The Beginnings of the Division for Planetary Sciences of the American Astronomical Society

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Introduction

We trace the origins of the Division for Planetary Sciences as the premier scientific society in North America for the promotion of planetary science. There was a time when the work of every major observatory in the United States included the astrometric or physical study of the myriad bodies of the Solar System. To appreciate fully the reasons for the creation of the Division, we must recall the highlights of the history of the subject matter area itself. Whether it was the positions of comets and asteroids, visual observations of the seasonally shifting tones of Mars' surface, the motions of planetary satellites, or the spectroscopy of Saturn's rings, planetary observations figured significantly in the regular programs of Lick, Yerkes, Harvard, Yale, the U.S. Naval Observatory, and others.

In the early 1900s, with the emergence of modern astrophysics, and perhaps partly as a consequence of the huckster-like promotion of Mars as the habitat of a technically advanced civilization, based on questionable visual observations, planetary astronomy was somewhat de-emphasized among professionals. While planetary astronomy continued at various institutions, the research of most American astronomers with an interest in the planets assumed a low profile and was conducted in parallel with work on stars, galaxies, or other topics. The story is much more complex than can be summarized in a few sentences, but the net effect was that a rebirth of planetary astronomy occurred in post-war American science, largely through the special efforts of a very few astronomers, aided by the patronage of the U.S. Government through the military and the agency that became the National Aeronautics and Space Administration.[1,2]

In the late 1940s, planetary astronomy began to evolve into a more broadly based planetary science, as the result of several specific events. German V2 rockets captured at the end of World War II were used at White Sands Proving Ground to take pictures from more than 100 km altitude, showing large-scale views of the geology and geography of the southwestern U.S. This helped give us some of our first perceptions of the Earth as a planet. This new material was incorporated into the program of a conference organized by the Dutch-born American astronomer Gerard P. Kuiper at the Yerkes Observatory, September 8-10, 1947, in conjunction with the fiftieth anniversary of the Observatory. The conference volume, The Atmospheres of the Earth and Planets, included contributions by astronomers, meteorologists, and “high-altitude specialists.”[3] A second, revised edition was published in 1952, and included an updated version of one of Kuiper's most significant papers on the atmospheres of the Earth and other planets from an observational and cosmochemical point of view. The development of Kuiper's interest in the bodies of the Solar System has been described by Cruikshank and by Kuiper himself.[4,5,6]

At the same time, the origin and chemistry of the planets had caught the interest of Nobel Laureate Harold C. Urey, who published his landmark book, The Planets, Their Origin and Development, in 1952, which brought the study of the Solar System clearly within the view of chemists and geochemists, and offered a perspective on the Moon and planets of interest to traditional geologists.[7] In 1953, Kuiper
edited the first of his four-volume compendium on the Solar System, The Sun, and the next year The Earth as a Planet, the cover of which shows a picture of a piece of the desert southwest from a V2 rocket.[8,9] This book clearly established the study of the planets as an interdisciplinary enterprise. Not only were the interior, mantle, and crust of the planet explored, but the dynamics of Earth and its interaction with the Moon were covered, as were its oceans, all levels of the atmosphere, and the aurora. Significantly, the biochemistry of the atmosphere was a part of this truly global view of Earth. Those aspects of Earth (albedo, color, polarization) that can be directly compared with telescopic observations of other planets, were reviewed by astronomer André Danjon. Inklings of what has more recently become a systems view of Earth’s oceans, crust, and atmosphere, are seen in this extraordinary book.[10]

Although by the early 1950s planetary science had taken on the status of a multidisciplinary endeavor in principle, interested scientists continued for many years to approach their research from the vantage points of their foundations in the traditionally defined fields of astronomy, geology, meteorology, chemistry, and to a lesser degree, biology. Not until the 1970s did there emerge explicit university curricula in planetary science.

It is facile to abbreviate the story of the development of planetary astronomy in these few paragraphs, using conferences and books as guideposts; the details are compelling and interesting, particularly when they are derived from primary sources. Those details, with commentary, are given by Doel in a book that is an essential resource for understanding the development of studies of the Solar System in America. [1]

A key turning point in American planetary science was the formation, in 1969, of the Division for Planetary Sciences (DPS) of the American Astronomical Society. It is the story of the origins of the DPS that we tell here.

The view of the emergence of planetary science from its birthplace in astronomy, and in particular the establishment of the DPS, has been described by one of the present authors,[11] who helped define the multidisciplinary character of the field by organizing the first national society devoted to it. The present paper draws upon Chamberlain's reflections and perceptions, and it is augmented by key documents and accounts of pivotal events, mainly covering the period 1967-1971.

Specialists and Generalists

Young astronomers entering the field are commonly overwhelmed when attending their first full meeting of the AAS. Throngs of astronomers surge into multiple meeting rooms as the overlapping sessions begin early each morning. At coffee breaks the corridors are awash with astronomers lined up to fill their styrofoam cups with “the fuel of science.” The din slowly rises as conversations accelerate, and then the sessions resume as the participants file back into the meeting rooms for more 5-minute presentations by them and their colleagues. This goes on for several days, and even the evenings are occupied with special presentations, the banquet, the business meeting, committee meetings, and more.

