damonte | 6 | 33,288 | 6.40 |
| 1970 | Tetsu Morita | 6 | 27,900 | 5.55 |
| 1971 | Tetsu Morita | 6 | 44,247 | 9.49 |
| 1972 | Tetsu Morita | 8 | 64,552 | 18.53 |
| 1973 | W.F. Croswell | 8 | 86,915 | 20.27 |
| 1974 | C.T. Swift | 8 | 96,800 | 22.38 |
| 1975 | C.T. Swift | 8 | 88,800 | 19.34 |
| 1976 | C.T. Swift | 8 | 85,300 | 18.41 |
| 1977 | E.A. Kuhlman | 10 | 146,200 | 33.19 |
| 1978 | G.A. Thiele | 10 | 173,300 | 39.56 |
| 1979 | G.A. Thiele | 10 | 199,800 | 42.71 |
| 1980 | G.A. Thiele | 10 | 244,400 | 47.96 |
| 1981 | R.E. McIntosh | 10 | 289,400 | 53.02 |
| 1982 | R.E. McIntosh | 10 | 319,000 | 55.37 |

NOTE: From 1950 until 1967, the terms of AdCom Officers extended from July to June. The dollar values given above for this period are intended to apply to the calendar year of the first year in column one.

Chapter 6 Transactions

Introduction

For most members and for the outside professional community, the publication of the Transactions is, by far, the most important activity of the Group/Society. One evidence of this is the fact that a major part of the time in most meetings of the AdCom is devoted to discussions on the Transactions. In addition, the largest part of the budget is used to pay for its publication.

Information on the early history of the Transactions was given in the introductory quotation

by L. C. Van Atta in the first chapter. The birth of the AP Transactions was announced in a special issue of the News and Views in May 1953, a copy of which was sent to all 1100 PGAP members. As noted, the Transactions first appeared in 1953 but prior to that our Group published four volumes of papers known as PGAP-1, PGAP-2, PGAP-3 and PGAP-4. These were published in a multilithed version and issued in blue covers. Since these issues are rare and unfamiliar to many members, their Table of Contents is included in Appendix 1 of this history.

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

1952 Transactions of the IRE Professional Group on Antennas and Propagation (PGAP=1 - PGAP=4)
 1953-1954 Same (AP=1 and AP=2)
 1955-1962 IRE Transactions on Antennas and Propagation (AP-3 thru AP-10)
 1963-1982 IEEE Transactions on Antennas and Propagation (AP-11 thru AP-30)

Editors

As the first Transactions Editor, John Smyth served almost twice as long as any Editor since then. The following tribute was paid him in the November 1959 Newsletter, p. 1 "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 within 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 who have served since Dr. Smyth.

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

| | |
|-------------------|-----------------------|
| John Smyth | 1952-1959 |
| Sidney Bowhill | 1960-1962 |
| Herman Cottony | 1963-August 1965 |
| John Ruze | August 1965-July 1968 |
| Alan Schell | July 1968-July 1971 |
| Leon Ricardi | July 1971-July 1974 |
| William Crosswell | July 1974-July 1977 |
| Walter Kahn | July 1977-July 1980 |
| Raj Mittra | July 1980-July 1983 |

During the early years, there were no Associate Editors but starting in 1962, A. C. Waterman, Jr. served as Associate Editor with Sidney Bowhill. Since 1962, there have been Associate Editors for the major areas of concern to the Group. At first Associate Editors were assigned to antennas, electromagnetic theory, propagation and radio astronomy. Later others were added and now there are, in addition to the above, Associate Editors for plasmas, numerical analysis, phased arrays, adaptive arrays, inverse scattering, geophysical scattering, reflectors and HF-Techniques, application notes, tutorial papers and transients. The names of the Associate Editors and their assignments are listed on the inside front cover of each issue of the Transactions. Those who have served as Associate Editors in the past or are now serving are given in the following list:

| | | |
|----------------|-----------------|------------------|
| S. Adachi | J.W. Findlay | R.J. Pogorzelski |
| R.J. Adams | W.F. Gabriel | D.C. Ports |
| C.A. Balanis | R.F. Harrington | Y. Rahmat-Samii |
| D.E. Barrick | H.E. King | R.V. Row |
| W.M. Boerner | R.W.P. King | A.C. Schell |
| S.A. Bowhill | G.H. Knittel | D.L. Sengupta |
| G.S. Brown | R.D. Kodis | K.M. Siegel |
| W.D. Burnside | A.A. Ksienski | B.J. Strait |
| C.M. Butler | C.H. Liu | J.W. Strohbehm |
| K.F. Casey | S.W. Lee | C.T. Tai |
| D.C. Chang | A.W. Love | F.M. Tesche |
| H.V. Cottony | K.K. Mei | V. Twersky |
| R.K. Crane | T. Morita | W. Wasylkiwskyj |
| W.F. Crosswell | R.H. Ott | A.T. Waterman |
| R.B. Dyce | L.W. Pearson | D.R. Wilton |
| R.L. Fante | M.A. Plonus | |

For a more complete discussion of the AP-S Transactions editorial system, see the comments by Editor Raj Mittra (October 1981 Newsletter p. 42).

Organization

In a typical issue of the Transactions, the outside front cover carries the Table of Contents. AP-S officers, AdCom members, Committee Chairmen, the Transaction Editors and the major IEEE officers are listed on the inside of the front cover. In the main body of the Transactions, contributed papers appear first followed by a Communication Section. Photographs and biographies of the authors of the contributed papers were published near the end of each issue from 1956 to January 1977. From January 1977 to September 1979 photos and biographies were omitted to save costs. Now, photographs and information on the authors appear at the end of the article that they have authored except that such information is not to be published more than once in three years (December 1978 Newsletter p. 8).

The second major part of the Transactions is the Communications Section. Authors with shorter papers, somewhat limited in scope, who wish to have their work published as soon as possible frequently prefer to submit their papers to the Communication Section. Quoting from the instructions page in a recent issue of the Transactions -- "Communication papers are in general reviewed only by the Editor and his staff; papers should be less than five pages. Comments on or corrections to published papers are typical communications."

For a while, a third class of papers was published in the Transactions. These were known as Succinct Papers and this category was used from March 1974 to the end of 1977. Again quoting from the Instructions page -- "Succinct papers are similar to papers except that they are narrower in compass. They receive the same review and are in general shorter than a paper."

Two other sections appear frequently in the Transactions of the last few years. Under Computer Programs members submit those programs which have a specific reference to antenna design, electromagnetic scattering, propagation and radio physics. This section provides a means for sharing useful computer programs. In the section on Antenna Design Notes, practical descriptions are given on the design and fabrication of antennas of general interest.

Finally, with respect to the organization of the Transactions, the inside of the back cover lists the names of the current paper reviewers and includes information for future authors. Institutional listings are displayed on the outside of the back cover.

Pages Published

Publications are judged more for the quality than for the quantity but the number of pages published is an important indication of the activity in the technical area involved. It also gives evidence on the vitality and viability of the responsible group. Several IRE groups had an active publication schedule from the beginning. For several years, however, our Group held the record for the most papers published per member. From 1951 through 1957 the pages published by the Group numbered 2253; this was 700 more than those published by any other IRE professional group. The table below shows the number of pages published by AP-S from 1952 through 1982:

| <u>Year</u> | <u>Pages</u> |
|-------------|--------------|
| 1952 | 618 |

| | |
|------|-------|
| 1953 | 72 |
| 1954 | 181 |
| 1955 | 248 |
| 1956 | 702 |
| 1957 | 432 |
| 1958 | 388 |
| 1959 | 917 |
| 1960 | 639 |
| 1961 | 586 |
| 1962 | 808 |
| 1963 | 736 |
| 1964 | 946 |
| 1965 | 1,048 |
| 1966 | 844 |
| 1967 | 860 |
| 1968 | 804 |
| 1969 | 868 |
| 1970 | 884 |
| 1971 | 836 |
| 1972 | 856 |
| 1973 | 960 |
| 1974 | 884 |
| 1975 | 912 |
| 1976 | 956 |
| 1977 | 952 |
| 1978 | 936 |
| 1979 | 920 |
| 1980 | 995 |
| 1981 | 1,009 |
| 1982 | 1,313 |

In 1953, only two issues of the Transactions were published; four issues were published from 1954 through 1958. In 1959, in addition to the four regular issues, a special supplement containing the papers of the Toronto EM Symposium was published in December. Since 1959 six issues have been published per year except in 1964. A special issue on Radio and Radar Astronomy was published as the seventh issue that year.

