

SEVENTY-FIVE YEARS OF HISTORY OF THE ACOUSTICAL SOCIETY OF AMERICA

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Introduction

Much can happen in 75 years, whether it is to a person's life or the life of a Society. In fact most of the history of the Acoustical Society of America (ASA) has been built upon the professional lives of its members. Since there was no one source of information for compiling this historical account of the Society, information from ASA correspondence files, from personal recollections, from the *Journal of the Acoustical Society of America* (JASA) and other articles have been gathered together to write this informal history. To make it easier to read about the entire 75 years—or just segments of those years—this history has been organized into six chronological time segments:

- 1928–May 1929
Formation of the Acoustical Society
- June 1929–1940
Organizational Years/Great Depression
- 1941–1948
World War II and Immediate Post-War Years
- 1949–1954
20th and 25th Anniversary Celebrations
- 1955–1990
Expanding Publications—Inside and Outside the Society
- 1991–2004
Building Diversity

Of course, these are somewhat artificial categories that have been used to help organize the history of the Society into manageable sections. There is indeed overlap and many topics do not neatly fit under these six headings. In addition, the histories of the technical fields, ASA standards, and education in acoustics have been, for the most part, omitted since



they are well covered in the various sections in the 75th Anniversary book, *ASA at 75*.

1. Formation of the Acoustical Society of America

• 1928–May 1929

The idea for forming a society specifically devoted to acoustics had its beginnings on July 30, 1928 when Floyd R. Watson (1873–1974), Vern O. Knudsen (1893–1974) and Wallace Waterfall (1890–1974) met at a Santa Monica beach club near Los Angeles, California. They originally envisioned an organization for engineers working in architectural acoustics. In the fall of 1928, they sent letters to men who were working in acoustics proposing the formation of an “American Society of Acoustical Engineers.”

Looking back, we can see that there were a number of reasons why the idea for a new society on acoustics emerged at that particular time. First, other societies were not fulfilling the needs of acousticians. In 1929 Harvey Fletcher had just published his book *Speech and Hearing* that set the foundation for the field of airborne acoustics to accompany all the new devices that were being invented. He noted that presenting his papers at the meetings of the American Physical Society had been less than stimulating because there were so few people there interested in the work he was doing. A second reason was given by Dayton Miller in his 1935 book *Anecdotal History of the Science of Sound to the Beginning of the 20th Century*. He observed that there were many events occurring in the world of sound leading up to the concept of forming a society dedicated to acoustics, including rapid advancements in the field during this period. He stated that “More progress has been made in the realm of sound in the first third of the 20th century than in all the preceding centuries.” He attributed much of this to the use of underwater sound during World War I, along with sound being transmitted by radio and telephone, amplified for hearing aids, and recorded and reproduced with gramophones and later for the movies. The section on Structural Acoustics and Vibration in Miller’s book noted that Warren Mason was working on filtering of waves and that Floyd Firestone had

This article was published in the book *ASA at 75* that was prepared for ASA’s 75th anniversary celebration held in New York City in May 2004.

introduced an analogy between electrical circuits and mechanical systems. Other events included the broadcast of the first movie with full audio in 1927. (The motion picture industry participated in the early years of the Society since the acoustics of rooms was of particular importance.) In addition, many new electroacoustic sound sources and receiving devices had been invented earlier in the 20th century that previously were not available to the earlier experimenters. The section on Engineering Acoustics in Miller's book describes a classic paper written in 1925 by Rice and Kellogg of General Electric on "a new type of hornless loud speaker" that used electromagnetics. Acousticians, along with the public, were making good use of these new sources and receivers. This was acknowledged by noting that Thomas Edison, who created the groundwork for constructing much of this equipment, was named the Acoustical Society's first honorary fellow in 1929.

Acousticians of the 20th century depended on the basic findings of a few giants from the previous century. Philip Morse (1903–1985), president of the Society from 1950–51, remarked in 1955 that "it behoves all of us physicists to read Rayleigh's *Science of Sound* regularly." To place the pre-1900 efforts in acoustics in historical perspective, Dayton Miller recalled that when he received his D.Sc. from Princeton in 1890, the four greats in the science of acoustics—Helmholtz (1821–1894), Köenig (1832–1901), Raleigh (1842–1919) and Tyndall (1820–1893)—were all still alive. Professor Miller's life bridged this time between these 19th century original thinkers who wrote treatises on acoustics, and the new breed of scientists and engineers who were applying acoustics to

