

H. A. D. News

The Newsletter of the Historical Astronomy Division
of the American Astronomical Society
Number 48 May 1999

The "Millennial" Eclipse of 1999 Reminds Us of Another Summer's Eclipse:
The "Great Eclipse" of 1878, Here Observed in Colorado by Members of a
USNO Team. [Photo Courtesy of Steven Dick (USNO)]

HAD Elects New Officers

Barbara Welther, Vice-Chair, joined the AAS in 1961 as a junior member. After she received a graduate degree in the History of Astronomy from Harvard University, she joined the History of Science Society and became an affiliate of the HAD. In 1990 she became a full member of AAS. Currently, she has been serving on the Centennial Committee. At the Smithsonian Astrophysical Observatory, she has applied electronic computers to solving historical problems of lunar, solar, and planetary positions from about 1000 B.C. to A.D. 2000. Her ongoing longterm project has been to research the lives of American women astronomers in the late nineteenth and early twentieth centuries, especially Annie Jump Cannon.

Stephen McCluskey, Committee Member, is a Professor of History at West Virginia University and studies and teaches medieval science and the astronomies of traditional cultures. He has published *Astronomies and Cultures in Early Medieval Europe* and numerous articles on Native American and medieval European astronomies. Among his administrative tasks are moderation of the e-mail discussion list HASTRO-L, service on the editorial board of *Archaeoastronomy: The Journal of Astronomy in Culture*, and chairing the International Steering Committee for the "Oxford" conferences on archaeoastronomy. He is a full member of the AAS, a member of the History of Science Society, and a consultant to Commission 41 of the IAU.

Sara Schechner Genuth, Committee Member, holds masters and doctoral degrees from Cambridge and Harvard in History and Philosophy of Science, and has close to 20 years of museum experience. Formerly Curator of the Adler Planetarium and Astronomy Museum in Chicago, she is now the principal of Gnomon Research, a firm specializing in science exhibits, educational outreach, and science-and-society programs. She has worked as a contract curator for the Smithsonian Institution and APS, among others, and has taught at Harvard, Sarah Lawrence, and the University of Maryland at College Park. She is the author of *Comets, Popular Culture, and the Birth of Modern Cosmology* and editor of *Westernstrolches*. Current projects include an interpretive catalog of sundials at the Adler and two major exhibitions sponsored by the American Physical Society.

These officers will join in-coming Chair Virginia Trimble in leading the activities of the Division through 2000.

The H. A. D. Archaeoastronomy Session in Austin

Mike Mickelson
Denison University

The 193rd AAS Meeting was held in January in Austin, Texas. The only HAD offering was Session 23, organized by David Iadevaia, Chair of the Archaeoastronomy Committee. This session was devoted to "Tools and Techniques for Archaeoastronomy Data Collection and Analysis." Four papers were delivered covering a diverse range of topics including field measurement techniques and data analysis, theoretical and practical considerations for determining celestial visibility and results from two archaeoastronomy projects.

The session Chair, David Iadevaia of Pima College, led off reporting on "A Digital Imaging Technique for Archaeoastronomy Data Collection and Analysis," which he has developed. He explained how he has been able to use video imaging techniques and computer modeling to analyze sites suspected of containing astronomical alignments. His method of visualization allows suspected alignments with local horizon events to be easily seen.

The second paper, "Celestial Visibility for Astronomy History," given by Brad Schaefer of Yale, discussed a number of considerations for determining celestial visibility. Brad provided an interesting and useful handout, which included graphs of the visibility of stars versus zenith distance, extinction angle as a function of apparent magnitude, the visibility of stars rising helically as a function of magnitude and several others. The talk and handout were also helpful in providing numerous references and relevant mathematical relationships. It was stressed that some of the old "rules of thumb" may give incorrect results and that recent advances have improved our ability to easily make such calculations. Of particular interest was the discussion on lunar crescent visibility and refraction near the horizon. Several of the plots

were generated by computer programs written by Brad, and some are available from Sky Publishing. Visit their web site at <http://www.skypub.com/resources/software/basic/programs/>.