Years ago, AAS meetings were attended by fewer than 100 astronomers, sessions were serial rather than parallel, and presentations were far less hurried. Furthermore, each American astronomer was acquainted with the person and the work of every other American astronomer. The same situation prevailed elsewhere in the world; the late Boris A. Vorontsov-Velyaminov of Moscow, told one of us (DPC) in 1969 that he once knew every astronomer in Russia, but by 1965 he didn't even know all of the astronomers working in his own institute (Sternberg State Astronomical Institute).

This depersonalization, brought about by the population explosion within science, has afflicted most of the major scientific societies. As the attendance at meetings swell, the organization is overpowered and can no longer accommodate in three or four days of leisurely sessions all of the contributed papers,
along with various special sessions and activities that must accompany a major meeting. The members
must then choose from a variety of unpleasant alternatives, including a longer meeting, shorter papers,
“poster” sessions, relegation of some papers to the status of “read by title only,” or holding two or more
simultaneous sessions for contributed papers. (see DeVorkin and Routly page 122.)

Simultaneous sessions were the dreaded Final Solution, ‘devoutly to be fear’d,’ especially by
generalists. A generalist is an individual who understands quite a bit about every aspect of the entire
subject of astronomy. In 1950, such a person attended most of the meetings of the AAS and read The
Astrophysical Journal from cover to cover—all 130 papers per year, 1200 pages per year. In 1996, the
ApJ published about 1800 articles in 18,450 pages, not counting the Letters and the Supplements; did
any one person read all that? Even the Editor? Today the vestigial generalist attends both AAS meetings
and one or two special meetings per year, and knows that if two sessions are run simultaneously, he will
certainly miss something important.

Specialists, on the other hand, confine their interest to one major area of astronomy. They organize and
attend their own conferences, sometimes publish in a specialty journal, and they agitate for a
professional society that caters to their specific interests. As specialty groups spin off from a larger
scientific society, two opposite effects occur. First, the specialty is strengthened, but its practitioners
grow further from the broader, overarching subject. The compensating effect is that other specialists
from other fields soon join with the splinter group and the new amalgam develops a character all its
own. In the present case, when the planetary astronomers were no longer regarded merely as
astronomers, scientists from other planetary disciplines (e.g., geophysics, atmospheric physics) joined
with them in their new society.

As the population continues to grow, the inevitable and undesirable happens: the specialist society
becomes too large to accommodate all activities, and its annual meetings suffer the same
compressional fate as the original parent society did. Multiple sessions, large crowds, and unwieldy
business meetings ensue. Furthermore, the “generalist” emerges anew, but redefined as a planetary
generalist rather than an astronomy generalist.

Filling the Need

Interest in the moon and planets got a big boost with Sputnik in 1957, as did every other scientific and
technological endeavor in the United States. Tatarewicz has traced the post-Sputnik development of
planetary science as the U.S. military sought specific information on the suitability of the moon and
other bodies in space in the context of national security. At the Pentagon’s behest, NASA looked for
people “who knew what they were doing” when it came to understanding the Solar System.[2] The
priority given by NASA to such specific things as determining the thickness of the lunar regolith, the
surface pressure on Mars, and the water content of Venus' atmosphere, fostered the agency's
sponsorship of the construction of three (later four) major telescopes and various other facilities. At the
same time, NASA funding managers supported the activities of Kuiper and others to establish
multidisciplinary university curricula in the new and broadly defined field of planetary science.

The growth in interest in the Solar System, plus the increasing facilities with which to conduct
observations at the telescope and in the laboratory, and especially the exploration of the planets with
spacecraft, created pressure within the community of planetary scientists to conduct their own
meetings and eventually to establish their own society. The journal Planetary and Space Science began
publication in 1959, and in May, 1962, Academic Press published the first issue of Icarus, an
international journal devoted entirely to Solar System research.

To accommodate the increased need to maintain open lines of communication, various small
conferences were created by planetary scientists. In the 1950s, Lowell Observatory hosted workshops
on planetary atmospheres, and beginning in early 1967, a series of five annual symposia was organized
by staff members of the Planetary Sciences Division of Kitt Peak National Observatory (KPNO). The
Planetary Science Division at KPNO consisted of about a dozen professionals, including J. W. Chamberlain, M. J. S. Belton, J. C. Brandt, D. M. Hunten, Michael McElroy, Darrell Strobel, Lloyd Wallace, and frequent visitor Richard Goody. It was at that time one of the larger specialty groups in planetary science in the country. Together with the staff and students in Kuiper's Lunar and Planetary Laboratory, just across the street at the University of Arizona, there was a large concentration of planetary science talent in Tucson.

The Arizona Conferences on Planetary Atmospheres, as they were called, focused on different specific themes at the annual gatherings. In 1967 it was “The Atmospheres of Venus and Mars,” in 1968 it was “The Atmosphere of Venus,” in 1969 “The Atmospheres of the Jovian Planets,” in 1970 “Motions in Planetary Atmospheres,” and then “Aeronomy of CO$_2$, Atmospheres” in 1971.[12,13,14,15,16] Thus, planetary scientists had a forum for publication, and various means for organizing relatively small meetings, but a professional society was needed to bring planetary scientists of all persuasions together.

**Birth of the DPS**

The Space Science Board of the National Academy of Sciences convened a Panel on Planetary Astronomy, which held its organizational meeting in Tucson in late February 1967. This meeting, chaired by John Hall, was held in conjunction with the first of the Arizona Conferences. At its Summer Study at Woods Hole later that year, the Panel wrote its report, “Planetary Astronomy: An Appraisal of Ground-Based Astronomy.”[17] The report stated that “The establishment of a national society for planetary sciences or of an affiliate of an existing society would be highly desirable to serve as a forum for discussion and a cohesive force to facilitate recruitment of personnel, to assist in obtaining financial support or facilities for projects of unusual merit, and to encourage publication of results.”

