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THE SOLAR PHYSICS DIVISION

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INTRODUCTION

The centennial year for the AAS, 1999, marks the 30th anniversary of the founding of the AAS Solar Physics Division (SPD). The purpose of the SPD is the advancement of the study of the Sun and the coordination of solar research between astronomy and other branches of science. In this chapter we examine the motivation and the events leading to the formation of this organization, which serves the professional needs of solar astronomers and solar physicists in North America. We also outline the more important activities of the SPD over the years and how they reflect changes in the field of solar physics, including changes in the relative emphasis on the astrophysical and geophysical sides of the subject.

FOUNDING OF THE DIVISION

The origins of the SPD can be traced to an initiative in the mid-1960s to organize a series of special AAS meetings devoted to solar physics. The idea for these meetings originated in early 1965 with suggestions made by Henry J. Smith, the chief solar physicist at NASA headquarters and formerly on the staff of Sacramento Peak Observatory, and by Leo Goldberg of Harvard College Observatory, then President of the AAS and a distinguished solar astronomer himself. Smith had been disappointed in the small turnout of solar astronomers at AAS meetings.[1] He had found that several solar astronomers were abandoning the AAS for other organizations because of the crowded schedules of AAS meetings, the tendency of the AAS to meet in the eastern U.S. while the majority of solar astronomers lived in the western states, and a general lack of appreciation of solar astronomy among other astronomers. In April 1965, at a meeting of NASA's Solar Physics Subcommittee, Smith proposed that NASA-funded solar physicists meet periodically to discuss their research. In the discussion that followed, Goldberg suggested as an alternative that the AAS sponsor an annual meeting on solar physics,* "perhaps as a first step in establishing a section for solar physics."[2]

Goldberg, as AAS President, was reluctant to raise this possibility directly with the AAS Council himself because several of the Council members were already concerned that increasing specialization was threatening the unity of astronomy. He felt the suggestion would be better received if it came from solar astronomers outside the Council. Similarly, Smith believed that such a suggestion would be better received from an observatory director rather than from a Washington bureaucrat like himself.[1]

From the earliest stages of planning which led to the formation of the SPD, the term "solar physics" was used to describe the field, with the intent of being more broadly inclusive than the term "solar astronomy."

Smith and Goldberg settled on John Firor, then director of the High Altitude Observatory, as the best person to put forward such a proposal to the AAS Council.

Smith[2] and Goldberg[3] then both approached Firor and asked him to take the lead in proposing a series of solar meetings to the AAS Council. Goldberg was "rather partial to the idea of holding this meeting somewhere in the western or southwestern portion of the country, both because of the concentrations of solar astronomers in these regions, and because it would be highly appropriate for the AAS to hold one meeting a year somewhere in the West more or less as an established practice." Goldberg also said that "we may want to think of formally establishing a section on solar physics, with elected officials taking full responsibility for the organization of the meetings." Firor thought that such meetings would be quite appropriate and certainly worthy of a trial. He discussed the possibility with several colleagues in the solar physics community, most of whom liked the idea and urged that it be an annual event.

Not all solar astronomers were enthusiastic at first about the suggestion that the AAS establish a section for solar physics, however. For example, Robert Noyes of Harvard was concerned about any change that would tend to further separate solar astronomers from the rest of astronomy.[4] Noyes agreed that there was a need for separate meetings on solar physics but thought that these meetings should be organized outside the AAS.

Further impetus for an annual meeting devoted to solar physics was the success of the annual informal "Santa Fe meeting" of the scientific staffs of the High Altitude Observatory and Sacramento Peak Observatory, the two largest groups of solar physicists in the country. These lively, three-day meetings, which began in 1961, were held