Quality

So much for quantity -- now for quality: At the March 1968 AdCom meeting the Chairman, K. S. Kelleher, reported that after a thoroughgoing review by an IEEE Committee, the G-AP Transactions had been given the top rating, Category I (outstanding). The conclusion reached by another committee of the IEEE Publishing Board, chaired by D. K. Cheng, were as follows (May 1970 Newsletter, p. 6):

- (1) "The technical quality of the G-AP Transactions has been very good. It is the leading publication on antennas and ranks third on Propagation.
- (2) The Transactions serve well those members whose interests lie in antennas and ground wave propagation at large; plasmas and radio astronomy are not adequately covered.
- (3) The editorial review procedure is rated outstanding.
- (4) The regularity and speed of publication were rated average ---.
- (5) The Transactions appear to be improving---."

The criticism most often levied against the Transactions is for the lack of application papers and the fact that it is too theoretical. This complaint has been particularly strong during the last 15 years or so. The Administrative Committee and the Transactions Editors have been quite aware of this and are in complete sympathy with the justice of the complaint. There has been a continuing effort on their part to attract more application papers. The plea for experimental and hardware papers appears quite frequently in the Newsletters. Those who present application papers at symposia are encouraged to submit them for publication. Since 1974, there has

been a special award each year for the best application paper published in the Transactions. For several years an AdCom member has been designated as Applications Papers Chairman and as such has made special efforts to obtain more application papers. As noted above, there is also an Associate Editor for Application Notes. Despite these efforts, the increase in the number of application papers has been disappointingly small. Workers in industry are the most obvious source for application papers. Their ability to prepare articles for publication is hampered by proprietary or security restrictions and by the accelerated pace of their activity. For a critical discussion of the Transactions and the role of application papers see the comments of J. R. Wait in the December 1973 Newsletter, p. 15.

Page Charges

In the March 1967 AdCom meeting the treasurer reported that the Group had been operating on a deficit for the last several years. This was true even though the Group's annual dues had been increased to \$6.00 in 1961 with the result that IEEE Headquarters had increased their financial support for the Transactions. The possibility of selling advertising in the Transactions was discussed and later the idea was abandoned when the Group learned that they could keep only 30% of the advertising income. (Advertising as well as Institutional Listings were carried by the Transactions in 1957, 1958 and 1959. In October 1960, IRE ruled that there would be no more advertising in any of the Transactions.) Since advertising was not feasible as a source of revenue, AdCom voted to request authority from TAB to institute a \$10 per page charge for papers published in the Transactions. About this time, however, IEEE Headquarters established a policy that allowed all Groups/Societies to make a voluntary charge of \$50 per page. It was emphasized that page charges would not be obligatory. The request for honoring the page charges would be made only after a paper had been accepted for publication (February 1968 Newsletter pp 3-4).

About July 1970, page charges were increased to \$60. In January 1975, page charges were increased to \$70 for the first six pages published and to \$100 for each additional page. In June 1981 (Newsletter October 1981, p. 33) voluntary page charges were increased to \$85 per page. In their June 1982 meeting, the IEEE Executive Board approved the recommendation of the Publication Board to raise the 1983 voluntary page charges to \$95 per page (August 1982 Newsletter, p. 25). In 1971, 52% of the Transaction pages were paid for by the authors; this percentage had increased to 70% by 1982.

Special Issues of the Transactions

There have been several special issues of the Transactions. Recently, the papers in these issues have been devoted to some technical area of current interest. Two special issues of a different type were mentioned in the Van Atta introductory note. The first, published in July 1956 contained the papers from the 1955 Electromagnetic Wave Symposium held at the University of Michigan. The second contained the papers presented at the June 1959 Symposium on Electromagnetic Theory held in Toronto. Its publication date was December 1959. Listed below are the special issues published in addition to the above:

January 1961 - Radio Astronomy, Editor L. V. Berkner

January 1962 - Plasma Physics, Editor K. M. Siegel

May 1963 - Electromagnetic Waves in the Earth,
Editor J. R. Wait

March 1964 - Active and Adaptive Antennas, Editor
R. C. Hansen

December 1964 - Radio and Radar Astronomy, Editor
J. D. Kraus (in cooperation with the Military
Electronics Group)

January 1967 - Partial Coherence, Editor F. J.
Zucker

July 1969 - Spacecraft Antennas, Editor L. J.
Ricardi

July 1970 - Millimeter Wave Antennas and
Propagation, Editor A. W. Straiton

July 1973 - Antenna Measurements, Editor J. S.
Hollis

July 1974 - Conformal Arrays, Editor W. H. Kummer

September 1976 - Adaptive Arrays, Editor W. F.
Gabriel

January 1977 - Radio Oceanography, Editor C. T.
Swift

January 1978 - Nuclear Electromagnetic Pulse,
Editors E. F. Vance, J. H. Darrach, R. J.
Haislmaier and R. J. Bostak (joint with the
Electromagnetic Compatibility Group)

January 1981 - Microstrip Antennas, Editor D. C.
Chang

March 1981 - Inverse Methods in Electromagnetics,
Editors W. M. Boerner, A. K. Jordan and I. W. Kay

Special Features

Special features of the Transactions appear from time to time. To mention some of these -- Mini-reviews have been published frequently. These are published under the sponsorship of the Wave Propagation Standards Committee. The titles and authors of these publications are listed in the chapter on Standards. Tutorial papers on selected topics are prepared at the invitation of the Editor. Some of the mini-reviews are listed as tutorial papers. For a discussion of the mini-reviews, see J. R. Wait's comments in the June 1979 Newsletter, page 9.

Another special feature of the Transactions is the announcement of AP-S awards for Best Papers, etc. These announcements appear occasionally but many are omitted.

On the passing of some of the illustrious leaders of our Society, the Transactions has published photographs and memorial statements. Memorials have been published for the following:

John Bolljahn, 1918-1960, AP-9, #3

John Bohnert, 1910-1962, AP-10, #5

Keeve Siegel, 1923-1975, AP-23, #5

Samuel Silver, 1915-1976, AP-25, #3

Tetsu Morita, 1923-1980, AP-29, #3

Indices

With few exceptions, the last issue of the Transactions of each year includes the yearly index of the papers published that year. In addition, cumulative indices have been published as follows:

1952 to 1968, Volume AP-17, #6, Part II published
December 1969

1959 to 1973, Volume AP-22, #5, Part II published
September 1974

1974 to 1979, Volume AP-29, #2, Part II published
March 1981

Chapter 7 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 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 all be 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."

Five issues of the Newsletter were published in 1959 and the issue published in January 1959 was listed as Volume 2, number 1. The table below shows the number of newsletters published per year, the number of pages published per volume along with the names of the men who followed Arthur Dorne as editor.

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 the administration and the members at symposia and AdCom meetings but it is only through the Newsletter that contact can be made with all members for the discussion of non-technical subjects. The Transactions, of course, serves as a vehicle for the discussion of technical subjects. Most Newsletters contain a message from the president and one from the Newsletter editor. Other AdCom members often have editorials or comments in the Newsletter. The inclusion of the minutes of AdCom meetings has served as an important method of keeping the membership informed on the actions and plans of the Group/Society. The minutes and other newsletter items serve also as the best source of historical events that have been important to the Group/Society.

Following is a list of the features now normally included in the Newsletters:

- Message from the President
- Editorials
- AdCom Minutes
- Lists of AdCom members
- Introduction of new AdCom members
- Chapter News
- Division Director's Report
- Reviews or Abstracts of Books and Reports
- Awards earned by members
- Help wanted advertisements
- Meeting announcements
- Short course announcements
- Call for papers
- Letters to the editor
- Names in the news
- Technical reports
- Potpourri
- Opinion column
- Institutional listings
- Miscellaneous
- 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 list of the entire Group/Society membership--see for example Volume 2, numbers 2 and 3; Volume 4, numbers 1 and 2; and Volume 14, numbers 1 and 2.

Technical articles have been featured prominently in recent Newsletters. The first of these was on "Near Field Antenna Measurements" and it appeared in Volume 21, number 2. It is interesting to note that Volumes 3 through 6 of the early Newsletters also contained a number of brief technical articles. Many of those articles had to do with large antennas.

Since 1971, the Newsletter Editor has had the assistance of one or more Associate Editors, the first being K. K. Mei. A second Associate Editor was added in 1974 to handle book reviews. In recent years the Newsletter staff has included associate editors for feature articles, chapter news, reviews and abstracts, professional activities, diabolic reflections, etc.