Mike Mickelson of Denison University, in his paper titled "New Measurements of the Azimuthal Alignments of Greek Temples," discussed basic field methods and data analysis as applied to building alignments. He reported on two seasons of work in Greece and compared these results with earlier work both in Greece and Italy. One of the interesting observations was the differences in cultural preference for nominal temple orientations. The research is an ongoing project in which he involves students who take his spring semester archaeoastronomy seminar and participate in the actual on-site field work in Greece during the summer.

The last paper, "A Central Texas Sun Dagger," by Bob Robbins of the University of Texas, was originally scheduled in the session on Observatories, Telescopes and Instruments Display. I suppose the conference organizers might assume this to be the proper venue for this paper. After all it appears to be the location of an ancient observatory. In Bob's presentation, he describes two pictographs located at Paint Rock in central Texas, which appear to mark winter and summer solstices. Paint Rock is a privately owned site (currently owned by Kay and Fred Campbell) situated on a south-facing bluff nearly a kilometer long near the Concho river. The rock face is covered with numerous pictographs including one on which the play of sun light through intervening rocks produces a "sun dagger" or spear point that seems to mark the winter solstice. Fearing this might be coincidence, Bob searched and found another 'glyph representing a turtle, which showed similar phenomena at the summer solstice thus improving the probability that the winter solstice marker is real. His talk demonstrated how the use of ethnological information facilitated locating the second marker. Plans are under way to search the myriad of 'glyphs for equinox markers as well. The images shown in his talk may be viewed at: <http://www.as.utexas.edu/astronomy/people/robbin/figures.html>.

The session was well attended and special thanks go to David for organizing the session.

Historical Astronomy Division (and related) Sessions, Chicago, 1999

David DeVorkin
NASM

IA= Invited, Sunday: 30 minutes (25 minute talk, 5 minute questions)

IB= Invited regular session: 22 minutes (19 minute talk, 3 minutes for questions)

C= Contributed Talk: 15 minutes (12 minute talk, 3 minutes questions)

HAD Ia: *Exhibiting the History of Astronomy*

Chair: D. DeVorkin

Sunday, May 1, 2:30 PM @ Adler Planetarium

C. B. Stephenson (Adler) "Presenting Cosmology (and its History) to the Public." IA

A. F. Friedman (Adler) "Astronomy and Art Merged: Targeting Other Audiences." IA

R. Brashear (Smithsonian) "The Printed Legacy: Using Books to Present the History of Astronomy." IA

Break; informal inspection of galleries, coffee, & cookies 2:30 - 3:30 PM

HAD Ib: *Exhibiting Astronomy in History* Chair:

C. B. Stephenson

Sunday, May 1, 3:30 - 5:30 PM @ Adler Planetarium

T. R. Williams (Rice) "Amateur Astronomy at Planetaria and Public Observatories in the United States in the 1930s." IA

M. P. Bolt (Adler) "From Heaven to Earth and Back, 1700 to the Present." IA

M. Rothenberg (Smithsonian) "Using History to Teach Astronomy: The U. S. in the mid-19th Century." IA

T. Hockey (Northern Iowa) "Painting Planets: Jupiter as Shown in Popular Works a Century Ago." C

J. Pasachoff (Williams) "Halley's Maps and Descriptions of the 1715 Total Solar Eclipse." C

AAS Invited Lecture: David DeVorkin (SI) "Beyond the Observatory"

Monday May 2, 8:30 - 9:30 AM

HAD II: Celebrating Other Centennials Chair:
Daniela Silvia Barberis
Monday, May 2, 10:00 - 11:30 AM @ Meeting
Hotel

C. Corbally (Vatican) "Thomas Digges and
Giordano Bruno: 400 Years of Plurality of worlds." *IB*
H. Lustig (New Mexico) "Tales from the Hundred
Year History of the American Physical Society." *IB*
E. N. Parker (Chicago) "Fifty Years of the galactic
Magnetic Field." *1B*
D. Osterbrock (Lick) "The AAS `Semi-Centennial'
Meeting: Northwestern University and Yerkes
Observatory, September 1947." *1B*

HAD Business Meeting
Monday, May 2, 1:00 - 2:00 PM @ Meeting Hotel

**HAD III: Gender, Books, Observatories and
Planetariums** Chair: B. Welther
Monday, May 2, 2:00 - 3:30 PM @ Meeting Hotel