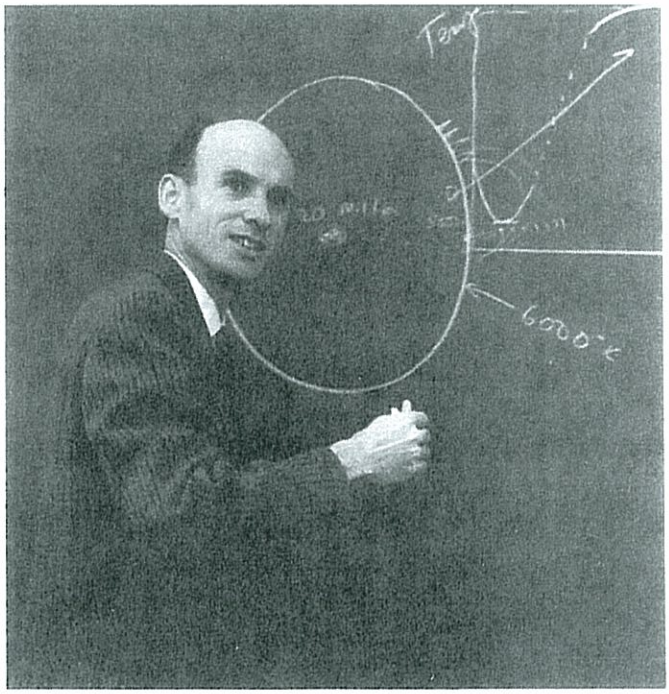

Figure 1. John Firor, chair of the Organizing Committee of the Solar Physics Division. (1968 photo, courtesy of the High Altitude Observatory.)

in scenic Santa Fe, New Mexico, about midway between the two institutions. Although these meetings were primarily for the staffs of the two observatories, a few fortunate scientists from other institutions were invited each year. The word got around about these stimulating meetings, and a number of solar physicists at other institutions began to wish that they too could participate regularly in a meeting devoted entirely to their subject.

In July 1965, Firor presented a formal proposal for an annual AAS-sponsored meeting devoted to solar astronomy and closely related subjects, to be held in the western U.S., with a format designed to encourage discussion.[5] The proposal pointed out that the rapid growth in solar studies had not been accompanied by a similar growth in the time devoted to the Sun at AAS meetings, and that a number of the newer people in the field were physicists who had had little motivation for joining and attending meetings of the AAS. Although other organizations, such as the American Geophysical Union (AGU), could potentially fill the need for meetings devoted to solar physics, Firor urged the AAS to take this initiative so that "the traditional and valuable connection between solar physics and the rest of astronomy will be symbolized and encouraged." The proposal specified that the first such meeting would be held in Boulder, Colorado in 1966.

The AAS Council reluctantly and cautiously approved only one such meeting, on a trial basis, and AAS President Leo Goldberg appointed Firor, Donald Billings, Frank McDonald, and Oran R. White to organize this meeting.[6] This first AAS "solar meeting" was held in Boulder October 3–5, 1966, with scientific sessions in the auditorium of the Boulder laboratories of the National Bureau of Standards. The program featured special topical sessions on the solar corona and on energetic solar particles.

The Boulder meeting was judged to be a great success by those attending, and there was general enthusiasm for further meetings. The AAS Council approved a second solar meeting, which was held in Tucson, February 1–3, 1968. The Tucson meeting was hosted by Kitt Peak National Observatory and the University of Arizona and was organized by A. Keith Pierce (chair), Jacques Beckers, Firor, Goldberg, Robert Howard, and G. C. McVittie. The Tucson meeting had over 200 attendees, a full schedule of papers, and lively discussions. Shortly after the Tucson meeting, AAS Secretary McVittie proposed to the Council that the Society appoint a "solar secretary" to oversee the planning of future AAS solar meetings.[7] Shortly thereafter, Firor wrote to McVittie urging the Council to reconsider the original proposal to establish the AAS solar meeting as a continuing, annual event.[8] Firor argued against the idea of a "solar secretary" on the basis that other subdisciplines within the AAS would also want special meetings in their field and this might lead to a proliferation of such secretaries (e.g., a "quasar secretary" or a "gaseous nebula secretary"). Firor favored instead some sort of general mechanism for the organization of all such meetings within the framework of the AAS.

Indeed, at that time two other groups within the AAS were also asking for special attention to the needs of their subdisciplines. A group of planetary scientists was planning to establish scientific meetings in their specialty, under the auspices of the AAS or the AGU or perhaps even as a separate society. A group of high-energy astrophysicists, the majority of whom had been trained as physicists rather than conventional astronomers, was also trying to establish an organization and had in fact

already applied to the APS for the formation of a division for high-energy astrophysics. These activities of the solar, planetary, and high-energy groups persuaded the AAS Council that, however much they might regret the increasing specialization of astronomy, it had become necessary to recognize the special needs of certain subfields within astronomy not only by providing for regular meetings in these fields but also by creating appropriate Divisions of the Society that would organize these meetings and otherwise attend to the needs of special fields.[9] The Council proposed an amendment to the AAS constitution providing for the establishment of Divisions, but with considerable reluctance.