Tobias C. Owen noted that it was Juan Oro who initially argued at the summer study for a separate society.[18] He also recalled that “Juan's suggestion became one of the study's recommendations. I went to Gerard [Kuiper] with this idea, but he declined to get involved, suggesting I talk to Carl [Sagan] instead. Carl in turn consulted with Frank [Drake].” Building on a draft composed by Drake, Sagan and Owen composed the second draft of a letter to Albert Whitford, then President of the AAS. On February 1, 1968, Sagan and Owen sent this draft to a number of colleagues with a cover letter.[19] Noting that there was favorable reaction in the community to a specialized society, but that the actual structure of such a society was the subject of debate, Owen and Sagan noted that:

Possible conflicts with existing groups and the undesirability of additional journals and meetings have been cited as arguments against the formation of a new, completely independent organization. It is our opinion that the best hope for the realization of our common goals lies in the proposal outlined in the accompanying letter [to Whitford].

It is suggested that we begin by forming as [a] branch of the American Astronomical Society that would be concerned primarily with Solar System problems. We have chosen the AAS for this purpose because most of the scientists interested in these problems are already members and because it appears that fractionation of the Society into subspecialties is already occurring to accommodate the needs of solar physicists. By maintaining an affiliation in this way, we can avoid the difficulties inherent in the formation of a new organization, although such a step may become desirable at a later date. A necessary prerequisite for the proposed arrangement would be permission from the AAS to hold relatively autonomous meetings that would include an interdisciplinary flavor, a concentration on problems of special interest, and opportunities for extensive discussion which are currently lacking in meetings sponsored by the existing organizations.
The letter concluded with a solicitation for approval of the letter to Whitford, to be indicated by the recipient’s signature on that letter, to be taken also as agreement to participate in the organizing committee for the first meeting, “...which might be held in the fall or winter of 1968-1969.” At the same time Sagan and Owen canvassed their colleagues, they drafted a letter to Whitford outlining what they had in mind and laying out the substance of the issues that were at stake.

In brief, Sagan and Owen suggested that the AAS “sponsor annual or semi-annual scientific meetings devoted entirely to solar system studies, excluding solar physics.” They envisioned meetings that would be similar to AAS meetings, but focussed on one specialty allowing for more time for the presentation and discussion of papers. “Our concern for such meetings is motivated by the rapidly increasing interest and activity in the entire range of solar system studies, and by the lack of regular scientific meetings in which there is adequate time to present new results and related discussion. In fact, as a result of the diverse backgrounds of the scientists working in these areas, no suitable forum is currently available for the regular exchange of ideas and results on problems of mutual interest.”[20]

Lunar and planetary atmospheres, surfaces, and interiors, and relevant investigations of asteroids, meteorites and comets were the topics Sagan and Owen identified, but they also wanted to encourage broadly based interdisciplinary participation: “We would encourage participation by specialists in celestial mechanics who are interested in problems associated with the evolution of the solar system, such as spin-orbit coupling. In addition, we would like to invite scientists who are not members of the AAS to give papers, particularly in such areas as chemistry, geology, and biology, where significant contributions to the field can be expected.”

Sagan and Owen recognized that there were alternatives, such as transferring attention to other professional organizations, “as has been attempted diffusely and without vigor by the American Geophysical Union,” which they thought was a “poor solution.” They also argued that the formation of a new society was:

... unnecessary and undesirable in view of the existence of the AAS, which we feel provides a basic organizational structure and atmosphere - in particular an appropriate balance between formality and informality - which engenders productive interaction among scientists. The leading figures in solar system science seem closest, in the majority of cases, to the AAS. It also appears to us that there is no need for an additional journal, removing what might be a minor argument for a new society. We conclude that retaining solar system studies in the AAS is the most desirable means, at least for the present, to nurture growth in this field.

Among the recipients of the February 1 draft, apparently only Anders and Chamberlain made substantive suggestions for changes. Anders thought that clarification of the issue of the formation of a “branch” of the AAS devoted to solar system problems was needed, since such a suggestion did not appear explicitly in the letter to Whitford. Anders also favored holding the planetary meetings in conjunction with AAS meetings. He suggested that such meetings might be organized as symposia, thereby “enhancing the attractiveness of the AAS meetings for people with interdisciplinary interests.” He did not want the planetary meetings to appear to be a “wholly separate activity run as a service by the AAS.”[21]

Anders' suggestions were followed, so the letter finally sent to Whitford on March 18, 1968 argued that by creating symposia, “it would be possible to hold joint sessions in conjunction with regular AAS meetings when this appeared to be desirable.” This would encourage scientists with interdisciplinary interests to attend AAS meetings, “while astronomers with an interest in planetary research would have an opportunity to confer with specialists from other disciplines. If the AAS should ultimately find that it is necessary to develop subgroups devoted to various branches of astronomy, participants in the proposed symposia would form a nucleus for the organization of a group devoted to planetary research.”[22]
When Owen discussed their proposal with Whitford prior to crafting the final version of the letter, he learned that, as he later told those who had shown interest, “we have chosen a favorable time for our appeal.” The Council was then also hearing from other solar and high energy specialists who were calling for similar recognition, and was planning to take the matter up at their next meeting in April 1968. John Firor was already taking the initiative among solar astronomers, while Eugene Parker was doing the same for the high energy astronomers.