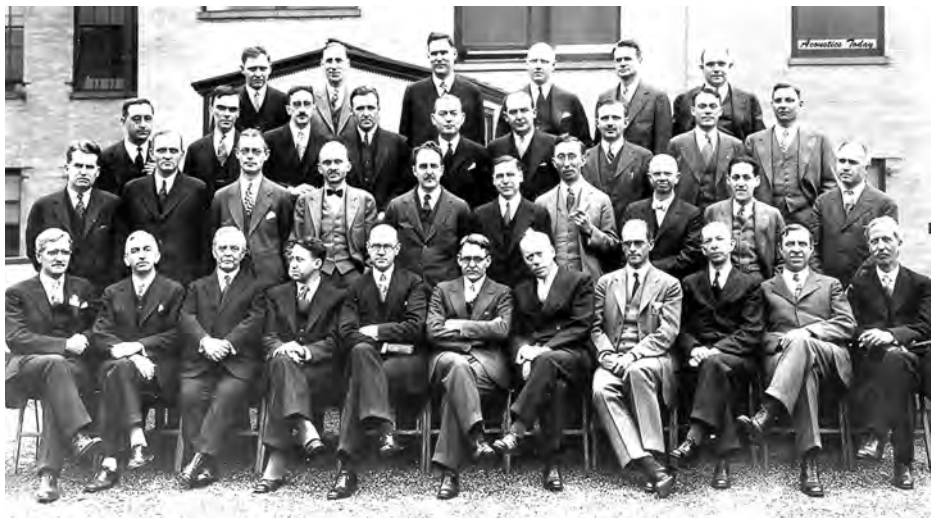


Fig. 1. ASA Founders in 1929

practical applications for consumers and for defence during the first third of the 20th century. Also spanning the gap was Wallace Clement Sabine (1868–1919) who published a number of papers on the new science of acoustics of auditoriums around the turn of the century. He died in 1919 while serving as vice president of the American Physical Society.

Returning to the formation of the Acoustical Society, a second letter from Knudsen, Watson, and Waterfall was sent on December 10, 1928 to 16 people, mostly at universities, in which they described the need for a new organization. The letter asked recipients to alert their colleagues of an upcoming organizational meeting to be held on December 27, 1928 at the Bell Telephone Laboratories located at 463 West Street in New York City where Harvey Fletcher was director of the now famous Acoustics Research Department. Forty men attended this organizational meeting, most of whom were from New York and most from commercial organizations. Various suggestions were made for the name of the new organization, starting with American Acoustical Society (paralleling the word order of the American Physical Society) and the Acoustic Society of America. But eventually F. R. Watson made a motion for the "Acoustical Society of America" that was adopted with one dissenting vote. In his recounting of that meeting years later at the 25th Anniversary celebration, Harvey Fletcher said that speeches were made by several of the people who attended that first organizing meeting, and "So you see our meeting started out as a talking Society and it has continued ever since through the years. Fifty years from now, this little gathering will be referred to as the First Meeting of the Acoustical Society of America."

The Society was formally organized during its next meeting that was



Fig. 2. ASA Founders in 1954



Fig. 3. ASA New York meeting, 75th anniversary banquet

held May 9-11, 1929 at the auditorium at Bell Labs in New York City which attracted 183 registrants. On the first day of the technical portion of the meeting, a joint session was held with the Society of Motion Picture Engineers. The program included two symposia—one on methods of measuring absorption coefficients and the second on speech. There was a total of 22 papers that were presented consecutively, two panel discussions, and one demonstration lecture on the science of musical sounds. By October 1929, the organization had grown to 492 members, and the charter members numbered 416.

The minutes of the first official meeting held on May 10, 1929 can be found in the first issue of the *Journal of the Acoustical Society of America* (Volume 1, No. 1, October 1929). Dayton Miller proposed that the organization include not just acoustic engineering but widened to include "...the study of the ear, hearing, otology, matters of speech, speaking...if we could get those various groups together and work together then I think there would be every reason in the world for the organization of the society." Harvey Fletcher (1884-1981) and Dayton Miller (1866-1941) had stressed earlier the desirability to include a more diverse set of technical fields than just architectural acoustics to create a more stable institution. Even then, there was some concern expressed that the proposed society would be too small to stand alone because of the narrow interest only in the science

of sound. A proposal was then made that the group organize as a subcommittee of an already-existing organization. However, one opinion expressed was that if it were formed as an independent society, it would contribute to another organization so that papers could be published in an established journal.

Finally the group decided on a purpose of the new society: "to increase and diffuse the knowledge of acoustics and promote its practical applications." Temporary officers were elected, publications were discussed, and plans were made for further development of the organization. This included a journal, standards, membership, qualifications, finances, and most importantly, the scope of the organization. The first official actions by the Council at its May 10, 1929 meeting were to appoint several committees including a Publication Committee that was charged with publishing the proceedings for the first meeting and to investigate the possibility of starting a journal. A Membership Committee was given the charge to put into execution a plan to increase the membership of the Society, and to approve the site of the next meeting and the appointment of a local committee and Program Committee. The Acoustical Society of America had officially started its operations!

The Society was international in scope from its very beginning with 17 of its charter members residing outside the U.S. including members from Australia, Belgium, Canada,



Denmark, England, France, Japan, Norway, and Wales. There was one woman charter member. The membership was comprised of people working in architectural acoustics firms, musical instrument companies, universities and at least one aircraft company. All of the major movie studios were represented including Paramount, Warner Brothers, Columbia, RKO, United Artists and Fox.