> The step of forming these special divisions was taken only after thorough deliberations and after it became clear that any further postponement of this step would increase the danger to the AAS of losing these recently energized fields of astronomy to other related societies, such as the Physical Society or the Geophysical Union. All efforts are being made to insure that the formation of the special divisions will not increase the always present hazard of overspecialization in American astronomy.[10]

A ballot on the proposed amendment establishing Divisions was mailed to the membership in July 1968. The amendment was approved by the membership and was formally adopted, with minor changes, at the annual AAS business meeting in Victoria on August 22, 1968.

While the balloting was under way, in anticipation of approval, Martin Schwarzschild (then acting President of the AAS during A. E. Whitford's stay at Mt. Stromlo in Australia) asked Firor for suggestions for members of an Organizing Committee for the Division of Solar Physics. Firor responded by suggesting a list of names of scientists who were at the forefront of solar physics but who, for the most part, had not been deeply involved in matters having to do with the structure of the AAS or other organizations and hence might be more open to new meeting formats. The people suggested by Firor were duly appointed by the AAS Council at its meeting on August 20, 1968. The Organizing Committee for the Division for Solar Physics consisted of Grant Athay (HAO/NCAR), Jacques Beckers (Sacramento Peak Obs.), Robert E. Danielson (Princeton), William C. Erickson (Clark Lake Radio Obs.), John Firor (HAO/NCAR), Peter Meyer (Univ. of Chicago), Norman F. Ness (NASA Goddard SFC), and William H. Parkinson (Harvard). The committee elected Firor as their chair and went about the business of drafting a set of bylaws. A number of helpful comments on early drafts of the bylaws were made by Martin Schwarzschild, himself a pioneer in solar research.[11]

Meanwhile, in February 1969 a third AAS solar meeting was held in Pasadena, hosted by the Mt. Wilson and Palomar Observatories and organized by Robert Howard, Robert Leighton, and Harold Zirin. The proposed bylaws of the Division were discussed at that meeting and the Organizing Committee prepared a list of 61 "original members" of the Division. In July 1969 the proposed bylaws were approved by these founding members by mail ballot. [The original AAS documents and the original bylaws refer to the "Division on Solar Physics," but by the time of the first annual meeting in 1970 the Division was being called the "Solar Physics Division" (SPD) and generally has been ever since then.]

Firor asked Grant Athay to prepare a slate of candidates for the first officers of the Division, in consultation with other members of the organizing committee. Athay

responded by preparing a slate which consisted of just one candidate for each position but which purposely excluded members of the organizing committee itself. In Athay's words, "the last criterion may raise a few eyebrows, but it was the only way to avoid some potential embarrassment."[12] The final slate of candidates prepared by the Organizing Committee was duly elected by the original SPD members in a mail ballot in summer 1970. Those elected were: John Jefferies, Chair; Gordon Newkirk, Vice-Chair; Robert Howard, Secretary; Elske Smith, Treasurer; and Mukul Kundu, Robert Noyes, Carl Fichtel and David Rust, members of the Committee.

SPD MEETINGS

The first official meeting of the newly formed Division was held in Huntsville, Alabama, November 17–19, 1970. (The newly formed Division of Planetary Sciences and Division of Dynamical Astronomy had already held their first meetings in January 1970.) It is interesting to note that, in spite of the initial thrust to establish an annual solar meeting in the west, the first official Division meeting was in the south. The program committee for the Huntsville meeting consisted of Firor, Pat McIntosh, and Zirin. The meeting overlapped with the meeting of the American Institute of Aeronautics and Astronautics (AIAA), held November 16–18, in Huntsville, and the two groups had a joint session on "Solar Physics and the Apollo Telescope Mount Project" on the morning of the 18th. The SPD meeting itself had 96 registered attendees and included sessions in parallel with AIAA sessions on November 17 and two parallel sessions of its own on the 19th, with a total of 50 contributed papers arranged into six sessions.

The first SPD business meeting was held on the evening of November 18, 1970, and was led by Firor who was chair of the Organizing Committee. Most of the discussion at that first business meeting concerned the format of future scientific meetings, leading to a decision that the next annual meeting would be conducted without parallel sessions. This was to be accomplished by giving the session chairs the power to limit subject matter, invite speakers, and select from among contributed papers. Thus began an intense debate among SPD members over the issue of single sessions (with only invited and selected papers) versus parallel sessions (accommodating essentially all submitted papers). Opinions were equally divided on this issue. A questionnaire sent to SPD members in early 1972 asking "should basically all submitted papers be accepted" received 28 yes votes and 29 no votes. The debate reached its peak at the second SPD meeting, in Maryland in 1972, when in protest Zirin organized an impromptu evening "rump session" for papers rejected from the official sessions. Although the SPD Committee officially disapproved of this rump session, it also found that improvements in the process of selecting papers for presentation were needed. Within a few years the SPD membership had grown to the point where single sessions were no longer a practical alternative and the debate subsided somewhat. The introduction of poster papers in the late 1980s seemed to provide some relief, but it soon became clear that posters deserve dedicated time too and cannot just be superimposed on a full day of oral sessions. The debate continues today, but in recent years the annual meeting has generally accommodated all submitted papers while not guaranteeing oral presentation.