Owen and Sagan reported that Whitford wanted to “retain solar-system studies within the framework of the AAS and would support their effort ‘if no complications arise ...’.”[23] Within the month, Owen learned from Whitford that the Council was “favorably disposed” to their petition, “In fact the Society plans to cooperate with sections of the membership interested in holding meetings devoted to the discussion of one restricted topic. This has already been done by the solar physicists and there will be others.”[24]

The Secretary of the AAS, G. C. McVittie, had already been in touch with Harlan Smith about holding a planetary meeting on the day before the Austin meeting of the full AAS in December 1968. He offered the help of the Secretary's office in mailing announcements and in giving advice on procedure, but noted that the organizing committee of the planetary group would have to do the organizational work for the meeting itself, and suggested that the solar physics people, who had done it twice before, might offer useful suggestions.

The AAS meeting was scheduled in Austin in part to celebrate the opening of the NASA-funded Texas planetary telescope, and Whitford noted that a special meeting on planetary astronomy held in conjunction with the regular meeting would be particularly relevant. Pointing out that “The Council views the format as an experiment,” Whitford reported that the Council wished that “the purpose of these restricted one-topic meetings will in general be best realized by a two-day meeting at a separate time and place.” The Council was very interested to have the planetary astronomers' reaction to this suggestion, because it opened the door for future meetings held at times and places completely independent of the AAS general meetings, while the option remained for contiguous meetings as well.

Smith wrote to Owen to begin preparations for the Austin meeting, proposing to call the planetary session the “Special Meeting of the AAS on [Planetary Astronomy] [or whatever.” He told Owen that “Our fliers should be mimeographed or multilithed on a special conspicuous color of paper, and sent to McVittie, 2500 copies, unfolded.”[25] On May 8, 1968, Owen and Sagan distributed the Whitford letter (of April 12) to their original list, with the cover memo soliciting input on possible topics for the Austin meeting. They proposed four possibilities:

1. Interpretations of cratering statistics for the moon and Mars.
2. Spin-orbit coupling and tidal effects in the solar system.
3. Organic molecules in the early history of the solar system.
4. Problems in planetary atmospheric circulation.[26]

These topics reflected the interests of the day. The Apollo 11 lunar landing just over a year away, and a session on crater studies would appeal to geologists working on planetary problems. Sagan's own interest in organic matter in the Solar System was clearly represented, although few astronomers were interested in the topic at the time. With new data, old classical problems of planetary spins and resonances involving orbital periods were being reopened by a number of young scientists, rekindling the field of gravitational astronomy. Finally, planetary atmospheres appealed to much of the core group of Solar System researchers, certainly those who had attended the Tucson conference series sponsored by KPNO. Not everyone had the same priorities, of course; Smith replied to Owen that his own interest in the proposed topics was exactly in the reverse order to that which had been given in the memo.[27]

On July 17, Whitford in Santa Cruz phoned Chamberlain, who was spending part of the summer in La Jolla, to say that the AAS was about to send out a mailing on the organization of divisions. It was to
contain guidelines for setting up the official machinery, and of course everything had to be consistent
with the Constitution and bylaws of the Society. Chamberlain was asked to nominate about eight people
for the Organizing Committee for a Division for Planetary Sciences. The first meeting would probably be
in Austin at the time of the AAS meeting in December, and would afford an opportunity to set down the
Divisional bylaws. Rather than have an earlier meeting to get started, Chamberlain preferred to
communicate with his small organizing committee by phone and letter. Secretary McVittie wrote to
Chamberlain and the other committee members officially announcing the Council's action:

At the Annual Business Meeting of the Society on 22 August 1968, the membership approved
the institution of Divisions of the American Astronomical Society devoted to Special Subjects.
One such Division is that on Planetary Astronomy. The Council at its meeting of August 20, 1968,
agreed that you should be the members of the Organizing Committee for the Division on
Planetary Astronomy.[28]

McVittie added that their first task will be to draw up bylaws for the Division, perhaps following the
method used by the AAS. He asked for the proposed divisional bylaws in time for presentation to the
Council at its meeting of December 10, 1968.

Influencing Factors

Chamberlain was thus put in charge of organizing the planetary scientists, although Sagan and Owen
had taken the initiative and gotten the attention of the Society. Chamberlain later wrote that on the
basis of the Sagan and Owen letter alone the AAS would not likely have responded by setting up
divisional structures.[11] Had it not been for the pressure brought by the high-energy astronomers, the
planetary astronomers might have gone down one of the alternate routes that were emerging.