2. Organizational years/great depression

• June 1929–1940

In 1929, Wallace Waterfall was given some manuscripts. He later recalled that he “asked the Council what I was supposed to do with them and I got the answer; ‘Go publish them.’ I said we had no money and they said that was my problem. I was with Celotex then, so I hit my own company for a sizeable contribution and other companies chipped in to get us started. We set up an Editorial Committee and I held the job of Managing Editor for 4 years.” The first issue of the *Journal* was published in October 1929, the same month as the stock market crashed. It contained 8 papers in its 163 pages. On its cover was the 1929 logo that Wallace Waterfall had designed, later fondly remembering that: “A printer and I got together with a compass and we spent a lot of time, had a lot of fun, drawing that thing”

The Executive Council met on December 12, 1929 to appoint an editorial board, elect new Fellows, and to incor-

porate the Society that was approved on February 4, 1930. By March 1931, the membership was comprised of 632 members, 128 fellows, 10 sustaining members and one honorary member. The membership grew to 800 in the mid-1930s, but dropped back below 700 by 1939, reflecting effects of the depression.

During the depression years the Council made decisions on Society operations that included business matters, outreach to the public, standards issues, and appointing standing committees to handle special subjects that required deeper deliberations. The membership category of “Fellowship” was established and “foreign” membership in the Society was encouraged. Decisions on JASA operations included appointment of an Editorial Board, approving advertising, setting prices for single copies and a subscription rate for libraries, and establishing a \$2 page charge for authors of articles published in the *Journal*. (The first complaint about this charge was received soon thereafter!) The Council considered working with CBS TV to develop educational broadcasts about acoustics and adopted a resolution advocating more liberal appropriations for the U.S. Bureau of Standards. Committees were appointed—one to prepare a brochure to be distributed to mayors of U.S. cities about what could be done to reduce noise, and another to cooperate with the Academy of Motion Picture Arts and Sciences that was conducting research in developing standards for acoustical

measurements in theaters. Emeritus membership and the Biennial Award were established in April 1940, and at the same time, donations of *JASA* were made to three libraries in China where many reference libraries had been destroyed. Finally, a Patent Review section in *JASA* was begun, and the first technical committee—on musical acoustics—was appointed.

ASA's minutes for the Society's December 31, 1930 meeting show that Professor K.T. Compton from the American Physical Society (APS) spoke to the Council about APS' financial problems and their need to rely on wealthy benefactors to publish *The Physical Review*. The Council approved entering into a cooperative venture with the American Physical Society and the Optical Society of America for publishing journals. In 1931 the Acoustical Society, along with three other professional societies, joined together to create the American Institute of Physics (AIP) with the primary purpose of providing facilities for publishing and other common activities. In May 1932, the Executive Council voted to transfer publication of *JASA* to AIP. ASA's relationship with AIP continues today with the Institute providing a wide variety of services to the Acoustical Society.

Financial conditions during the depression are not very evident in the ASA minutes except for the fact that expenses were kept very low. In May 1931, the treasurer reported "the business conditions continue, although there seem to be signs of improvement beginning some time in the latter part of the present year. In endeavoring to foresee business conditions of the Council, in the Treasurer's judgement, one should not lay too much weight on the prevailing deep pessimism in New York and the East generally." In November of the following year, the treasurer felt that the ASA did not need to request additional funds from industry, noting "our best information is that no important improvement in business can be expected until several months after the inauguration of President Roosevelt." Not much else was mentioned about financial difficulties even though they must have been present for the Society. An increasing reliance was placed on member dues and less on contributions from corporations. Some members were kept on the membership rolls even though they were three years in arrears in dues. Annual expenses for the Society were only in the \$3,000 to \$5,000 range, mainly because no labor expenses were allocated to the Society. The Society kept the approximate amount of expenses in reserves, although the American Institute of Physics was in debt in the latter part of the 1930s. By the time of the November 15, 1940 meeting, foreign subscriptions to the Journal were dropping because of world conditions.

3. World War II and immediate post-War years • 1941–1948

As with the rest of the world, World War II (WWII) had its effect on the Society. During this period, only one meeting was held each year, in the spring of 1942, 1943, 1944, and 1945. During the same period, the number of pages in *JASA* dipped from 550 in 1940, to 220 pages in 1944. However, membership increased over this period by about 6% per year.

Obviously, the wartime effort and security measures were taking their toll on the publication output and ability to organize meetings, but members felt it was still important to maintain their memberships in the Society during those war years.

Many members were involved in applications of acoustics to the war. Frederick V. (Ted) Hunt organized and directed the Underwater Sound Laboratory at Harvard University (HUSL) during the war years 1941–1945. At the end of the war a portion of the Laboratory was moved to Pennsylvania State University where it is now still very active in acoustics as the Applied Research Laboratory (ARL). Leo Beranek was director of the Electro-Acoustic Laboratory at Harvard University. Other laboratories and research centers began carrying out military, industrial and academic acoustics, including the University of Texas at Austin.

The years just after the war marked an increase in research on all fields of acoustics. In 1946, the Society found the need to reorganize its membership structure to allow for "a wide and active participation, without meaningless stratification, of all persons having legitimate connection with the field that would be appropriate for the advancement of acoustics." Also at this time, the grade of Associate Membership was established.