Following the Huntsville meeting, of the next ten SPD meetings all but the Boulder meeting in 1975 were held jointly with a full AAS meeting. (A complete list of SPD meetings is given in Table 1.) These close ties with the AAS were largely due to a resurgence of interest in the astronomical side of solar physics in the mid-1970s, under the banner of "the Sun as a Star." The reasons for this renewed interest in solar-stellar connections included the following: the rapid development of the new field of helioseismology and its implications for solar and stellar structure; the prospects for asteroseismology; the emerging results of long-term programs of observations of solar-type stars (including the discovery of stellar activity cycles similar to the Sun's); advances in non-LTE, multidimensional models of the solar and stellar atmospheres; and the solar neutrino problem and its implications for stellar astrophysics.

TABLE 1. *Chronology of SPD Meetings, Chairs, and Hale Prize Winners.*

Year	SPD Annual Meeting	SPD Chair[1]	Hale Prize Winner
1969		John Firor[2]	
1970	Huntsville, AL	John Jefferies	
1971	none		
1972	College Park, MD[a]	Gordon Newkirk	
1973	Las Cruces, NM[a]	Jack Zirker	
1974	Honolulu, HI[a]	Peter Sturrock	
1975	Boulder, CO and San Diego, CA[a,c]	Robert Noyes	
1976	Haverford, PA[a]	Robert MacQueen[3]	
1977	Atlanta, GA[a]		
1978	Madison, WI[a]	Loren Acton	Eugene Parker*
1979	Wellesley, MA[a]		
1980	College Park, MD[a]	John W. Harvey	Paul Wild
1981	Taos, NM		
1982	Boulder, CO[a]	Alan Krieger	John W. Evans
1983	Pasadena, CA		
1984	Baltimore, MD[a]	Grant Athay	Leo Goldberg
1985	Tucson, AZ		
1986	Ames, IA[a]	George Doschek	Peter A. Sturrock
1987	Honolulu, HI		
1988	Kansas City, MO[a]	Hugh Hudson	Cornelis de Jager
1989	Laurel, MD		
1990	Albuquerque, NM[a]	George Withbroe	Richard Tousey
1991	Huntsville, AL	Spiro Antiochos	
1992	Columbus, OH[a]		H. W. Babcock
1993	Stanford, CA	Thomas Holzer	
1994	Baltimore, MD[b]		Douglas Gough
1995	Memphis, TN	John H. Thomas	
1996	Madison, WI[a]		Raymond Davis, Jr.
1997	Bozeman, MT	Stephen Kahler	
1998	Boston, MA[b]		Richard B. Dunn
1999	Chicago, IL[a]		

[1] Chairs take office at the annual meeting in June of the year indicated.
[2] Chair of the SPD Organizing Committee
[3] The term of office of the Chair was changed to two years in 1976.
[a] Joint meeting with the AAS.
[b] Joint meeting with the AGU.
[c] Two meetings held that year.
* Hale Prize lecture given at the Wellesley meeting in 1979.

For its first two years, the SPD survived on registration funds collected at the annual meeting. In 1972, the Division instituted annual dues of $4, which remained the same until 1982. Membership in the SPD grew to about 180 in 1975 and to about 250 in 1980. In 1980 the bylaws were amended to provide for affiliate membership in the SPD. Affiliate membership is open to members of other related scientific societies (such as the AGU and the APS) who are involved in solar research but are not members of the AAS. Affiliate members have all the privileges of membership except that they may not vote or hold office in the Division.

By 1981 there was again strong sentiment in favor of smaller, separate meetings, and the Division met alone in Taos that year. Through the 1980s the SPD followed a plan of holding every other annual meeting separately from the AAS. One of the motivations for forming the SPD was the fact that solar physics is in many ways an interdisciplinary subject with strong ties to fields outside of astronomy, especially geophysics. Many SPD members have closer ties with the AGU than with the AAS. At the urging of some of these members, the SPD held its 1994 annual meeting in conjunction with the AGU spring meeting in Baltimore, with the planning of the SPD sessions coordinated with the Space Physics and Aeronomy Section of the AGU. This meeting was well attended and was generally considered a success by the membership. This experiment will be repeated in 1998, when the SPD again meets jointly with the AGU at its spring meeting in Boston.