Newsletter History

| Year | Volume | Issues Published | Pages Published | Editor |
|------------|--------|------------------|-----------------|----------------|
| 1958 | 1 | 1 | 3 | A. Dorne |
| 1959 | 2 | 5 | 23 | A. Dorne |
| 1960 | 3 | 5 | 28 | R.C. Hansen |
| 1961 | 4 | 2 | 28 | R.C. Hansen |
| 1962 | 5 | 2 | 20 | R.C. Hansen |
| 1963 | 6 | 2 | 52 | R.C. Hansen |
| 10/64-6/65 | 7 | 4 | 22 | W.H. Kummer |
| 7/65-6/66 | 8 | 4 | 28 | W.H. Kummer |
| 10/66-2/68 | 9 | 4 | 40 | W.H. Kummer |
| 5/68-10/68 | 10 | 3 | 36 | H.N. Chait |
| 1969 | 11 | 3 | 34 | H.N. Chait |
| 1970 | 12 | 4 | 66 | H.N. Chait |
| 1971 | 13 | 4 | 56 | H.N. Chait |
| 1972 | 14 | 4 | 72 | R.E. Hiatt |
| 1973 | 15 | 4 | 92 | R.E. Hiatt |
| 1974 | 16 | 4 | 100 | R.E. Hiatt |
| 1975 | 17 | 6 | 120 | R.C. Johnson |
| 1976 | 18 | 6 | 108 | R.C. Johnson |
| 1977 | 19 | 6 | 92 | R.C. Johnson |
| 1978 | 20 | 6 | 92 | R.C. Johnson |
| 1979 | 21 | 6 | 136 | R.E. McIntosh |
| 1980 | 22 | 6 | 200 | R.E. McIntosh |
| 1981 | 23 | 6 | 260 | R.E. McIntosh |
| 1982 | 24 | 6 | 188 | D.H. Schaubert |

As noted in the table above, six Newsletters per year have been published since 1975. They are issued in the even months while the Transactions are issued in the odd months. With this arrangement all members receive at least one important communication from the Society each month.

Institutional listings on the back cover of the Newsletter was begun in 1975 and this has proven to be a successful innovation. In the April 1979

Newsletter, an announcement was made relative to the inclusion of advertising in the Newsletter along with the charges per space per issue (full page - \$200). If possible paid advertising will become a regular feature of the Newsletter.

R. E. McIntosh provides a thoughtful discussion of the Newsletter--its recent developments along with questions on desired future trends (February 1982 Newsletter, pp 9-11).

Chapter 8 Symposia

The annual symposium held by the Society is one of our most important activities. During the early years the Group cooperated with IRE and arranged for one or more sessions in the National Convention in New York City and in WESCON. In addition, the Group frequently co-sponsored symposia with other organizations having related interests. The Van Atta history in the introduction contains a brief review of the first ten or so years of symposia activity. The Group did not co-sponsor the symposium on Electromagnetic Wave Theory held at the University of Michigan in 1955 but their involvement and interest was such that they published the papers presented at the symposium (July 1956). 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 AP 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 our organization 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, of 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 the 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 appointed Arthur Dorne as chairman of the organizing committee. That which may be termed as the announcement of the birth of our annual international symposium appeared in the January 1963 Newsletter. The quotation is as follows: "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 at the Boulder Laboratories of the National Bureau of Standards in Boulder, Colorado. The theme will be Space Antennas."

"A call is issued for papers representing original contributions in the fields of antennas,

Annual Symposia Summary

| Place | Date | General Chairman Chairman | Program Chairman | Number of summaries in digest | Registered 1 attendance | Surplus (2) Dollars |
|----------------|------------------------------------|------------------------------|--|-------------------------------------|----------------------------|------------------------|
| Boulder | July 9-11 1963 | J.W. Herbstreit | H.V. Cottony | 63 | 453 | 2,647 |
| Long Island | September 22-24, 1964 | H. Jasik | N.A. Spencer | 40 | 446 | |
| Wash. D.C. | August 30- September 1, 1965 | E.A. Wolff | R.J. Adams | 68 | 373 | |
| Palo Alto | December 5-7, 1966 | R.D. Egan | R. Leadabrand | 98 | 513 | 2,647 |
| Ann Arbor | October 18-20, 1967 | R.E. Hiatt | T.B.A. Senior | 60 | 568 | 1,859 |
| Boston | September 9-11, 1968 | E.A. Altshuler | L.J. Ricardi | 85 | 665 | 2,405 |
| Austin | December 9-11, 1969 | A.W. Straiton | A.H. LaGrone | 56 | 377 | 1,020 |
| Columbus | September 14-16, 1970 | C.H. Walter | C.A. Levis | 84 | 453 | 1,870 |
| Los Angeles | September 22-24, 1971 | W.H. Kummer | V.H. Rumsey | 110 | 540 | 4,038 |
| Williamsburg | December 11-14, 1972 | W. Croswell | C.T. Swift | 124 | 579 | 5,357 |
| Boulder | August 22-24, 1973 | S.W. Maley | J.R. Wait | 144 | 695 | 3,738 |
| Atlanta | June 10-12, 1974 | D.T. Paris | R.C. Johnson | 139 | 502 | 6,070 |
| Urbana | June 2-4, 1975 | G.A. Deschamps | R. Mittra and S.W. Lee | 140 | 490 | 2,556 |
| Amherst | October 11-15, 1976 | R.E. McIntosh | C.S. Sletten and R.L. Fante | 152 | 898 | 7,788 |
| Palo Alto | June 20-22 1977 | J.B. Damonte | K.K. Mei | 141 | 762 (3) | 16,712 |
| College Pk. MD | May 15-19, 1978 | G. Hyde | W.K. Kahn and I. Katz | 125 | | 1,100 |
| Seattle | June 18-22, 1979 | I. Peden | A. Ishimaru | 171 | 925 | 16,262 |
| Quebec | June 2-6, 1980 | J.A. Cummins | K.G. Balmain | 247 | 641 | 8,242 |
| Los Angeles | June 16-19, 1981 | R.S. Elliott | V. Galindo-Israel and A. Villeneuve | 169 | 2,081 (4) | 21,116 |
| Albuquerque | May 24-28, 1982 | C.E. Baum | K.F. Casey and B.K. Singaraju | 203 | 749 (5) | 12,539 |

NOTES:

- (1) AP-S was alone in the first three symposia; URSI was included in all others.
- (2) Surplus for AP-S only.
- (3) Includes International Electromagnetic Society
- (4) Includes AP-S, URSI and MTT-S.
- (5) Includes AP-S, URSI and Nuclear Electromagnetic members

propagation, radio astronomy, electromagnetic theory, propagation in plasmas, space telecommunication and related subjects."

The Boulder symposium was very successful. The attendees were well pleased with the technical programs, the meeting arrangements and the Boulder environment. One of the more important dividends was the opportunity provided for informal meetings of scientists and engineers with like interests.

The Boulder symposium was the first in a series of annual meetings that have come to be, by far, the most important PGAP meeting of the year. Many of the features initiated at Boulder have been adopted at later symposia, for example, the annual banquet and a program for the visiting wives. It is not possible to give detailed information on all the annual symposia but a few statistics on the symposia are given in the accompanying table. Additional details may be found in the Newsletter accounts, in the AP and URSI digests and in the more complete symposium reports which are prepared by most of the meeting committees.

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 symposium in Palo Alto. This was the first of a new type annual symposium, parts of which were organized by PGAP and part by interested commissions of URSI. Joint PGAP-URSI meetings have been held annually since 1966. On a few occasions the AP Symposium has been held in conjunction with other groups in addition to URSI. For example, the 1974 symposium was held in cooperation with the Microwave Theory and Techniques Society along with those interested in Electromagnetic Windows and Sub-millimeter Waves. The 1982 Albuquerque Symposium included sessions organized by the Nuclear Electromagnetic Pulse Committee.

As can be seen in the table, as the years have gone by there has been an encouraging increase in the number of papers presented, in the registered attendance and in the dollar surplus generated by the symposia. For the future, an ad hoc working group is being formed to consider ways to improve AP-S Symposia. The group is to consider questions such as: tutorial review papers, critical review talks, poster sessions and workshops.

Chapter 9

Chapters and the Distinguished Lecturer Program

"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." (Leo Young, Newsletter December 1973, p. 11)

In the December 1976 Newsletter, p. 5, Ed Wolff sets forth the following as the objectives for chapters:

1. To provide a forum for the exchange of technical information and thereby contribute to the technical growth of the member.
2. To provide a means for the individual member to communicate with the Society Administrative Committee.
3. To secure new Society members through program quality and the Chapter administration.
4. To provide speakers and information to the area colleges and universities to attract competent undergraduates who will enter the field on graduation."