An article in *JASA* published shortly after the war ended noted "A large fraction of the membership was engaged during the recent war in the development of new weapons utilizing acoustical principles, particularly the development of equipment utilizing underwater sound." It ended by predicting, "The outlook for the future of the Society is bright. The war has spotlighted physics in general and acoustics in particular. Our future meetings will bring forth many interesting papers and our journal will continue to record the accelerated history of the development of acoustics." This came to be true as membership in the Society grew from around 1000 members in 1945 to 6500 in 1990. From 1945 to 1965, it grew at almost 7% per year. The number of papers published in *JASA* increased at about the same rate. The nature of the Society also changed during these years. In 1966, Wallace Waterfall reported that 26% of ASA's members had doctoral degrees; in 2002, this percentage had grown to 67%. He also reported that 27% of the members were employed by academia and 45% by industry. By 2002 this had switched, with about 40% from academia and only 16% from industry.

A tremendous amount of defense-related work in acoustics was conducted during the war but it was never published in the open literature. Articles on research conducted in underwater acoustics, acoustical oceanography, transducers, hearing aids, acoustical measurements, and speech communication were published in a huge collection under the auspices of the National Defence Research Council (NDRC). Hundreds of scientific and publications professionals were involved in this project that began in March 1945 and ended in May 1948. The project was authorized by Vannevar Bush, and administered by none other than Wallace Waterfall!

4. 20th and 25th anniversary celebrations • 1949–1954

After the depression and WWII, the Acoustical Society was celebrating its peacetime growth along with the rest of the nation. The Twentieth Anniversary meeting held at the Hotel Statler in New York in 1949 drew an attendance of 417, while the total membership had reached 1400 members. The theme for the meeting, “Acoustics and Man,” seemed to indicate an interest in non-military applications of acoustics. A “founder’s luncheon” was attended by 21 of the original founding members (see Fig. 2) who assembled for a photo mirroring the one shown in Fig. 1.

One problem that resulted from this growth was expressed in Floyd Firestone’s report on the 1951 Chicago meeting: “The growth of the Acoustical Society has brought with it the necessary evil, the programming of papers into simultaneous sessions, so that the member has to decide which papers he will miss, with the result that he may just stand out in the hall and visit. By contrast one can recall an announced meeting at Ann Arbor about a decade ago when only four papers had been received by the deadline date and it was necessary to stir up some progress reports in order to fill out the program.” The growth of the Society had changed some of its character.

Although both membership and attendance at meetings were growing, the financial benefits were waiting in the wings for the 1950’s boom to begin. Wallace Waterfall had been using 70 pound paper for *JASA*, but in 1948 decided to drop down to 55 pound paper to save money. This decision was probably promoted by Treasurer Nixon who pointed out that the Society had only \$16,000 in the bank, and estimated that the publication of *JASA* would cost \$25,000 to publish in the coming year. The Society actually ran in the red for three years, and so in 1950, it was decided to accept advertising in *JASA*. The Society also initiated a meeting registration fee of \$2.00 for meetings, increased page charges from \$4.00 per page to \$8.00, and promoted a program to obtain more sustaining members.

There was also considerable reorganization of the leadership structure during this time period as well. In 1948 the Executive Council decided that a President-elect should be chosen so that he could be prepared better to take on the responsibilities of President. In the same year it was decided that the Acoustical Society should appoint its own standards committees rather than originating standards under the American Standards Association. A year earlier the Council had established a formal Standards Committee with the explicit goal to keep the Executive Council better informed about standards activities. Later in 1968 the Executive Council had established the position of Vice President-elect, and assigned the Vice President the duty of serving as chair of the Technical Council.

Regional Chapters were also established in the early 1950s in response to interest by members to form local groups, and by 1954 four chapters had been organized. This program has expanded and contracted over the years in response to the needs and desires of local groups.

The 25th Anniversary meeting in May 1954 was very well recorded for posterity. The four-hour 25th Anniversary banquet was filmed, and the transcript is printed in *JASA*. A

“Parade of Acoustical Personalities” was the title of the presentations by all the living Presidents at that time—gathered either in person or by recorded messages. There were several acousticians who attended from countries outside the United States including Belgium, England, Germany, India, Italy, and Japan. The Society’s first Gold Medal was awarded at that meeting to Wallace Waterfall. The medal was designed by Richard Bolt who used a tuning fork made by Rudolf Koenig and borrowed from the collection of Dayton Miller as a model for the design of the medal.

The film of the banquet was intended for viewing at future anniversary meetings and was, in fact, shown at the 75th Anniversary. A special “Time Capsule Custodial Committee” was appointed shortly after the celebration meeting to arrange for the film’s care and safe-keeping. It was with this confidence of the survival of the Society combined with cold war worries that the members of committee placed the 16 mm film in the Iron Mountain Atomic Storage Corporation located in upstate New York. They also kept one copy at the University of Michigan in Ann Arbor as a precaution against a widespread disaster that the committee noted “could conceivably not wipe out both of these locations.” Even though the intent of the committee was for the transmission to “our hundredth Anniversary Celebration,” the film was eventually removed from Iron Mountain in 1976, and a film and negative are now stored at the American Institute of Physics Center for the History of Physics in College Park, Maryland.