In particular, Chamberlain notes that because of the regard in which planetary astronomers were held in
the American astronomical community in the 1960s, pressure for a special section of the AAS to
accommodate Solar System interests would probably have resulted in an “invitation” to set up a
completely separate society, had it not been for pressure from other astronomers in the AAS in pursuit
of their special interests. The high-energy astrophysicists (including John Simpson, William Kraushaar,
George Clark, Herbert Friedman, Eugene Parker, and others) had been agitating for a reorganization of
the AAS that would accommodate the particular needs of their subdiscipline. Chamberlain asserts that
the threat to secede by this influential community, “followed by the successful diplomatic intervention
by Martin Schwarzschild, convinced the Council that divisions were definitely in the Society’s future, like
it or not.”[11]

Schwarzschild's positive role in the reorganization, which was surely dreaded by the Council, proved to
be critical to the successful birth of the DPS and to other divisions of the Society. Chamberlain recounts
the events, noting that in 1966 Bengt Stromgren began a two-year term as President of the Society, but
resigned after one year to return to Copenhagen. Albert Whitford, as the senior Vice-President, became
Acting President for 1967-1968. Although Whitford began his own two-year term as President on July 1,
1968, he had previously committed to take a sabbatical leave at Mount Stromolo Observatory in
Canberra, Australia, beginning in the late summer of 1968. In his absence from the U.S., Martin
Schwarzschild, at that time the senior Vice-President, carried out the duties of President until Whitford
returned in mid-1969. At that time Schwarzschild assumed the newly created office of President-Elect
for 1969-1970 and became President for 1970-1972. This series of events put Schwarzschild at the
center of action during the time of the reorganization to accommodate the new divisional structure of
the Society.[11] As Whitford recalled, “I felt that I could go away with a good conscience, since the
problem of dealing with the mounting pressure for specialized divisions in the AAS would fortunately be
in the capable hands of Martin Schwarzschild.”[29]
As Chamberlain drafted the bylaws of the planetary division, he was in frequent communication with Schwarzschild, exchanging ideas by letter and telephone. Schwarzschild worked to ensure that there were no conflicts with the Society's governing rules and that the emerging “Division did not go charging off in all directions without parental restraint.” Chamberlain was intent on “ensuring a high degree of independence in the Division's operations: e.g., by allowing the affiliation of non-astronomers, in order to make the Division the preeminent society of its kind in the world.” Indeed, the individuals on the Organizing Committee covered nearly all areas of planetary science as it was seen at the time, although Sagan in particular had suggested others with an interest in exobiology to Chamberlain. Overshadowing Chamberlain’s efforts to draft the bylaws was the knowledge that the approval of the AAS Council was mandatory to guarantee the success of the venture.[11]

On September 17, 1968, well in advance of the organizational meeting to be held in Austin, Chamberlain, acting as Temporary Chairman, wrote to his Organizing Committee noting that one day of meetings of the Committee (December 9) would be adequate to get the bylaws in final shape for presentation to the AAS Council on December 10, which would be their own day “devoted exclusively to the scientific sessions on planetary astronomy.”[30] Chamberlain then set out the functions of the Committee as follows:

If the Organizing Committee can accomplish its functions at the Austin meeting, it could presumably pass out of existence at that time. However, until procedures are established for other members of the AAS to affiliate with the Section, membership of the Section consists solely of the Organizing Committee, who will presumably select the initial slate of Section officers at the Austin meeting, in accordance with procedures outlined in the Section bylaws adopted there.

Chamberlain added that to proceed “as expeditiously as possible” he appointed Carl Sagan as Temporary Secretary of the Section. Sagan would work with the AAS Secretary to make arrangements for Austin and to publicize the meeting. “I have just learned from Martin Schwarzschild,” Chamberlain reported, “that the Amendment to the Society bylaws for the ‘Introduction of Divisions of AAS,’ as adopted in Victoria, authorizes the Temporary Section Chairman to conduct the election of the Permanent Chairman of the Organizing Committee without necessarily awaiting the formality of a meeting. I favor this provision as it will allow the Permanent Chairman to organize the Austin meeting well in advance, and hopefully this should accelerate the formal organization of the Division.”[30] Chamberlain enclosed a ballot card with instructions to return it to Toby Owen, the Teller for the first election. He also invited input to the Section bylaws. The result of the voting was that Chamberlain was elected Permanent Chairman of the Organizing Committee, to serve until the election at the Austin meeting.

On October 1, 1968, Chamberlain wrote to a wider list of scientists interested in the organization of the planetary sciences division, noting the Council's approval to proceed. He issued a call for papers for Austin. The morning program was to consist of an interdisciplinary symposium on “Organic Matter in Meteorites and on the Moon” (chaired by F. L. Whipple) and one on the “results of the most recent optical and radar investigations of the asteroid Icarus, chaired by Dr. A. Kliore.” The afternoon session was to consist of contributed papers on lunar and planetary topics. Titles and abstracts were to be sent to Sagan.[31]
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Published on Division for Planetary Sciences (https://dps.aas.org)

Figure 1. In the 1970s, Carl Sagan expressed how planetary sciences were changed by the space age: "In all the history or mankind, there will be only one generation that will be first to explore the Solar System, one generation for which, in childhood, the planets are distant and indistinct discs moving through the night sky, and for which, in old age, the planets are places, diverse new worlds in the course of exploration." Carl Sagan, Cosmic Connection (New York: Anchor/Doubleday, 1973), p. 69. Photograph from the Cosmos series, courtesy ASP Archives and Andy Fraknoi.