Of course, a majority of SPD members do consider themselves to be primarily astronomers and have their strongest professional ties with the AAS. A point of continual discussion among SPD members over the years has been the relative advantages of holding our annual meeting separately or together with an AAS meeting. Although meeting separately gives us more freedom and control over the meeting schedule and format, most members recognize the importance of maintaining close ties with the rest of astronomy.

There have been a number of experiments and innovations in the format of SPD meetings over the years. The Boulder meeting in January 1975 included a joint symposium with the American Meteorological Society on problems of mutual interest, including Sun-weather connections, atmospheric circulation, and turbulence. Poster papers were presented for the first time at the Atlanta meeting in June 1977. The Taos meeting in January 1981 had morning and evening sessions, with afternoons free for scientific discussions (or skiing!). The Memphis meeting in 1995 featured a series of four special invited lectures honoring Eugene Parker on the occasion of his retirement (the lecturers were Tom Holzer, Bob Rosner, Nigel Weiss, and Eugene Parker himself). For a number of years now, the annual Business Meeting has included presentations by the directors of solar-related programs at NSF and NASA on the status of current projects and funding opportunities, and by the directors of the national solar centers, NSO and HAO.

In addition to its annual meeting, the SPD has organized many special symposia and topical sessions at regular AAS meetings over the years, such as the symposium on "Observations of the Solar Corona from Skylab" at the AAS Tucson meeting in 1973. Also, the SPD has occasionally co-sponsored meetings or special sessions with other scientific societies and organizations, such as the meeting on "Solar and Interplanetary Physics" with the AGU and the APS in 1977 and the workshop on "Flare Research and

the Solar Maximum Mission" with the University of Michigan in 1978. One of the most important of these co-sponsored meetings was the workshop on "Cool Stars, Stellar Systems, and the Sun" held at the Harvard-Smithsonian Center for Astrophysics (CfA) in January, 1980, and organized by Andrea Dupree. The SPD co-sponsored this meeting with CfA and contributed substantial funds to support it. This meeting launched the well-known series of Cool Star workshops which have been held nearly every year since 1980 (although without further SPD sponsorship).

THE HALE PRIZE

One of the most important early activities of the SPD was the establishment of the George Ellery Hale Prize for outstanding contributions to solar astronomy. Informal discussions about the need for an AAS lectureship and prize in solar astronomy began almost immediately after the establishment of the Division, if not before. Many were involved in these discussions, but it was Gordon Newkirk who took hold of the idea in 1971 and pushed it forward. Newkirk took over the directorship of the High Altitude Observatory in 1968, when Firor became director of NCAR. Also, Newkirk succeeded John Jefferies as chair of the SPD in 1972. In late 1972 and early 1973 Newkirk and Robert Howard, then at the Hale Observatories and also SPD secretary, drafted the first version of a proposal to establish the Hale Prize. This proposal was discussed at the Division's business meeting in Las Cruces in 1973. Early versions of the proposal called for a Hale Lecture at the annual SPD meeting, but this was later changed to a lecture at a full AAS meeting, the argument being that outstanding work in solar astronomy should be presented to the entire AAS membership. Some felt that the prize should be an AAS prize, not an SPD prize, because of the greater prestige and greater opportunities for fund raising it would provide. A feature of the very first draft proposal which did see its way through to the end was the provision that the selection committee should place heavy emphasis on a candidate's sustained contributions over an extended period of time rather than on a single discovery. Also, from the beginning the intent was that the Hale Prize would not be restricted to SPD or AAS members, nor to North Americans. Others who contributed significantly to the early planning for the Hale Prize include Jack Zirker, Walter Roberts, Frank Orrall, and Grant Athay.

The proposal was approved by the AAS Council in mid 1973, but the Council specified that the Hale Prize would be a Division, not a Society prize, and that fund raising to support the Prize was the responsibility of the SPD alone. Fund raising began in earnest in 1975, with a goal of $20,000, and the Division itself contributed $1000 out of its operating funds to get the ball rolling. The fund raising effort was led by Newkirk (chair), Roberts, and Zirker. A total of $5650 was raised by the annual meeting in June 1976, and $11,000 by the annual meeting in June 1977, when it was decided that $15,000 should be sufficient to fund the prize. Corporate donations were received from IBM, Lockheed, Corning Glass Works, Ball Brothers, Arthur D. Little, American Science & Engineering, Owens Illinois, and also from the Carnegie Institution of Washington, the Smithsonian Institution, the National Academy of Sciences, and the Sibyl and William T. Golden Foundation. A number of individual donors also contributed, including several members of George Ellery Hale's family.