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5. Expanding publications—inside and outside the Society • 1955–1990

The official theme of the 51st meeting held at the Massachusetts Institute of Technology and Harvard University in June 1956 was “Sound and Man,” and covered three areas: 1) Bioacoustics and Noise Control, including Speech and Hearing, 2) Architectural and Musical Acoustics, and 3) Physical Acoustics and Sonics. It was also the occasion of the 2nd International Congress on Acoustics (ICA)—the first held in the United States—with 1230 registrants.

The Society also began increasing the size of its publications in both size and number. The total number of pages in *JASA* increased from 1279 in 1955 to about 7,000 in 1990. In 1957 the publication frequency of *JASA* went from bimonthly to monthly. Two years before, in January 1955, the first issue of the Society’s publication *NOISE Control* appeared with Lewis Goodfriend as editor. In his introduction to the magazine, then-president Leo Beranek said that “The magazine is directed to the reader who needs to know about noise control—whether he is an engineer, the manager of a factory, an audiologist, or an architect.” It was meant to provide helpful information on the practical application of acoustics, on current noise issues, and on noise legislation and products. It also included ads. The magazine was replaced in 1962 with *Sound Its Uses and Control*. The reason for this change was given in the first editorial, namely that “the scope of *NOISE Control* has clearly been too narrow, and the time has come to provide a broader coverage and give a grasp of the meaning of sound, its uses and control in all aspects to a much wider audience.” The editorial goes on to state that one objective was “to provide practical information on the uses and control of sound unencumbered by the heavy mathematical analysis of the conventional research paper.” The magazine contained patents, book reviews, calendars, new products and articles that every reader could understand. Robert Fehr (1911–1998), an Associate Editor of *Sound*, elucidated upon this point in the final issue of the magazine when it was hastily terminated by the Executive Council in December 1963: “It is no mean task to bring people together where some are science-oriented and others are thinking in terms of hardware—and in dollars and cents.” A small note was inserted in this issue noting the demise of the magazine, and that subscription payments would be refunded.

After WWII there were many examples of groups splitting off from the Acoustical Society. Although no official complaints are to be found associated with these events, minutes and recorded oral interviews allude to concerns expressed by the leadership of ASA about losing these technical fields and membership. In 1948 the Audio Engineering Society began as the hi-fi revolution took off. The report of ASA’s Committee on the Development and Promotion of the Society noted the appearance of the publication of *Transactions in Audio and Ultrasonic Engineering* and the *Journal of the Audio Engineering Society* that the committee noted “suggest that there are areas, particularly in the area of applications of acoustics, that are not being adequately covered by the *Journal* or by the more recent

Society publication, *NOISE Control*.” In response to these new fields and publications, the Committee made several recommendations including forming new technical committees.

In 1971, following an Acoustical Society Workshop on Noise Control at Arden House in Harriman, New York, the Institute of Noise Control Engineering of the USA (INCE/USA) was formed. Many acousticians are members of both ASA and INCE/USA resulting in the two organizations holding joint meetings. Also, the field of aeroacoustics shifted over to the American Institute of Aeronautics and Astronautics (AIAA), and many Society members helped start the Association of Research in Otolaryngology (ARO). The Society eventually accepted the splitting off of new societies, noting that the creation of new organizations in specialties in acoustics is part of a natural evolution, and the best approach is to avoid conflicts of meetings, and to encourage joint and cosponsored meetings.

Concerns about the future of the Society prompted studies that began with the aforementioned Committee on Development and Promotion of the Society that had been appointed in 1956. That Committee made a number of suggestions for revamping the Society’s operations—primarily as they affected technical operations. As a result the Society’s present day Technical Council/Technical Committee structure was established. During the oral history interview of Wallace Waterfall, he mentioned a significant development in the Society’s structure in 1960. Waterfall recounted the growing sentiment that members wanted an expanded role in conducting the activities of the ASA. In response, the current Technical Committee structure, and later the Technical Council were formed. Wallace felt that this development gave the ASA a “House of Representatives” with a large committee representation that could influence the direction of the Society—not only in administrative affairs, but the conduct of meetings and the *Journal*. Wallace commented that “I feel that a kind of grassroots representation has been very healthy. It certainly saved the Society from being broken up into actual sections...and it prevented the establishment of divisions.” A more detailed description of the history of the Society’s technical committees can be found in Chapter 3 of the book *ASA at 75*. In addition, the history of each of the current technical committees can be found in the individual chapters of that book, along with the histories of publications and standards.

A special committee to study the publication policies of the Society was established in 1957. The October 1957 issue of *JASA* (Vol. 29, No 10) carries an editorial titled “What sort of journal do we want?” and questions were posed as to how the *Journal* could be improved to better serve the acoustics community. Another poll of the membership was taken in 1966 and reported in *JASA* in 1968. Members were asked about the publication format and whether the technical areas were being served well. The members felt considerable pride and satisfaction in the quality of the content of *JASA*, but favored some sort of subdivision of the *Journal*. Also, splitting *JASA* into two sections (Physical Sciences and Life Sciences) once again became a source of deep discussion in the early 1990s. However, the solution to this question was

essentially answered by electronic publishing whereby readers could choose their own topics of interest without receiving a split journal.