The Organizational Meeting, Austin, December 1968

In mid-October, Chamberlain distributed draft bylaws to the Organizing Committee, but Anders was the only one who “did his homework” and provided substantive input to a revised draft that was put on the table on December 9 in Austin.[32] Chamberlain recalls that “the Committee worked hard all afternoon, then recessed for a Mexican dinner and a stop at a wine shop, where Anders and Goody tried to ‘out-winesmanship’ one another. The result was that we had a peculiar combination of Chilean and Portuguese wines to speed up the decision making process in our evening session.”[11]

At Austin an initial slate of officers was selected by the Organizing Committee from its own membership, with Anders nominated for Vice-Chairman and Chamberlain for Chairman. Nine people were nominated to fill six staggered terms as Committee members over the next three years.[33] The Division membership was established by a list drawn up by the Organizing Committee including everyone thought to be interested in becoming a member. Owen was appointed (over his objections) to Secretary-Treasurer pro tem, and arrangements were established for a Nominating Committee to be selected by the full membership at the first annual business meeting.[11]

The official program agenda of the 128th meeting of the AAS, distributed in advance of the Austin meeting, did not show that the special planetary meeting was scheduled for Tuesday, December 10,
only that the Council would meet that day, followed by registration and an informal reception. Deeper in the brochure, however, under “Notices,” was the following:

Symposia. An interdisciplinary Symposium on Organic Matter in Meteorites and on the Moon, followed by papers on the asteroid Icarus will be held on December 10, 1968, at the University of Texas, Austin, Texas. Details may be obtained from Dr. Carl Sagan...

The AAS program made no specific mention that this symposium might be related to the formation of a new Division of the Society, or was even associated, except by proximity, with the 128th meeting of the AAS. The regular program of the AAS meeting included nine contributed papers about the Moon, Venus, Jupiter, comets, Pluto, and the origin of the Solar System, all presented on Wednesday, December 11. Nevertheless, the special planetary science session on December 10 was a success. In Session I chaired by Arvidas Kliore, five papers about asteroid 1566 Icarus were presented, followed by discussion. Session II on organic matter was chaired by Whipple. In that session Sagan provided an introduction, followed by a review on organic matter in meteorites by M. H. Studier, R. Hayatsu, and Anders. John Oro followed with “Carbonaceous Matter in Meteorite & Lunar Samples,” Stanton Peal on “Water on the Moon,” and P. R. Bell on “Lunar Sample Analysis in the Lunar Receiving Laboratory.” A 30-minute panel discussion including the presenters, plus Harold Urey, Harold Masursky, and A. G. W. Cameron, finished up the symposium. The afternoon session consisted of 24 papers, including a special invited presentation by Urey on the history and implications of lunar mass concentrations.

**Tidying Up the Details**

On December 30, 1968, following the Austin meeting, Chamberlain sent a memorandum to the “Organizing Committee of the Division for Planetary Sciences.” Note that the name now clearly identified planetary sciences rather than planetary astronomy. With this memo he solicited lists of individuals who may wish to be affiliated with the DPS. In January, Chamberlain wrote to Schwarzschild to expand upon a few items in the draft bylaws submitted to the Council by the DPS Organizing Committee. In particular, a provision was included to encourage involvement of outstanding foreign scientists in the DPS meetings, somewhat above and beyond the degree to which the AAS had at that time become accustomed. In particular, the DPS wanted its Committee to be able to designate especially worthy planetary scientists outside North America as Foreign Affiliates of the Division, giving them full rights to attend and present papers at the Division meetings. Other items were organizational details concerning co-opted Committee members and the term of the Secretary-Treasurer.

Schwarzschild was concerned about the introduction of Foreign Affiliates desired by the DPS. He asked Chamberlain to clarify a few points about the election of Affiliates, but his main concern was that “...we could not defend it to the AAS membership at large if we spend funds or appreciable energies of our AAS officers for the benefit of people who are not members of [the main body of] the AAS.” Neither Chamberlain nor Anders were happy about Schwarzschild's allusion that the AAS Council might limit the Division's autonomy on the admission and treatment of Foreign Affiliates, but in a memo to the Organizing Committee, Chamberlain noted that the AAS Council had considered the Division's bylaws at their meeting in Honolulu, and the results of the deliberations were communicated to Chamberlain by the Executive Officer H. M. (Hank) Gurin, who would also be acting as the liaison officer for the newly established Divisions.

Among other changes requested by the AAS Council, the issue of Foreign Affiliates surfaced. The version advocated by the Council (denoted Version B by Chamberlain), changed the qualification from one of “recognized accomplishment” to “outstanding accomplishment,” and imposed a limit of five percent of the Division membership for the Foreign Affiliate category. Chamberlain expressed his personal view that the Council was making a mistake to restrict the Division's autonomy in this matter, but he recommended to the Organizing Committee that the language requested by the Council be adopted,
concluding that, “If at some later date the fears of the Council subside, the bylaws could be revised.” With that, he put the new draft of the bylaws to a vote by the Committee, requesting that ballots be returned by May 15, 1969.

With the Division bylaws approved by the Organizing Committee, on May 16, 1969 Chamberlain distributed an invitation to join the Division to a list of “Initial Members, Division for Planetary Sciences, AAS.” Dues of $4.00 were to be sent to Owen. Just over 100 AAS members had expressed the desire to join the Division, plus “an additional dozen or so non-members” had indicated their intent to join the AAS and the Division. He urged all colleagues with an interest in the planetary sciences to affiliate with the DPS.[41]

On to San Francisco

The success of the inaugural meeting of the DPS in Austin, especially its scientific symposium, led most of the active planetary scientists in the country to express interest in joining the Division. The approval by the AAS Council propelled Chamberlain and his Committee toward preparations for the First Annual Meeting, to be held in San Francisco in January, 1970.