The first Hale Prize was awarded to Eugene Parker at the Madison meeting in June 1978, for his "imaginative and stimulating contributions in which plasma and magnetohydrodynamical physics have been applied to astronomy." Parker delivered the first Hale Prize lecture at the joint AAS/SPD meeting in Wellesley in 1979. At the SPD business meeting in Madison, following the announcement of the Prize, a formal resolution was passed expressing special appreciation to Gordon Newkirk for his tremendous efforts in establishing the Hale Prize.

There have been eleven Hale Prize winners as of this writing; their names are given in Table 1. Of the eleven winners, three are foreign: Paul Wild (Australia), Cornelis de Jager (The Netherlands), and Douglas Gough (United Kingdom). The Hale Prize has been awarded for both observational and theoretical work, and for research spanning a wide range of subjects, including optical, radio, and neutrino astronomy; solar astronomy from the ground, from rockets, and from orbiting space vehicles; spectroscopy and the solar atmosphere; solar magnetohydrodynamics and plasma physics; and helioseismology.

The Hale Prize is nominally awarded every other year, in even-numbered years. However, the Division has decided to also award a Hale Prize at the AAS Centennial meeting in Chicago in June 1999, which will also celebrate the centennial of Yerkes Observatory. Because of George Ellery Hale's key role in the founding of both Yerkes

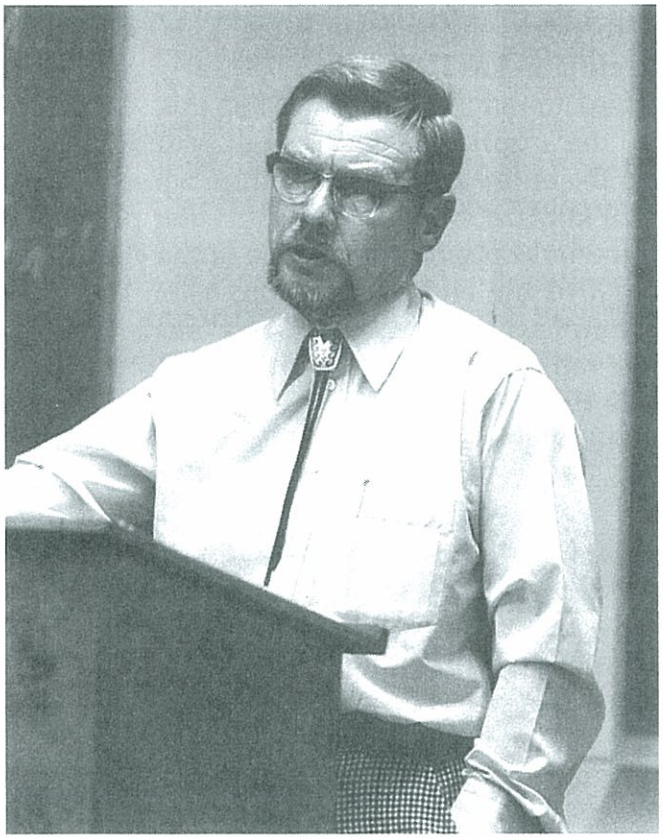

Figure 2. Gordon Newkirk, chair of the committee to establish the George Ellery Hale Prize and the principal fund-raiser for the Prize. (1978 photo, courtesy of the High Altitude Observatory.)

and the AAS (*see* D. Osterbrock, this volume, page 3), it is especially appropriate that a Hale Prize be awarded in Chicago in 1999.

OTHER SPD AWARDS

In 1980, the SPD began a program of financial awards to promising undergraduate and graduate students to enable them to attend the Division's annual meeting. These "studentship" awards are meant to encourage students who show interest in pursuing a career in solar physics. Graduate student winners are required to present a paper at the meeting. Typically, four to eight students have received studentship awards each year. Through the generosity of Kluwer Academic Publishers, the award has been supplemented by a one-year subscription to *Solar Physics* or, more recently, by a solar physics monograph of the winner's choice. The studentship program was organized by James Ionson in 1980 and then taken over in 1981 by A. Gordon Emslie, who has run it ever since then. The awards are supported by SPD dues and by donations. In 1982, the SPD increased its annual dues from $4 to $8 primarily to support the studentship program. A good many of the winners of the studentship awards have indeed gone on to productive careers in solar physics; examples include Mitchell Berger, Douglas Braun, Timothy Brown, Patricia Bornmann, Luc Damé, Deborah Haber, and Jim Klimchuk.