Chapter involvement in our Society started very early. Within three years of the birth of AP-S, two chapters had been formed and were operating. Fifteen chapters were organized during the first ten years of our existence. In all, more than forty AP-S chapters have been organized; many were joint organizations with other groups or societies. Unfortunately, the health and life of our chapters has been uncertain--frequently affected by the prevailing economic conditions. As of August 1982, there were 25 active AP-S Chapters. The first fifteen chapters to be formed in our group are listed below. This is followed by a list of the current active chapters.

First Fifteen AP-S Chapter

| Date formed | Section | Joint with |
|-------------|---------------|------------|
| 5/31/52 | Chicago | MTT |
| 5/31/52 | Los Angeles | MTT |
| 10/6/53 | Albuquerque | MTT |
| 10/4/54 | Philadelphia | MTT |
| 12/8/54 | Orange County | MTT |
| 12/8/54 | Washington | |
| 9/7/55 | Denver | |
| 3/1/56 | San Diego | MTT |
| 2/6/57 | Akron | |
| 2/6/57 | Syracuse | MTT |
| 3/5/57 | Boston | |
| 6/26/58 | San Francisco | |
| 6/8/58 | Dayton | |
| 12/8/58 | Nebraska | MTT |
| 6/30/59 | Columbus | MTT |

Current AP-S Chapters

| | | |
|-------------|---------------|--------------------|
| Albuquerque | Houston | Salt Lake City |
| Atlanta | Los Angeles | St. Louis |
| Baltimore | Melbourne | San Diego |
| Benelux | New York (LI) | Santa Clara County |
| Boston | Montreal | Seattle |
| Chicago | Orlando | S. Eastern Mich. |
| Columbus | Philadelphia | Syracuse |
| Dallas | Phoenix | Tokyo |
| | | Washington DC |

The AP-S ByLaws, section 6, has the following statement on Chapters:

"Chapters are sub-groups organized on a geographical basis. The rules and regulations governing the organization and administration of chapters are given in the IEEE Bylaws, in the IEEE Societies and Groups Section of the Technical Activities Manual and in the Section Manual." Section 406 of the IEEE

Bylaws sets forth in eleven detailed paragraphs rules and regulations for the formation and guidance of chapters. For example, paragraph 1 states that "A Group or Society Chapter consisting of the members of a Group or Society who are members of a particular Section may be established to function in a manner similar to that of a committee of the Section." Paragraph 4 states that "A Chapter shall be required to maintain a membership of not less than ten members, and to hold not less than two technical meetings per year or to maintain a level of activity acceptable to the IEEE Executive Committee." Paragraph 6 states that "The responsibility for Chapter management shall rest with the Section, which shall have control of all financial and other assets of the Chapter in carrying out its activities."

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. In June 1975 this was increased to \$200. At the 1982 Albuquerque AdCom meeting the support for each chapter was increased to a maximum of \$500 per year. At the same AdCom meeting it was agreed that each local chapter could invite two society supported speakers per year.

No doubt the 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. 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 chapter officers and their technical meetings. As new chairmen are elected for the local chapters, the AP-S Chapter Activities Chairman seeks to publish photographs and biographies of each. He also organizes and chairs meetings for chapter chairmen who attend the annual AP-S symposium. At these meetings the local chairmen have an opportunity to learn about and benefit from the successes and problems of other chapters.

To the best of my knowledge, the first chairman of the Chapter Activities was E. K. Smith who held the position from 1960 through 1961. Prior to 1960, it appears that the Newsletter Editor was chiefly responsible for the collecting and publishing information on chapter activity. Following is a list of those who have served as chapter activity chairman including the present chairman:

Chapter Activities Chairmen

| | |
|--------------|-----------------|
| 1960-1961 | E. K. Smith |
| 1962-1967 | T. E. Tice |
| 1968-1969 | G. C. Chadwick |
| 1970-1971 | E. M. Turner |
| 1972 | G. A. Deschamps |
| 1973-1975 | K. K. Mei |
| 1976-1980 | W. V. T. Rusch |
| 1981-present | W. G. Scott |

For the last several years, the AP-S Chapter Activities Chairmen have sponsored competition among the chapters resulting in the giving of an annual AP-S Best Chapter Award. The past winners of this competition are listed below.

Best Chapter Award Winners

| | |
|-----------|----------------|
| 1973-1974 | San Francisco |
| 1974-1975 | Denver/Boulder |
| 1975-1976 | Denver/Boulder |
| 1976-1977 | San Francisco |
| 1977-1978 | Benelux |
| 1978-1979 | Washington DC |
| 1979-1980 | Baltimore |
| 1980-1981 | Albuquerque |
| 1981-1982 | Boston |

Distinguished Lecturer Program

"At the March 1973 Administrative Committee meeting in New York, the committee voted to initiate a program of national lecturers. The purpose--to make it possible for G-AP 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 will be paid by G-AP AdCom through its National Lecturer Fund. A budget of \$2,500 per year was established for the program" (Newsletter, June 1973, p. 9). Shortly after its establishment the name of the program was changed to Distinguished Lecturer Program.

"The National Lecturers will be expected to aid local chapters in recruiting new members. The ultimate goal of this program is to have a National Lecturer visit each chapter annually." (Newsletter June 1973, p. 3)

Recently AdCom reevaluated the Distinguished Lecturer program and 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.

The operation of the program has been directed by an administrator appointed by AdCom. In some cases the Administrator has worked with a committee. Each year, the Administrator selects outstanding AP-S leaders to serve as Distinguished Lecturers. At first only two Lecturers were selected. In recent years, however, the chapters have had four or five Distinguished Lecturers from which to choose. Following is a list of those who served as the Administrator:

Distinguished Lecturer Administrators

| | |
|-----------|--------------|
| 1973-1974 | E. C. Jordan |
| 1975-1976 | C. T. Tai |
| 1978 | K. K. Mei |
| 1979-1982 | R. L. Fante |
| 1982 | D. C. Chang |

Those who have served as Distinguished Lecturers are listed below.

Distinguished Lecturers

| | |
|------------------|----------------|
| C.E. Baum | W.H. Kummer |
| C.M. Butler | Y.T. Lo |
| K.R. Carver | A.W. Love |
| G.G. Chadwick | R.J. Mailloux |
| D.K. Cheng | J.T. Mayhan |
| R.E. Collin | E.K. Miller |
| R.K. Crane | T.W. Miller |
| R.S. Elliot | R. Mittra |
| L.B. Felsen | W.T. Patton |
| W.F. Gabriel | L.J. Ricardi |
| R.C. Hansen | A.C. Schell |
| R.F. Harrington | W.G. Scott |
| D.C. Hogg | J.W. Strohbehn |
| A. Ishimaru | J.R. Wait |
| R.C. Johnson | C.H. Walter |
| R.G. Kouyoumjian | E.A. Wolff |

Chapter 10

IEEE 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. 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 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 by the Antenna Standards Committee and the Wave Propagation Committee and any other standards committees formed by the Group. The responsibilities of the two major committees presently under the Coordinating Committee as defined by Section 9.9 of the Bylaws are as follows: "The Wave Propagation Standards Committee shall be responsible for the preparation of the IEEE standard publications such as definition of terms and test procedures in the area of wave propagation. The antenna Standards Committee shall be responsible for the preparation of IEEE standard publications such as definition of terms and test procedures in the area of antennas."

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. These names are available from the minutes of the standards committees. An excellent summary of the work of the Standards Committees prepared by P. W. Hannan, is given in the September 1973 Newsletter, pp 6-8. The report lists those who were then working on the various standards committees and sub-committees and many of those listed are still involved in standards activities. A summary dealing with the work of the Wave Propagation Standards Committee, prepared by K. Toman, appears in the June 1979 Newsletter, pp 7-8.