Chamberlain had invited Richard Goody to chair the scientific program in San Francisco. Goody accepted and enlisted the help of M. B. McElroy and Owen. Local arrangements for the San Francisco meeting were handled by George Pimentel and Hyron Spinrad. The meeting was held at the Jack Tar Hotel (since renamed) on January 19-21; the registration fee was $10.

The program for Monday, January 19, consisted of a Symposium on Lunar Science, convened by W. Hess and W. Rubey, and a Symposium on Mars Imaging, convened by R. Leighton and T. B. McCord, followed by a Panel Discussion convened by H. Masursky. The next day began with a Symposium on the Atmosphere of Mars, convened by C. Leovy and M. McElroy, followed by the Annual Business Meeting (for DPS members only), and then a Symposium on Planetary Spectroscopy, convened by Owen and G. Münch. Wednesday, January 21, was occupied by 10-minute contributed papers, led off by Kuiper's paper on “Further High Altitude Spectra of Venus.”

The minutes of the Business Meeting were kept by Owen.[42] Present were Chamberlain, Anders, Pettengill, Kliore, Smith, Owen, Goody, McElroy, Sagan, Gurin, and guest L. LeMoine (KPNO). The minutes show that the main items of business concerned classes of membership and arrangements for the following annual meetings. Münch, B. Murray, and S. Gulkis were appointed to take charge of the 1971 meeting, with Owen's assistance. The results of the election of officers for 1970 were announced: Chamberlain was elected Chairman and Anders Vice-Chairman. “Committeemen” serving until 1971 were Sagan and I. Shapiro; until 1972, Kuiper and McElroy, and until 1973, Smith and Pettengill, thus establishing the cycle of staggered terms on the Committee. Dues were kept at $4 per year, and a change in the bylaws was proposed to clarify an ambiguity in electing the Secretary-Treasurer. Owen's Treasurer's report showed that dues had been received from 135 members, and with various mailing costs deducted, the Division's financial balance as of January 15, 1970 was $471.17.

With the successful scientific meeting in San Francisco, and a Business Meeting that dealt primarily with mundane matters, the Division for Planetary Sciences was decisively launched. Looking ahead to the 1971 meeting, Chamberlain had already asked Anders to take on the program chairmanship to ensure avoidance of “any show of indecisiveness in San Francisco,” in part because “Sagan is starting to make noises again about being left out of things... .”[43] Anders replied quickly, declining because of the “mess” that the lunar program had made of his life. “NASA is running it [the lunar program] like a military operation.”[44] But Anders soon relented. Chamberlain's term as Chairman ended at the 1971 meeting in Tallahassee, when he turned the podium over to Anders as the incoming Chairman. Anders paid tribute to Chamberlain's years of effort on behalf of the DPS with a nautical metaphor: “Joe has helped launch the Good Ship DPS and, over the past two years, has steered its course through uncharted waters — some say in the wrong direction, but at least we're still afloat.”[11]
The Beginnings of the Division for Planetary Sciences of the American Astronomical Society
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Figure 2. (l to r) Gerard P. Kuiper and Tobias Owen at the Texas radio telescope near Marfa circa 1970.
Dale Cruikshank Photograph.

Topics for Future Exploration

The early years of the DPS were not without interesting incidents that could reasonably be attributed to the “growing pains” expected of any new organization. Some of these may merit a deeper historical study, using the materials in the archives of the DPS and the papers of some of the principals involved. Here we note just a few points of interest.

A. Strife Over the Division Structure in the AAS

Not long after the adoption of the Division structure in the AAS, discord arose between the divisions and the Council of the parent organization. On January 20, 1972, A. G. W. Cameron sent a four-page memorandum to all members of the Council of the AAS and all officers of the divisions. The memorandum began, “The American Astronomical Society, in its great wisdom, is promoting the fragmentation of astronomy into many non-communicating pieces.” The principal issues included the apparent indifference to the divisions on the part of the Council, and a lack of communication among the governing entities. The divisions were not usually represented at the meetings of the Council, the distribution of minutes of those meetings was not always reliable, and there were disputes over the costs incurred by the AAS in mailings that included divisional materials to the full membership. The strong tone of Cameron’s memorandum sparked interest in the divisions and in the AAS Council to adopt policies for distribution of meeting minutes, payment for mailings, and inclusions of division materials in the Bulletin of the American Astronomical Society to help remedy the situation. Discussions on the issue of communication among the divisions and with the parent society continue to the present day.
B. The Journal Icarus is Adopted by the DPS

Carl Sagan became the Editor of Icarus beginning with Volume 10 in January 1969. At that time, Icarus was transformed from a journal in which papers were recommended for publication by one or two or three editors, to one in which submitted papers were fully refereed in what has become the standard method of operation for peer-reviewed scientific journals. A Publications Subcommittee, organized in 1971 and chaired by C. R. Chapman, began to discuss with Academic Press the establishment of a Divisional affiliation with Icarus in 1972 or 1973. With Sagan's encouragement, the DPS moved to adopt Icarus as the official journal of the Division, and starting with Volume 24, No. 1 January 1975), the cover of the journal bears the imprint, “Published in affiliation with the Division for Planetary Sciences, American Astronomical Society.”