In 1997, the SPD began giving "Popular Writing Awards" for articles on solar physics in the popular press or in semi-popular journals. There are two such awards — one for journalists or science writers, and the other for professional solar physicists. The awards are intended to encourage articles informing the general public about important advances in solar physics and solar-terrestrial relations. These new awards reflect the Division's growing awareness of the importance of public outreach in justifying continued federal support for solar physics. The 1997 awards went to Kenneth R. Lang (Tufts University) and J. Madeleine Nash (*Time* magazine).

The SPD has been attempting to establish a prize for a young solar physicist, so far without success. Because the Hale Prize is meant to honor scientific contributions made over an extended period of time, young solar physicists are generally excluded from consideration, and yet many SPD members see a need to recognize our best young researchers. Efforts to establish a prize for a solar physicist in the early stages of his or her career began in 1990 with the appointment of a committee which developed a proposal. So far this proposal has been rejected by the AAS Council, for a number of reasons but primarily because the Council wishes to avoid a proliferation of prizes and already has difficulty in fitting all of the current prize lectures into the two AAS meetings each year. Discussions with the AAS about such a prize are still under way.

OTHER ACTIVITIES

In 1974, SPD Chair Peter Sturrock was considering the formation of an SPD committee to study the state of solar physics. This idea was abandoned when it became known that the National Academy of Sciences was organizing such a study, to be carried out under the auspices of the NAS Space Sciences Board by a committee

chaired by Eugene Parker. This study had an important influence on solar physics. The SPD had considerable input, including recommendations for the makeup of the Parker committee and discussions at the annual meeting.

The SPD has from time to time taken official positions on particular issues involving the discipline. In 1975, the SPD adopted a resolution urging continuing support of three solar observatories that were then threatened with closure: Sacramento Peak Observatory, then run by the Air Force; the Aerospace Corporation's San Fernando Observatory; and the Lockheed Solar Observatory. Sacramento Peak, with its relatively large staff and important facilities (including its vacuum tower telescope and coronagraph), was crucially important to the U.S. solar community (and indeed to the world-wide solar community). In response to strong community support and the recommendations of an *ad hoc* committee (chaired by Martin Schwarzschild), the National Science Foundation took over support of Sacramento Peak from the Air Force in July 1976 and contracted with the Association of Universities for Research in Astronomy (AURA) to operate the observatory. In October 1983, Sacramento Peak was merged with the solar facilities on Kitt Peak to form the National Solar Observatory (NSO) under the auspices of AURA, and shortly thereafter the National Optical Astronomy Observatories was established, comprising Kitt Peak National Observatory, Cerro Tololo Inter-American Observatory, and the NSO. The Aerospace Corporation gave its San Fernando Observatory to California State University at Northridge in January 1976; this observatory is still in operation.

In 1975, only five years after its founding, the SPD sought to reestablish close ties to the rest of astronomy and astrophysics. Robert Noyes, then SPD chair, had been among those who were concerned that the establishment of the Division meant an unfortunate separation from the rest of astrophysics. Noyes appointed an *ad hoc* committee on the "Interaction between Solar Physics and Astrophysics" chaired by Andrea Dupree. Other members of the committee were Jacques Beckers, Lawrence Fredrick, Jack Harvey, Jeffrey Linsky, L. E. Peterson, and Arthur Walker. The committee underscored the strong interdisciplinary relations between solar physics and the fields of stellar astrophysics, atomic and molecular physics, plasma physics, magnetohydrodynamics, and high energy physics. It recommended that the SPD continue to hold its annual meeting jointly with the AAS and urged the Division to be more active in organizing topical sessions and providing invited speakers for AAS meetings. It also urged SPD members to be more active on scientific advisory committees and in public outreach and to encourage the appointment of solar physicists to faculty positions.

In response to one of the recommendations of the Dupree committee, in 1976 the SPD began appointing liaison officers to help maintain ties with other disciplines and other professional societies. The individual areas of responsibility of these liaison officers have varied somewhat over the years, but have generally included the following: stellar astronomy; solar-terrestrial relations (with ties to the AGU); interplanetary astronomy; high-energy physics (with ties to the APS Astrophysics Division); plasma physics (with ties to the APS Division of Plasma Physics); and media relations. Responsibilities of the liaison officers include keeping SPD members informed of activities in the related fields and societies, and organizing joint sessions and joint meetings between the SPD and the related societies.