In 1972 the Society hosted the Conference on Acoustics and Societal problems at Arden House located in New York. John Johnson, the Conference Chair, began the report on the conference by stating: "The pervading and ascending influence of science and technology on our society has become a cause of public concern. While impressed by such triumphs as moon landings, the public has become increasingly critical of the scientific community for its seeming apathy toward many of society's everyday problems." The technical areas focussed on the effects of noise and improvements to biomedical acoustics. Also improvements to the organization were mentioned such as better relationships with other technical societies and with government. Thirty-two years later most of the findings that emerged from that conference are still applicable today. The need to apply technical solutions to everyday needs of society is a perpetual concern.

All three of the ASA's founding fathers died in 1974. Wallace Waterfall was Secretary of the Society from 1929 to 1969. Betty Goodfriend assumed the position of Secretary in 1969 and Wallace Waterfall continued as Treasurer of the ASA from 1969 to 1974. Betty Goodfriend was Wallace Waterfall's assistant on the NDRC project. She served both ASA and AIP in a variety of positions until 1987, when Murray Strasberg, a long-time member of the Society and a past president, was appointed Secretary. In 1990 Charles Schmid was named the first executive director of the Society and the position of secretary was retired. Elaine Moran who joined the ASA staff in 1970, serves as division manager for the headquarters office.

6. Building diversity • 1991–2004

Diversity emerged in many forms in the beginning in the 1990s. The printed page started to give way to electronic publications, and members began submitting papers via the Internet. The Society, through its meetings, authors and members, became much more international in scope, and the members elected women and African-Americans to leadership positions. Along with these changes, the role of students and public relations became much more prominent in the Society.

The methods by which information was delivered to and accepted from members changed drastically as a result of the

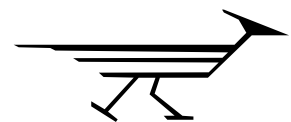
Internet revolution. Until the mid-1990's, ASA's communications were primarily at meetings or through the printed page. The decade that followed was truly a revolution in communicating with members. E-mail, CD ROMs, online publications, electronic submission of abstracts, manuscript management, the World Wide Pressroom, and ASA's web pages demonstrated the many diverse ways that the Society could communicate with its members and the public at-large. Before recalling the specific origins of these forms of Society communications, it might be of interest to note that two of



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the Society's past presidents had prominent roles in the founding of the Internet! While most engineers and scientists in the emerging computer age were philosophizing how man and machine would communicate, past president J.C.R. Licklider (1915-1990) was working on a system in the early 1960s where man was communicating with man via computer—the Internet. In 1950 he was awarded the ASA Biennial Award (now the R. Bruce Lindsay Award) and had been lauded as “one who enjoys the life of a pioneer who swings his not too precise machete through a jungle of inconsistent and contradictory data,” praising his work in psychoacoustics. Licklider also served as president of the Society (1958-59) when he was working with Leo Beranek at Bolt, Beranek and Newman. Shortly after that he wrote a seminal paper “On-Line Man-Computer Communication” and went on to join DARPA (Defense Advanced Research Projects Agency) to work on the first communication systems that sent messages generated by humans between computers. Later, at Licklider's instigation, DARPA supported university scientists in their work to make computers smaller, cheaper and more available and above all, able to communicate over some sort of electronic nervous system.

However it took the world and the Acoustical Society until the early 1990s to begin extensive use of the Internet. In 1994 the Society began issuing past volumes of *JASA* on CD ROM so that members could have quick access to *JASA* and at the same time gain shelf space in their homes and offices. In 1995, then President-Elect Robert Apfel (1943-2002) led the effort to provide on-line submission of abstracts that was initiated for the fall meeting that year. In 1996 the ASA Executive Council approved his initiative to publish the current issues of the *Journal* on CD ROM and offer members the option to receive it every two months, with students automatically receiving *JASA* on CD ROM. Robert Apfel also initiated the journal *Acoustics Research Letters Online (ARLO)* that began online-only publication in 1999. This unique journal had its own electronic manuscript management system. *ARLO* was recently modified and its name changed to *JASA Express Letters*. However, *ARLO* continues to be available only online without charge to anyone with a browser. Bob Apfel carried on the visionary approach for the Society that J.C.R. Licklider began thirty years earlier for the world!

Another form of communication with members is to poll the membership about the Society—to determine whether members are satisfied with the products and services they receive, or more importantly to ask how the Society can improve. In 1992 the Society entered into a survey with 42 other prominent scientific and engineering societies. The result was that the Acoustical Society ranked in the top three in: 1) overall satisfaction, 2) technical publications, and 3) standards activities. However members felt the Society could improve in its outreach to the public by informing them about acoustics and acousticians, and careers in acoustics. This was followed by the Re-creation Process—rethinking the ASA—that began in 1994 under the leadership of Richard Lyon and concluded with a summary report in *JASA* that contained many sug-

gestions for new and modified ASA programs. Another less formal survey was later carried out with a focus group comprised of graduate students in acoustics at the University of Washington. A strong suggestion from them was the need for a student council. The ASA Student Council was appointed in 1999 and now meets semi-annually at Acoustical Society meetings. They have already established a mentoring award, a web page that provides information explicitly for students, and organize special workshops and activities for students who attend ASA meetings.