C. A Secessionist Movement in the DPS

As the DPS membership grew in number and attracted scientists from non-astronomical disciplines (notably geology and meteorology), the relationship of the Division to the parent AAS was frequently questioned in the Committee and at the open Business Meetings. Non-astronomers reported treatment as second-class members, among other things. But of deeper concern, the DPS began to seek greater autonomy from the AAS in order to exert some political influence on the annual NASA budget that so strongly affected funding for planetary science. The discontent was relayed to AAS President E. M. Burbidge in January, 1977 in a letter from AAS Treasurer William E. Howard III, and in subsequent correspondence preserved in the DPS archives. Donald M. Hunten, the DPS Chairman for most of 1977, attended the Atlanta AAS meeting of the Council on June 11 of that year. He found that the Council clearly wanted to retain the affiliation of the planetary scientists with the AAS, and an agreement was reached by which the AAS would provide more support in the preparation of the program of the DPS annual meeting through the use of the BAAS. In order to give the Division more political flexibility, it was agreed that the DPS Chairman “may write letters as long as the AAS President is notified (or the Secretary in her absence).”[45] As a consequence of this action by the Council and President Burbidge, the secessionist movement evaporated.
D. Establishing the DPS Prizes

In 1973, DPS Secretary-Treasurer David Morrison, who served from 1971 to 1977, began to promote the idea of DPS Prizes to be awarded to meritorious planetary scientists, primarily to call attention to achievements in planetary science and to the professional activities of the Division. The concept met with mixed reactions. In a poll of the membership that Morrison conducted in 1973, he found that of 95 responding members, a small majority favored the prize. Of those who felt strongly about the issue, twice as many approved as disapproved. The matter was delayed, but Morrison later arranged for corporate funding of two prizes, which were finally instituted; in 1984, E. M. Shoemaker was the first recipient of the G. P. Kuiper prize, recognizing a lifetime of exceptional contributions to planetary science, and D. J. Stevenson received the first Harold C. Urey prize for outstanding contributions by a planetary scientist under the age of 36. The Harold Mazursky award for meritorious service to planetary science was first presented in 1991, to Carl Sagan.

E. The DPS and the Press

Figure 3. Fred L. Whipple of the Smithsonian Astrophysical Observatory was the second winner of the G. P. Kuiper Prize of the DPS in 1985. Irwin photograph, August 1973. AIP Emilio Segrè Visual Archives, Irwin Collection.
Most of the leadership of the DPS in the early years, and certainly the bulk of the membership at large, was inexperienced, uninformed, and somewhat naive about the promotion of planetary science in the press. Outreach to the public, who through their taxes pay for planetary science, was recognized as highly desirable, in part for the pure motive of education and in part for the delicate but practical reality of influencing public policy-making at the highest governmental levels. The DPS at its annual meetings sought to interest the press by issuing rather bland invitations to recognized science writers from a few national newspapers. This fundamentally passive approach had little effect.

Jonathan Eberhart, the Space Sciences Editor of the weekly Science News, attended his first DPS meeting in 1974, in Palo Alto, California. At the next meeting, in 1975 in Columbia, Maryland, Eberhart was the only reporter present. He took an immediate liking to the DPS scientists and the meeting style, not to mention the windfall in new results to report in his weekly science magazine. In a long letter to Carl Sagan, Eberhart gave detailed and specific suggestions for improving and expanding the public awareness of planetary science.[46] His suggestions were discussed among the DPS leadership, and most of them implemented, thus affecting the way in which the organization of the annual meetings interfaces with the press and local educators in the meeting city each year. At the Palo Alto meeting in 1991, the DPS honored Eberhart by arranging to have asteroid 4764 named Joneberhart, to recognize his contributions and loyalty to the Division.

Figure 4. Joseph Wyan Chamberlain, circa 1960, taken at Kitt Peak. Photograph courtesy J. Chamberlain.
A Note on Sources

The letters and other documents referenced here are held in the Archives of the Division for Planetary Science housed at the Niels Bohr Library of the American Institute of Physics in College Park, Maryland. Copies of some of these materials will also be found in the professional papers of some of the principals mentioned in this chapter. Historical notes on the DPS, consisting of minutes of business meetings, lists of former officers, meetings, and prize recipients, are published with the abstracts from the Division’s annual scientific meeting in the BAAS.[47]

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About the authors

These paragraphs appeared at the end of The American Astronomical Society's first century volume.

Joseph W. Chamberlain, emeritus professor in the Department of Space Physics and Astronomy at Rice University, was educated at the Universities of Missouri and Michigan. He was project scientist at the U.S. Air Force Cambridge Research Center (1951-1953) and was a staff member at the Yerkes Observatory from 1953 to 1962. He then was associate Director of the planetary science division of KPNO from 1962 to 1970. In 1971, he became adjunct professor at Rice and from 1971 to 1973 was Director of the Lunar Science Institute. His specialties include planetary atmospheres, aurora and airglow, as well as atmospheric pollution and climate.

Dale P. Cruikshank is a planetary scientist at NASA's Ames Research Center. He received his B.S. from Iowa State University in 1961 and his Ph.D. from the University of Arizona in 1968. He has worked in Moscow and the Crimea, spent one more year at the Lunar and Planetary Laboratory, and in 1970 joined the faculty of the University of Hawaii. His specialty is asteroids and the small bodies of the outer Solar System. He is particularly interested in the organic material on small bodies, and the connections of such material with the organic matter and ices in the interstellar medium. He also studies the infrared spectra of asteroids, with the specific goal of tracing certain kinds of meteorites to their asteroidal parent bodies.

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