The past chairmen of the three major Standards Committees are listed below:

Wave Propagation Standards Committee

| Chairmen | Date Served |
|------------------|-------------|
| C.R. Currows | 1945 |
| A.W. Straiton | 1946-1947 |
| S.A. Schelkunoff | 1947-1948 |
| A.E. Cullum | 1948 |
| C.R. Burrows | 1949-1950 |

| | |
|---------------|-----------|
| H.G. Booker | 1950-1952 |
| Newbern Smith | 1953 |
| M.G. Morgan | 1953-1957 |
| T.J. Carroll | 1957-1958 |
| M.L. Phillips | 1959-1962 |
| S.A. Bowhill | 1962-1968 |
| Harry Fine | 1968-1971 |
| Kurt Toman | 1972-1982 |

Antenna Standards Committee

| | |
|----------------|-----------|
| P.S. Carter | 1945-1947 |
| L.C. Van Atta | 1948-1950 |
| R.L. Mattingly | 1951-1953 |
| P.H. Smith | 1954-1955 |
| P.W. Hannan | 1963-1965 |
| W.V. Tilston | 1967-1970 |
| H.V. Cottony | 1971-1973 |
| C.J. Sletten | 1974-1976 |
| E.S. Gillespie | 1977-1982 |

Standards Coordinating Committee

| | |
|--------------|-----------|
| S.A. Bowhill | 1967-1968 |
| P.A. Hannan | 1969-1974 |
| H.V. Cottony | 1975-1980 |

Position discontinued in 1981

Listed below are the sub-committees that are now working or have worked under the Wave Propagation Standards Committee:

1. Definition of terms for radio propagation
2. Methods of measuring earth conductivity
3. Ionogram standardization
4. Information storage and retrieval
5. Propagation curves and prediction techniques
6. Radio meteorology measurements
7. Mini-reviews

Present or past sub-committees under the Antenna Standards Committee include:

1. Definition of terms for antennas
2. Test procedures for antennas
3. Measurements of radar cross sections
4. Measurement of noise temperature in antennas
5. Antennas in physical media

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

Standard 211-1977

Definition of Terms for Radio Wave Propagation - a revision of Std. 211-1950 and 211-1969. Std. 211-1969 was published in AP-17 in May 1969, p. 270. Std. 211-1977 was distributed to all AP-S members in 1979. Additional copies of this and other current standards may be purchased from IEEE. A Catalog of all IEEE standards is also available from IEEE.

Standard 291-1969

Standards Report on Measuring the Field Strength in Radio Wave Propagation. Published in AP-18 November 1970.

Standard 302-1969

Methods of Measuring Electromagnetic Field Strength (below 1000 MHz)

Standard 356-1974

Radio Methods of Measuring Earth Conductivity.
Published in AP-22 March 1974, p. 373.

The current publications of the Antenna Standards Committee including the following:

Standard 145-1973

Definitions of Terms for Antennas (published in AP-22 January 1974, p. 151). This is a revision of 145-1969 (AP-17 May 1969) which was revised from the earlier 145-1948. For a discussion of the importance of this standard see comments by E. S. Gillespie, December 1978 Newsletter, pp 12-13. A revised version of Standard 145 is to be published soon (August 1982 Newsletter, p. 15).

Standard 149-1979

Test Procedures for Antennas; this is a 143 page book and is a major revision of Std. 149-1965 (May 1965 AP-13). The book was published by IEEE and is distributed in cooperation with Wiley-Interscience. It may be purchased from IEEE for approximately \$16.00. New sections in the book include those on the design, evaluation and operation of antenna ranges, electromagnetic radiation hazards and environmental factors. It was prepared under the chairmanship of W. H. Kummer and with the assistance of seven other members of the sub-committee. See the December 1979 Newsletter, pp. 20-21 for a listing of the many contributors, the table of contents and a detailed account of the development of the publication.

In addition to the standards prepared and published by the two committees, the Wave Propagation Standards Committee has also published a number of reviews and mini-reviews setting the stage for future standards.

Following is a list of these publications: (Produced or solicited by the Wave Propagation Standards Committee)

1. Ground Based Vertical-Incidence Ionograms,

M.L. Phillips, AP-22, November 1974, pp 786-794.

2. The Absorption and Reradiation of Radio Waves by Oxygen and Water Vapor in the Atmosphere, A.W. Straiton AP-23, July 1975, pp 595-597.
3. Attenuation Due to Rain, R.K. Crane, AP-23, September 1975, pp 750-752.
4. Passive Microwave Remote Sensing of the Earth's Surface, F.T. Ulaby, AP-24, January 1976, pp 112-115.
5. Wave Tilt Measurements, R.J. King, AP-24, January 1976, pp 115-119.
6. The CCIR and Radio Propagation, H.T. Dougherty and E.K. Smith, AP-24, November 1976, pp 910-912.
7. Ionospheric Scintillation Theory, C.L. Rino, AP-24, November 1976, pp 921-915.
8. Equatorial Scintillations, J. Aarons, AP-25, September 1977, pp 729-736.
9. Active Microwave Sensing of the Earth's Surface, R.K. Moore, AP-26, November 1978, pp 843-849.
10. Properties of Ground Inferred from Electromagnetic Measurements, R.J. Lytle, AP-27, November 1979, pp 899-902.
11. Measurement of ELF Field Strength, C. Polk, AP-28, January 1980, pp 140-146.
12. Mini-Review of Topside Sounding, J.E. Jackson, E.R. Schmerling, and J.H. Whitteker, AP-28, March 1980, pp 284-288.
13. Ground-based Remote Sensing and Profiling of the Lower Atmosphere Using Radio Wavelengths, D.C. Hogg, AP-28, March 1980, pp 281-283.
14. Progress Toward a Practical Skywave Sea-State Radar, T.M. Georges, AP-28, November 1980, pp 751-761.
15. Passive Microwave Techniques for Geophysical Sensing of the Earth from Satellites, D.H. Staelin, AP-29, July 1981, pp 683-687.
16. Approximate Boundary Conditions, T.B.A. Senior, AP-29, September 1981, pp 826-829.
17. Frequency Dispersion in the Ionosphere, R.E. McIntosh and A. Malaga, AP-29, November 1981, pp 970-972.

Chapter 11 Awards

The present AP-S Bylaws lists three awards given by our society. They are (1) the best paper award; (2) the best application paper award; and (3) the R. W. P. King award. In addition, the best hardware paper award for a paper presented at the Annual AP-S Symposium was established by AdCom at the June 1979 meeting in Seattle. This award will, presumably, be incorporated into the Bylaws. Another award, not described in the Bylaws, is the John T. Bolljahn Memorial Award.

The first award to be instituted by AP-S was called the Best Paper Award. It was established by a vote of the AdCom at their April 1958 meeting. The rules governing the award appear in the first Newsletter (the undated Newsletter thought to have been published in November 1958). At that time, authors of original papers published in the AP Transactions or in appropriate sections of the National and Wescon Convention Records were eligible for the award. All awards except that for the year 1958 have been for papers published in the Transactions.

At the December 1960 meeting, AdCom voted that the name of the Best Paper Award be changed to the John T. Bolljahn Memorial Award in memory of the nationally known and highly respected antenna engineer who died in June 1960. (See AP-9 May 1961 for a memorial citation for Dr. Bolljahn and an announcement of the award.) It was arranged so that future award winners would receive a suitable plaque and a stipend from both the John T. Bolljahn Memorial Foundation and from the Antenna and Propagation Group.

At the March 1968 meeting AdCom approved "a new award to be given for significant contributions to the art during the past five years". To the best of my knowledge no award was ever presented as a result of the above plan. Also at the March 1968 meeting AdCom voted that the Awards Committee should select only one paper for the John T. Bolljahn Memorial Award even though two papers were almost equally deserving. At that same meeting the award plan was further expanded in that the Awards Committee was asked to select 12 additional or runner-up papers each year to be recognized in some suitable way. This plan was fortunately abandoned a few years later.