The relatively poor representation of solar physicists on university faculties is a long-standing problem of the discipline. In 1983, Karen Harvey (SPD Treasurer) carried out a demographic study of the institutional affiliations of SPD members that documented this problem. Her study showed that only 35% of SPD members held positions in universities, compared to 55% for AAS members overall. (Among those SPD members in universities, many were not in regular teaching positions or otherwise able to supervise graduate students.) On the other hand 27% of SPD members were employed by agencies of the federal government, compared to 15% of AAS members overall. This under-representation of solar physicists on university faculties is even worse today and poses a serious threat to the future of the discipline.

Figure 3. Karen Harvey, treasurer of the Solar Physics Division for eighteen years (1977–1995) and a significant contributor to the SPD in many other ways. (Photo courtesy of J. Harvey.)

In 1982, the SPD passed a resolution urging the National Oceanic and Atmospheric Administration to maintain its small grant program for continuing synoptic solar observations under the aegis of its "World Data Center A" for Solar-Terrestrial Physics. In 1983, the SPD passed a resolution urging NASA to restore funding for the Solar Optical Telescope. This ill-fated mission, reborn twice under different guises, was ultimately canceled by NASA.

In 1976, the SPD began publishing a regular newsletter, with a logo designed by Jack Eddy. In 1988, SPD secretary David Hathaway began publishing *SolarNews*, a monthly electronic newsletter that serves not only SPD members but also solar physicists around the world. By 1996, *SolarNews* had established itself so firmly among the SPD membership that the Division could stop publishing its printed newsletter and instead devote effort to producing special issues for urgent news. The distribution of *SolarNews* is an extension of the "SolarMail" system, maintained as a service to the international solar community by the solar group at Stanford. This system, started in 1986 by Philip Scherrer and Richard Bogart in response to the needs of the GONG helioseismology project, now maintains a file of e-mail addresses of nearly every

solar physicist in the world, all aliased in a uniform format (e.g., JThomas@solar.stanford.edu). Messages sent to a SolarMail alias are automatically forwarded from Stanford to the addressee. SolarMail is perhaps the only service of its kind that is based on discipline affiliation rather than institutional affiliation.

In 1995, the SPD established its WWW home page, kindly maintained by Joe Gurman at NASA Goddard Space Flight Center and accessible from the AAS home page. Browsers will find complete information on SPD membership, officers, bylaws, prizes, etc., and they can also access back issues of *SolarNews*.

THE PRESENT AND FUTURE

The SPD has been an organizing force for solar physics over the past 30 years and has served to keep solar physics under the umbrella of the AAS while reaching out to other disciplines and other organizations involved in solar research. The Division's membership has grown to over 400 regular members and some 75 affiliate members. It seems fair to say that the Division has fulfilled its main purposes, "the advancement of the study of the Sun and promotion of coordination of such research with other branches of science." It has been particularly effective in organizing a series of well attended, stimulating scientific meetings and in keeping its members informed of developments and opportunities in the field. To a lesser extent, it has served effectively in an advocacy role on issues for which there has been broad community agreement and support.

The SPD will no doubt continue to play an important supportive role for the field of solar physics in the future. In spite of tight federal funding, solar physics remains a very active, healthy, and innovative science. The quality of the research in solar physics has never been higher, and a number of outstanding young scientists have joined the field in recent years. On the observational side, there have recently been some highly successful space missions (e.g., SOHO and Yokoh), collaborative ground-based networks of telescopes (e.g., GONG) devoted to the exciting new field of helioseismology, and impressive advances in high-resolution optical observations from the ground, including the measurement of vector magnetic fields on the Sun through Stokes polarimetry. On the theoretical side, there have been remarkable advances in our ability to model complex plasma and magnetohydrodynamic processes on the Sun and in the solar wind, leading to a much better understanding of the solar activity cycle and its influence on the Earth.

Recently there has been a renewed emphasis on the geophysical side of solar physics, with the National Space Weather Program and NASA's Sun–Earth Connections program. At the same time, interest in the solar-stellar connection has grown because of the puzzling results of solar neutrino detectors and the discovery of more and more solar-like activity cycles in other late-type stars. There is no doubt that even in the mature discipline of solar physics there are many unimagined technical advances and surprising scientific discoveries ahead of us in the new century.

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