Based on the 1992 poll the Society took steps to increase dissemination of information to its members and to improve public outreach. In 1995 the Society set up its own web page with the help of ASA volunteers Paul Baxley and Carr Everbach. Paul Baxley developed an idea to post lay papers from ASA meetings on the web for the public and the press to read, naming it the *World Wide Press Room*. This novel approach, that has been adopted by other societies, has led to many stories in the public press about acoustics. The *World Wide Press Room* was later incorporated in a separate web page for the general public, acoustics.org.

The need for some sort of publication to supplement *JASA* was apparent ever since the demise of the ASA magazine *Sound* in 1963. An often heard complaint of members was that they would like something more readable. One of Charles Schmid's first tasks as executive director was to begin the publication of the ASA newsletter *ECHOES* with Alice Suter as managing editor. It began in spring 1991, adopting the name of a newsletter once published by the executive director's previous employer. *ECHOES* was sent four times a year to all ASA members, the press and Regional Chapter members who are not members of the Society. Tom Rossing assumed the editorship of *ECHOES* in 1997. *ECHOES* is now published online and portions are also incorporated into ASA's magazine, *Acoustics Today*. They all serve today under ASA's 6th Editor-in-Chief, Allan Pierce.

The 1990s also saw the membership grow in diversity. As you probably noted in the photo above showing the 40 founding members of the Society—all were men. For that matter the photo of the 25th anniversary had the caption “Council members and Past presidents *and their ladies* (italics original).” Even earlier notes from the meeting in 1948 in Washington, DC discussed the “Ladies Program” that noted: “On Friday afternoon the ladies were graciously received at the White House by Mrs. Harry S. Truman in an affair including handsome Naval aides in gold braid and a military orchestra in red uniforms.” It was forty years later when Patricia K. Kuhl was elected the Society's first woman president in 1998. Since that time, two more women have been elected president. And Patricia Kuhl can be seen on the cover of the Summer 1997 *ECHOES* being greeted at the White House by President Clinton when she was invited by Mrs. Clinton to give a paper on early childhood development and learning. James E. West was elected the first African-American president in 1997. Although the leadership has become more diverse in gender and race, it should

be pointed out that today only 15% of the Society's members are women and the number of under represented minorities is still very small. These issues have been addressed by the Committee on Women in Acoustics, that was formed in 1995, and by the establishment of the Minority Fellowship in 1992.

Another aspect of diversity has been an increase in participation by international members and organizations. The percentage of members who are from outside the US or Canada increased from 16% in 1990 to 26% in 2002. Likewise about half of the manuscripts submitted to *JASA* originate outside of North America. One approach the Society has taken to recognize this increased representation of non-US members has been to hold meetings in Canada (1968, 1981, 1993 and 2005), and to hold joint meetings with the Acoustical Society of Japan in Honolulu, Hawaii (1978, 1988, 1996, and 2006). In addition, the Acoustical Society has hosted two joint meetings of the International Congress on Acoustics (ICA) in Cambridge (2nd ICA 1956) and Seattle (16th ICA 1998). In the process of increasing its interaction with the International Commission for Acoustics, the Acoustical Society has become more involved with their activities, including jointly funding international travel grants and technical meetings, and scheduling conferences on acoustics. The first joint meeting with the European Acoustics Association (EAA) was held in Berlin (1999), that was also the first meeting the ASA held in Europe. With 2,263 attending, it had the largest attendance to date of a meeting on acoustics. In 2002 the ASA met in Cancun, Mexico with the Iberoamerican Federation of Acoustics (FIA) and the Mexican Institute of Acoustics (IMA) for the first Pan American/Iberian meeting on Acoustics. Another method to increase international participation with the Society was by offering electronic membership beginning in 2002. A special aspect of this membership category is a corresponding electronic associate that allows acousticians in developing countries to join the Society at a lower membership fee. Also the Regional Chapters program was "internationalized" with the establishment of chapters in Madras, India in 1995 and in Mexico City in 2001.

The fact that acoustics is such a diverse topic has led to concerns that specialty fields within acoustics are not addressed at Society meetings to the depth members would like. This problem was referred to above in section 5 (1955-1990) where it was noted that new journals and new societies were being formed that focused on one aspect of acoustics. Acknowledging this problem the Society decided to organize and cosponsor smaller workshops and symposia that are dedicated to one subject. There have been a number of these, including the Physical Acoustics Summer School (PASS) held every two years beginning in 1992, the International Symposium on Musical Acoustics (1998), a Themed Entertainment Workshop (1999), the first workshop on Thermoacoustics (2001), and the first International Conference on Acoustic Communication by Animals (2003).