Best Paper Award

Known as John T. Bolljahn Award from 1961 through 1968

| Award Year | Author(s) and Title of Paper | Where Published | Where Award Was Announced |
|---|---|---------------------------|--|
| 1958 | R.H. DU HAMMEL Logarithmically Periodic Arrays | 1958 Wescon Record, Pt. I | May 1959 Newsletter |
| 1959 | No Paper considered to be worthy of the award | | |
| 1960 | T.T. TAYLOR Design of Circular Apertures for Narrow Beamwidths and Low Sidelobes | T-AP January 1960 | August 1961 Newsletter |
| 1961 | G. GOUBAU and F. SCHWERING On the Guided Propagation of Electromagnetic Wave Beams | T-AP May 1961 | May 1962 Newsletter |
| 1962 | Unable to find a record of awards given in 1962 | | |
| 1963 | D.R. RHODES The Optimum Line Source for the Best Mean-Square Approximation to a Given Radiation Pattern | T-AP July 1963 | Unknown |
| 1964** | Y.T. LO A Mathematical Theory of Antenna Arrays | T-AP May 1964 | May 1965 Newsletter |
| | E.V. JULL and E.P. DELOLI An Accurate Absolute Gain Calibration of Antennas for Radio Astronomy | T-AP July 1964 | May 1965 Newsletter |
| 1965 | MASMA TAKADA and MASAOKA SHINJI Application of the Diffraction Grating to 11 GC/s Microwave Systems | T-AP July 1965 | March 1967 Newsletter |
| 1966** | A.C. SCHELL The Multiplate Antenna | T-AP September 1966 | November 1968 T-AP |
| | G.R. FORBES, P.R. FRANCI, W. B. GROGGINS, and A.C. SHELL An Experimental Evaluation of Multiplate Antenna Properties | T-AP September 1966 | |
| 1967+ | P.D. POTTER Application of Spherical Wave Theory to Cassegrainian Fed Paraboloids | T-AP November 1967 | October 1968 Newsletter and March 1969 T-AP |
| 1968** | R.C. SPENCER and G. HYDE Studies of the Focal Region of a Spherical Reflector: Geometrical Optics | T-AP May 1968 | May 1969 Newsletter |
| | R.C. SPENCER and G. HYDE Studies of the Focal Region of a Spherical Reflector: Polarization Effects | T-AP July 1968 | January 1970 T-AP |
| | G. HYDE and R.C. SPENCER Studies of the Focal Region of a Spherical Reflector: Stationary Phase Evaluation | T-AP November 1968 | May 1969 Newsletter and January 1970 T-AP |
| In addition, twelve Special Recognition Awards were given for 1968 T-AP papers, the authors and papers are listed in the May 1969 Newsletter. | | | |
| 1969** | L.D. SCOTT and B.R. RAO A Short Cylindrical Antenna as a Diagnostic Probe for Measuring Collision Frequency in a Collision Dominated non-Maxwellian Plasma (See May 1970 Newsletter for 5 Special Recognition papers) | T-AP November 1969 | May 1970 Newsletter and January 1971 T-AP |
| | R.M. LEWIS Physical Optics Inverse Diffraction | T-AP May 1969 | May 1970 Newsletter |
| 1970 | C.C. BANTIN and K.G. BALMAIN Study of Compressed Log Periodic Dipole Antennas | T-AP March 1970 | March 1972 T-AP |
| Special Recognition Awards are also listed in the March 1972 Transactions | | | |
| 1971 | R.F. HARRINGTON and J.R. MAUTZ Theory of Modes for Conducting Bodies | T-AP September 1971 | June 1972 Newsletter and T-AP November 1972 |
| 1972 | D.E. BARRICK First Order Theory and Analysis of MF, HF and VHF Scatter From the Sea | T-AP January 1972 | December 1973 Newsletter and T-AP May 1974 |
| 1973 | A.W. LOVE Scale Model Development of High Efficiency Dual Polarized Line Feed for the Arecibo Spherical Reflector | T-AP September 1973 | T-AP November 1974 |
| 1974 | J. SHAPIRA and L.B. FELSEN Ray Analysis of Conformal Antenna Arrays | T-AP January 1974 | August 1975 Newsletter |
| 1975 | G.A. THIELE and T.H. NEWHOUSE A Hybrid Technique for Combining Moment Methods with Geometric Theory of Diffraction | T-AP January 1975 | 1976 Symposium Digest |
| 1976 | J.C. BENNET, A.P. ANDERSON, P.A. McINNES and A.J.T. WHITAKER Microwave Holographic Metrology of Large Reflector Antennas | T-AP May 1976 | June 1977 Symposium Digest |
| 1977 | V. GALINDO-ISRAEL and R. MITTRA A New Series Representation for the Radiation Integral with Application to Reflector Antennas | T-AP September 1977 | August 1978 Newsletter |
| 1978 | J.P. SHELTON Focussing Characteristics of Symmetrically Configured Bootlace Lenses | T-AP July 1978 | August 1979 Newsletter and 1979 Symposium Digest |
| 1979 | Y.T. LO, T.D. SOLOMON, and W.F. RICHARDS Theory and Experiment on Microstrip Antennas | T-AP March 1979 | October 1980 Newsletter |
| 1980 | W.D. BURNSIDE, N. WANG, and E.L. PELTON Near Field Pattern Analysis of Airborne Antennas | T-AP May 1980 | August 1981 Newsletter |
| 1981 | L.B. FELSEN and A.H. KAMEL Hybrid Ray-Mode Formulation of Parallel Plane Waveguide Green's Functions | T-AP July 1981 | August 1982 Newsletter |
| 1982 | G. GOUBAU, N.N. PURI, and F.K. SCHWERING Diaoptic Theory for Multielement Antennas | T-AP January 1982 | August 1983 Newsletter |

** In 1964, 1966 and 1969 two papers tied for the award. In 1968, a set of 3 papers as a set were chosen for the award.
+Twelve Special Recognition Awards were given for papers published in 1967; the winning papers and their authors are listed in the October 1968 Newsletter.

At the September 1968 AdCom meeting, Dr. L. C. Van Atta, Chairman of the John T. Bolljahn Memorial Foundation, discussed the John T. Bolljahn Memorial Award (JTBM Award). His committee had developed a new plan for the award. They recommended that the Group

continue with the Best Paper Award. In the future the JTBM Award 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 committee. The chairman of the

AP-S Awards Committee would be a member of the JTBM Awards Committee. The recipient of the new JTBM Award would receive a plaque citing his contribution and an honorarium and would be expected to prepare a prize paper on his contributions for delivery at a joint AP-S/URSI meeting. It was also expected that the paper would, if suitable, be published in the AP-S Transactions. The award was not necessarily to be given every year. It was to be international in scope and in recognition of significant work whenever or wherever published. Dr. Van Atta's proposed plan was accepted and approved by AdCom and the Bylaws were later amended accordingly.

At the June 1974 AdCom meeting, it was agreed that the Society would accept responsibility for the R.W.P. King Award. This action was later approved by the IEEE Awards Committee. (September 1974 and December 1974 Newsletter, p. 4) This award was first established by a committee of former students of Professor King in honor of him at the time of his

retirement from Harvard University. According to the rules which were later incorporated in the AP-S Bylaws, the award was to be given for the best paper published the previous year in the AP-S Transactions. The rules required that the paper be by a single author under 36 years of age at the time the paper was submitted. Funds for the award were to be provided by the Professor R.W.P. King Education Fund.

At the October 1974 AdCom meeting an award was established for the "Best Application Paper" to be published in the AP Transactions. The amount of money given for this award was to be the same as that given for the Best Paper Award. At the same meeting it was voted that a certificate be awarded for the runner-up for the best application paper. Some, but not all, of the runner-ups have been announced in the Newsletter.

At the November 1978 AdCom meeting the Best Hardware Paper Award was established. This award is to be given for the best hardware paper presented at

R. W. P. King Awards

| Award Year | Author(s) and Title of Paper | Where Published | Where Award Was Announced |
|------------|--|------------------------|--|
| 1972 | C. ELACHI Dipole Antenna in Space-Time Periodic Media | T-AP May 1972 | December 1973 Newsletter and T-AP May 1974 |
| 1973 | F. TESCHE Transient Response of Thin-Wire Antenna or Scatterer Near a Conducting Ground Plane | T-AP March 1974 | September 1974 Newsletter and T-AP November 1974 |
| 1974 | L. MARIN Natural Mode Representation of Transient Scattering from Rotational Symmetric Bodies | T-AP March 1974 | August 1975 Newsletter |
| 1975* | W.D. BURNSIDE, C.L. YU and R.J. MARHEFKA A Technique to Combine the Geometrical Theory of Diffraction and the Moment Method | T-AP July 1975 | 1976 Symposium Digest |
| 1976 | J.T. MAYHAN Nulling Limitations for Multiple-Beam Antennas | T-AP November 1976 | 1977 Symposium Digest |
| 1977 | G.S. BROWN The Average Impulse Response of a Rough Surface and Its Applications | T-AP January 1977 | August 1978 Newsletter |
| 1978 | J.T. MAYHAN Adaptive Nulling with Multiple-Beam Antennas | T-AP March 1978 | 1979 Symposium Digest and August 1979 Newsletter |
| 1979 | R.J. POGORZELSKI Electromagnetic Propagation Along a Wire in a Tunnel | T-AP November 1979 | October 1980 Newsletter |
| 1980 | S.E. EL-KHAMY Matched Swept-Frequency Digital Modulation for Binary Signaling in Inhomogeneous Dispersive Media | T-AP January 1980 | August 1981 Newsletter |
| 1981 | S. COEN Inverse Scattering of a Layered and Dispersionless Dielectric Half-Space | T-AP September 1981 | August 1982 Newsletter |
| 1982 | D. LESSELIER Optimization Techniques and Inverse Problems: Reconstruction of Conductive Profiles in Time Domain | T-AP January 1982 | August 1983 Newsletter |

* Someone goofed - R.W.P. King Awards were to be made for single author papers only. NOTE: This criterion was modified in the January 1983 AdCom meeting (February 1983 Newsletter p 27).

Best Application Papers Award

| Award Year | Author(s) and Title of Paper | Where Published | Where Award Was Announced |
|------------|--|------------------------|----------------------------|
| 1974 | J.S. AJOIKA, D.M. JOE, R. TANG and N.S. WONG Arbitrarily Polarized Slot Radiators in Bifurcated Waveguide Arrays | T-AP March 1974 | August 1975 Newsletter |
| 1975 | W.D. BURNSIDE and M.G. GILREATH A Study of KC-135 Aircraft Antenna Patterns | T-AP May 1975 | 1976 Symposium Digest |
| 1976 | J.C. BENNET, A.P. ANDERSON, P.A. McINNES and A.J.T. WHITAKER Microwave Holographic Metrology of Large Reflector Antennas | T-AP May 1976 | 1977 Symposium Digest |
| 1977 | D.E. WEISMANN and J.W. JOHNSON Dual Frequency Correlation Radar Measurements of the Height Statistics of Ocean Waves | T-AP January 1977 | August 1978 Newsletter |
| 1978 | J.S. AJIOKA and V.W. RAMSEY An Equal Group Delay Waveguide Lens | T-AP July 1978 | August 1979 Newsletter |
| 1979 | V.D. AGRAWAL and W.A. IMBRIALE Design of a Dichroic Cassegrain Sub-reflector | T-AP July 1979 | October 1980 Newsletter |
| 1980 | G.N. TSANDOULAS Unidimensionally Scanned Phased Arrays | T-AP January 1980 | August 1981 Newsletter |
| 1981 | R.S. ELLIOTT and G.J. STERN The Design of a Multistrip Dipole Array Including Mutual Coupling; Part 1: Theory; Part 2: Experiment | T-AP September 1981 | August 1982 Newsletter |
| 1982 | B. WIDROW, K.M. DUVAL, R.P. GOOCH, and W.C. NEWTON Signal Cancellation Phenomena in Adaptive Antennas: Causes and Cures | T-AP May 1982 | August 1983 Newsletter |

Best Hardware Paper Award

| Award Year | Author(s) and Title of Paper | Where Published | Where Award Was Announced |
|------------|--|-----------------------|---------------------------|
| 1979 | F.J. ESPOSITO, P.A. VALENTINO and H.R. PERINI A Wide-Scanning Planar Phased Array | 1979 Symposium Digest | April 1980 Newsletter |
| 1980 | B.H. SASSER A Highly Thinned Array Using the Image Element | 1980 Symposium Digest | August 1980 Newsletter |
| 1981 | P.J. McVEIGH and R.M. RUDISH A Wide-Band Shaped-Beam Low-Sidelobe Conformal Array Step-Scannable Via a Modified Blass Network | 1981 Symposium Digest | October 1981 Newsletter |
| 1982 | M. BREESE and R. MASON Applications of Numerically Controlled Machining to Precision Phased Arrays | 1982 Symposium Digest | October 1982 Newsletter |

the National AP-S Symposium. The winner(s) of the award are to receive \$200. The award winning paper is to be determined by a vote of the symposium attendees. See the October 1979 Newsletter, page 20 for details of the awards procedure.

IEEE Fellows

Section 9.1 of the AP-S Bylaws details the duties of the Awards and Fellows Committee. As stated there the committee's duties are to recommend candidates for all AP-S awards and also for IEEE awards and prizes and in addition recommendations are to be made for candidates for the Fellow grade.

Fellow grade nominations are normally initiated by an individual or group of members. The completed nominations are generally reviewed by the local chapter or section. Following this, all nominations where the candidate has a major and indicated AP-S involvement must be reviewed and ranked by the AP-S awards committee. A final review and selection of the successful candidates is made by the IEEE Awards Board. This particular review process was adopted by IEEE and established as a mandatory requirement on the Groups and Societies in 1975. Prior to then the rules were more flexible. The grade of Fellow is one of unusual professional distinction conferred by invitation only on persons of outstanding and extraordinary qualifications and experience in the field of Electrical Engineering and related areas.

A list of AP-S members who were Fellows as of 1980 has been provided by IEEE. There are 257 members in the list and the names are given in one of the following tables. It is of interest to note how many of our members were elected Fellows per year. For the last 12 years, the numbers are as follows: 1971-10; 1972-7; 1973-7; 1974-9; 1975-7; 1976-13, 1977-8; 1978-6; 1979-17 (R.E. Hiatt was AP-S Awards Chairman for this class.) 1980-11; 1981-5; and 1982-9.

John T. Bolljahn Memorial Award Winners

As already indicated, a new type JTBM Award was established in 1968. Two such awards have been given, the first presentation was made at the December 1969 National Symposium in Austin, Texas. Dr. Sergi Schelkunoff was the first to be honored; see page iv of the 1969 Symposium Digest. His citation read as follows: "For a long series of original contributions to the electromagnetic theory, its applications and its understanding in engineering terms, including specifically his concept of wave impedance and its applications and his theory of arrays". At the symposium Dr. Schelkunoff presented a paper entitled "Forty years ago Maxwell's theory invades engineering and grows with it". His paper was published in the May 1970 issue of the AP Transactions along with a fitting introduction by E.C. Jordan.

Professor Samuel Silver (1915-1976) was the second to receive the new JTBM Award. It was

presented at the 1971 AP-S International Symposium at UCLA. His citation was as follows: "For major contributions to radiation, scattering and diffraction theories and their application to microwave antennas". He presented a paper at the symposium entitled "A bit of personal history" and it was later published in the May 1972 AP Transactions.

Special Awards

Honorary Life Members--Section 4.5 of the AP-S Bylaws provides that the society may elect present or former AdCom members to be Honorary Life Members of AdCom. To be eligible, in addition to having been elected to AdCom, the candidate must have made significant technical contributions to the Society and must have performed outstanding services to IEEE and must have been a member of the Society or Group for at least ten years.

Dr. Lester C. Van Atta was the first to become an Honorary Life Member of AdCom. I have no information on when his election took place but in the News and Views section of the October 1956 Transactions of AP, Dr. Van Atta is listed as "Honorary Life Member (Indefinite term; an honor accorded to the PGAP founder)".

Our Society has only two who are Honorary Life Members of AdCom, the second being Professor E. C. Jordan. Dr. Jordan received his honor "for his long and outstanding technical and professional services to our Society and to IEEE." The presentation was made at the June 1975 AdCom meeting in Urbana (see AdCom minutes in the August 1975 Newsletter, page 4).

A Special Certificate

A Special Certificate was presented to Dr. Delmer Ports (1914-1976) at the May 1960 AdCom meeting. Dr. Ports is the only member to date to have been elected a second time to serve as chairman of AdCom*. Dr. Ports was one of the founding members of our Society. The award recognized in particular, his indefatigable and successful efforts to establish a solid financial foundation for the Group through the sales of advertisements for the Transactions and by other means. See the July 1960 Newsletter, page 4.