Creating new technical committees was another approach towards providing a platform for acousticians in

special and emerging fields. After the Cold War ended, the Society saw the emergence in the mid-1990s of three new technical committees that represented very diverse technical fields: 1) Acoustical Oceanography, 2) Animal Bioacoustics, and 3) Signal Processing in Acoustics. Also Bioresponse to Vibration added Biomedical Ultrasound to its title to address the important developments in health-related acoustics. In addition to adding three technical committees, the Technical Council took an increasingly active role by polling its membership at meetings in reporting the needs and desires of the membership to the Executive Council more effectively. Wallace Waterfall would have approved of this action; as mentioned earlier, he felt that the technical committees gave the ASA a "House of Representatives" that could influence the direction of the Society.

Although not noticeable to the average member, finances are a very important responsibility with which the Society's leadership must concern itself. And although the Society had kept enough reserves to maintain its operations during economic downturns, it became apparent in the early 1990s that the Society needed endowment funds if it wanted to increase its outreach efforts, including supporting prizes and special fellowships. A Development Committee was appointed in 1990, after which it was decided to form a separate not-for-profit organization that would provide funding to the Acoustical Society of America. Hence in 1996 the Acoustical Society Foundation was incorporated with William W. Lang as General Secretary and Paul B. Ostergaard as its first Chair. Also during this time period the Executive Council established three Administrative Councils consisting of the chairs of ASA's administrative committees and members of the Executive Council to conduct its business more efficiently: 1) Internal Affairs, 2) External Affairs and 3) Financial Affairs. This new structure was first implemented at the Austin meeting in the fall of 1994. The Executive Council also initiated meetings of Officers and Managers in 1995 to discuss administrative issues between its semi-annual meetings.

Parting Personal Thoughts

Seventy five years is about the average lifetime for human beings. This accounts for the fact that none of the founding members are alive today, and hence the story of how our Society began is now handed down to us. It is interesting to note that a number of the Acoustical Society's active members, including past presidents and the editor of *ECHOES*, were born in 1929, and attended the 75th celebration of the Society. Since we naturally foresee the Society transcending our life spans, the message is clear. In order to retain our history for those who follow, especially for younger acousticians, we need to record the present that will eventually become its history. The founders must have been keenly aware of this when they placed the 25th Anniversary film in Iron Mountain Atomic Storage Corporation. We are confident the founders would be proud to know that we are in turn recording important events that have shaped the Society during our lifetimes. In addition to videotaping recollections of past

presidents the 75th anniversary celebration itself was filmed.

Additional sources for information designated by the Archives and History Committee are the three sites for storing historical items and papers in certain fields: 1) Architectural Acoustics: Riverbank Acoustical Labs, IL; 2) Physical Acoustics, National Center for Physical Acoustics, MS; and 3) Musical Acoustics: The Catgut Acoustical Society Library (CASL), web pages in the Musical Acoustics Research Library (MARL), and at the Stanford University Center for Computer Research in Music and Acoustics (CCRMA). In addition, the History Center of the American Institute of Physics in College Park, MD retains historical information, including oral histories from members of the Acoustical Society. A list of those whose interviews have been completed is given at the end of this section.

Anyone reading all or parts of this history will conclude that there would have been no 75th celebration had not a lot of members volunteered their valuable time and creative ideas over the years to improve the Society—and improve the field of acoustics in general. In turn, they too have benefited in both their personal and their professional lives. Continuing this tradition will most certainly allow our Society to live for many more human lifetimes.

In parting we note that the paragraph above is the easy way out to predict the future, namely the past is prologue. Perhaps we took a hint to avoid any stronger predictions from a JASA article entitled “Thoughts on the future of acoustics” moderated by Walter Rosenblith, with panelists James Barger, Lois Elliott, Tony Embleton and Robert Apfel. It was based on a session of the same name held at the 50th anniversary meeting. Lois Elliott was “willing to wager that when the Society celebrates its 100th anniversary, there will be people in the audience wearing and benefiting from implanted prostheses!” Her prediction would have been correct for the 75th anniversary. **AT**

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 A.B. Wood



Fig 1: Charles E. Schmid

Charles E. Schmid was selected to be the first executive director of the Acoustical Society of America in 1990. Before that he performed research in underwater acoustics as a Fellow at Honeywell Marine Systems in Seattle, WA (1966–1990) and General Dynamics/Electric Boat in Groton, CT (1963–1966). He served as the ASA's 1985/86 Congressional

Science and Engineering Fellow in Washington, DC. He holds a Bachelors degree from Cornell University, Masters from the University of Connecticut, and Ph.D from the University of Washington, all in electrical engineering. He has served on the American Institute of Physics (AIP) Governing Board for 16-years and was elected to 5 terms on AIP's Executive Committee.



Elaine with friends Tammy Faye, Rusty and Sadiq at a ranch in Austin, Texas. (Photo by Carlie Tilly.)

Elaine Moran is the ASA headquarters office manager and has been a member of the ASA staff since 1970. Prior to joining ASA, she held positions at the American Institute of Physics and the Rockefeller University Press.