AP-S Members Listed as IEEE Fellows in 1980
(The 1981 and 1982 classes are listed separately at the end of this list)

| | | |
|----------------|---------------|------------------|
| J. Aarons | S.L. Bailey | L.V. Blake |
| R.J. Adams | D.K. Barton | H.G. Booker |
| A. Alford | R.H.T. Bates | R.C. Booton, Jr. |
| D.B. Anderson | C.I. Beard | G. Borgiotti |
| D.J. Angelakos | N.A. Begovich | F.E. Borgnis |
| S.P. Applebaum | P.A. Bello | J.L. Boulet |
| M.P. Bachynski | P. Blacksmith | S.A. Bowhill |

*After the above paragraph was written, a second member, R. C. Hansen, has been elected to serve a second term as AP-S Chairman (President).

| | | | | | |
|--------------------|---------------------|------------------|---|-----------------|--------------------|
| F.M. Bradford | L.B. Felsen | W.H. Kummer | S. Pickles | N.H. Shepherd | A. Uhlir, Jr. |
| A.D. Bressler | J.W. Findlay | E. Labin | L.J. Porcello | S.M. Sherman | F.T. Ulaby |
| W.B. Bridges | C.L. Frederick, Jr. | A.H. Lagrone | K.A. Pullen | W. Sichak | T. Umezu |
| J. Brown | L.F. Gaudernack | J.J. Lamb | J.C.R. PUNCHARD | A.J. Simmons | H.G. Unger |
| J.L. Brown, Jr. | I.H. Gerks | R.L. Leadabrand | J.F. Ramsay | M. Simpson | W.F. Utlaut |
| K. Bullington | G.D. Gillett | G.F. Leydorf | D.K. Reynolds | D.B. Sinclair | L.C. Van Atta |
| J.J. Busgang | W.M. Goodall | F. Lied | D.R. Rhodes | G. Sinclair | J.G. Van Bladel |
| T.J. Carrol | G. Goubau | Y.T. Lo | L.J. Richardi | M.I. Skolnik | D.G. Villard, Jr. |
| W. Chang | R.E. Gray | P.P. Lombardini | A.G. Richardson | C.J. Sletten | D.L. Waidelich |
| K-M Chen | P.A. Grivet | M.W. Long | D. Richman | C.E. Smith | J.B. Walsh |
| D.K. Cheng | A.W. Guy | A.W. Love | J.H. Richmond | E.K. Smith, Jr. | C.H. Walter |
| T.S. Chu | F. Haber | J.A.M. Lyon | R.A. Rivers | N. Smith | A.T. Waterman, Jr. |
| C. Clark | G.H. Hagn | K.A. Mackinnon | L. Rhode | P.H. Smith | A.H. Waynick |
| P.J.B. Clarricoats | W.M. Hall | R.J. Mailloux | W. Rotman | I. Someya | E. Weber |
| A. Clavin | M.A.K. Hamid | N. Marchand | E. Roubine | E.A. Speakman | J.O. Weldon |
| S.B. Cohn | P.W. Hannan | E.T. Martin | J.E. Rowe | N.A. Spencer | H.A. Wheeler |
| A.A. Collins | R.C. Hansen | R.W. Masters | W.H. Rumsey | R.C. Spencer | A.D. Whellon |
| R.E. Collins | R.F. Harrington | A. Matsumoto | W.V.T. Rusch | E.H. Staelin | W.D. White |
| H.W. Cooper | C.W. Harrison, Jr. | G.L. Matthaei | J. Ruze | L. Stark | G.S. Wickizer |
| H.V. Cottony | R.A. Helliwell | P.E. Mayes | R. Sato | B.D. Steinberg | B. Widrow |
| D.C. Cox | J.W. Herbstreit | K.K. Mei | W.M. Scheldorf | C.M. Stickley | C.A. Wiley |
| R.K. Crane | A. Hessel | D. Middleton | A.C. Schell | A.W. Straiton | C.E. Williams |
| A.B. Crawford | R.E. Hiatt | G.H. Millman | K.J. Schmidt-Tiedemann | C.A. Strom, Jr. | F.C. Williams |
| A.L. Cullen | D.C. Hogg | F. Minozuma | L. Schwartzman | C-T Tai | J.C. Wiltse, Jr. |
| A.E. Cullum, Jr. | R.C. Honey | R. Mittra | T.B. Senior | T. Tamir | E.A. Wolff |
| L.J. Cutrona | M. Ibuka | S. Myrairi | S. Sensiper | I. Tanaka | J.W. Wright |
| H. Dahl | A. Ishimaru | R.K. Moore | H. Severin | R.L. Tanner | K.C. Yeh |
| H.I. Davis | R.C. Johnson | M.G. Morgan | G. Shapiro | L.S. Taylor | L. Young |
| J.T. DeBettencourt | E.M. Jones | K. Morita | W.M. Sharpless | T.E. Tice | |
| G.A. Deschamps | H.S. Jones, Jr. | A.E-S Mostafa | J.P. Shelton, Jr. | K. Tomiyasu | |
| M.J. DiToro | E.C. Jordan | R.B. Muchmore | | V. Twersky | |
| M.R. Donaldson | W.K. Kahn | W.W. Mumford | | | |
| W.L. Donaldson | A.G. Kandoian | Y. Muchiake | AP-S Members who became IEEE Fellows as of January 1981 | | |
| A. Dorne | A.Z. Kaprielian | Y. Nakagome | J.W. Duncan | C.H. Liu | G.C. McCormick |
| A.A. Dougal | B.E. Keiser | M.M. Newman | J.H. Harris | S.W. Lee | L. Peters, Jr. |
| R.H. Duhamel | J.J. Kelleher | K.A. Norton | | | |
| J.D. Dyson | J.M. Kelso | A.A. Oliner | AP-S Members who became IEEE Fellows as of January 1982 | | |
| G.S. Eager, Jr. | H. Kimura | M. Olyphant, Jr. | C.L. Bennett | M.T. Ma | S.P.S. Schlesinger |
| H.A. Ecker | R.W.P. King | Y. Oono | W.F. Gabriel | F.P.M. Mayer | G.A. Thiele |
| R.S. Elliott | T. Kitsuregawa | D.T. Paris | S. Haykin | K. Nagai | D.W. Tufts |
| M.L. Enns | H.C. Ko | W.T. Patton | | | |
| H.W. Evans | R.G. Kouyoumjian | I.C. Peden | | | |
| W.L. Everitt | J.D. Kraus | A.M. Peterson | | | |
| R.L. Fante | A. Ksienski | H.O. Peterson | | | |

Chapter 12 Conclusion

My personal experiences with the Antenna and Propagation Society have been interesting and rewarding. My opportunities to interact with the society have been from several points of view as I have served in a number of positions. I held the usual offices in our local chapter and I appreciate the problems and successes that are possible in a chapter. Being a member of AdCom for nine years enabled me to become well acquainted with the Society organization and also with IEEE Headquarters. One of the important rewards while there was the opportunity for making new friends and for maintaining a relationship with old friends. During and after my AdCom term, I served as Chairman of the Constitution and ByLaws Committee (two terms of three years each), as Awards Chairman, as Newsletter Editor and as Vice-Chairman and Chairman of the AdCom. These activities and a continuing strong interest in the Society is, I believe, a good preparation for one interested in being the Society Historian. I hope that my efforts in this position will prove to be of interest and worth to present and future AP-S members.

We can be proud of the growth and accomplishments of our Society during its first 33 years. We

are fortunate in having a strong leadership and it seems also that we always have a continuing supply of capable AP-S members who are willing to become more involved in leadership as AdCom members and officers. As for problems in the Society, there are two that I would mention. First, there should be more activity at the local level. Too many of our chapters have ceased to exist and too often in those continuing chapters the interest and participation is much below what it should be. This provides a real challenge to our leadership--one that I am sure they are aware of. The other problem is a challenge also and one that is often addressed. Namely, how can we attract more application or hardware type papers to the Transactions? I think there should be more discussion of these and other problems in the Newsletters. Opinions and suggested remedies from the grass-root members should be encouraged by the Newsletter Editors.

I have enjoyed my work on the AP-S History but I am pleased to come to the end. My wife is especially pleased to have it completed. I very much appreciate the help received from many of you. Among those who have helped are:

| | | |
|----------------|----------------|---------------|
| C.E. Baum | R.L. Mattingly | D.L. Sengupta |
| G.S. Brown | R.E. McIntosh | G.A. Thiele |
| J.B. Damonte | D.T. Paris | K. Toman |
| E.S. Gillespie | A.C. Schell | L.C. Van Atta |
| R.C. Hansen | W.G. Scott | |

I think of my contribution here as the second installment of the history of the Antenna and Propagation Society. I consider Dr. Van Atta's 1963 History to be the first installment. I hope AdCom will appoint other historians in the future who will have the responsibility for maintaining a continuing collection of AP-S records and memorabilia. The historian should also have the responsibility for updating the history periodically--say every five or ten years.

The Historian's file should include, among other items:

1. All past technical publications of AP-S
2. All AP-S Newsletters
3. The Symposium Digests
4. The final reports prepared by the Symposia Committees (what has happened to these in the past?)
5. All AP-S Standards

I have a complete collection of past Newsletters and Transactions and I have about half of the past Symposia Digests which could be made available for the Historian's file.

Ralph E. Hiatt
March 1983

Appendix 1

TRANSACTIONS of the I.R.E. Professional Group on Antennas and Propagation

February, 1952

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