D. J. de Alba-Martinez (Guadalajara) "Rare
Astronomy Books at Universidad de Guadalajara,
Mexico." *C*
P. Usher (Penn State) "Ruin and Revolution in
'Hamlet'." *C*
S. J. Dick (USNO) "150 Years of the American
Nautical Almanac." *C*
R. P. Lindner (Michigan) "Ten Years' Work of an
Urban Observatory: Ralph Curtiss and the Detroit
Spectrographic Program." *C*
J. Marche II (Indiana) "Gender and the pre-1945
American Planetarium Community." *C*
R. Jarrell (York) "Radio Astronomy's Debut at the
American Astronomical Society." *C*

HAD IV: Women, Alignments, and Biography
Monday, May 2 Display Session @ Meeting Hotel

B. Welther (SAO) "The Founding of the AAS: The
Status of Amateurs and Women."
S. M. Nelson and R. E. Stencel (Denver) "The
Search for Astronomical Alignments in the
Seventeenth Century AD Silla Capital at Kyongju,
Korea."
H. J. Howe, R. E. Stencel, and S. Fisher (Denver)
"Denver's Pioneer Astronomer: Herbert Alonso
Howe (1858-1926)."
G. Eichhorn, M. J. Kurtz, A. Accomazzi, C. S.
Grant and S. S. Murray (SAO) "All AAS Journals
On-Line from Volume 1 to the Present."
R. E. White (Smith) "Star Messenger: Galileo at
the Millennium."

H. J. Augensen (Widener), W. D. Heinz
(Swarthmore), M. R. Schultz, G. E. Hassel, jr., S.
Inoue (Widener), R. Howanski, T. Fanning (Ridley
High School) "The Sproul 24-inch Refractor:
Entering a New Century of Research."

Hale Commemorative Session (Solar Physics
Division)
Tuesday, May 3, 10:00 - 11:30 AM

D. Osterbrock (Lick) "George Ellery Hale's Early
Solar Research at Chicago, Kenwood, Harvard,
and Yerkes Observatories, 1882-1904."
J. Briggs (Yerkes) "George Ellery Hale's Later
Solar Research at Mount Wilson and Pasadena,
1905-1938."
E. N. Parker (Chicago) "It All Started with George
Ellery Hale."

My Most Memorable AAS Meeting Chair: D.
Osterbrock
Tuesday, May 2, 4:15 - 6:00 PM @ Meeting Hotel

F. K. Edmondson (Indiana) "My Most Memorable
AAS Meeting - December 1957, Butler University,
Indianapolis, Indiana." *IB*
J. W. M. Baars (LMT) "The Flagstaff Meeting in
June 1964." *IB*
C. R. O'Dell (Rice) "Yerkes in 1967: The AAS in
Transition." *IB*
D. K. Duncan (Chicago) "Comet Kohoutek, the
Arab Oil Embargo, and the January 1974 AAS
Meeting." *IB*
E. M. Burbidge (San Diego) "Cecilia Payne-
Gaposchkin, Henry Norris Russell Lecture: Fifty
Years of Novae." *IB*

The Adler Planetarium: Site of the HAD Sunday Sessions in Chicago

Bruce Stephenson
Adler Planetarium

The Adler Planetarium and Astronomy Museum is
in the final stages of a building project that
doubles its exhibit space and adds the world's
first StarRider virtual-reality theater. The new
glassed-in Sky Pavilion offers stunning views of
the Chicago skyline (and the sky, of course). It
contains major new exhibitions on "The Milky Way
Galaxy," "Our Solar System," "From the Night Sky
to the Big Bang," and "The Atwood Sphere."

The StarRider theater is showing "Journey to Infinity," which carries the audience on a virtual voyage far out into space, allowing them to steer the spacecraft part of the way!

Minutes of the February, 1999 HAD Business Meeting (Draft)

The meeting was called to order at 12:00 PM EST by Chair David DeVorkin. Vice-Chair Virginia Trimble moved (DeVorkin seconded) approval of the minutes and reports from the last meeting. The motion carried.

DeVorkin announced that the HAD-related events at the Centennial AAS Meeting are coming together as planned. The Centennial Book is at the printers. DeVorkin will sort (HAD) contributed papers for the meeting.

The Secretary announced the names of the newly-elected officers. As described in the Bylaws, out-going Chair DeVorkin will assume chairmanship of the Prize Committee. DeVorkin will confer with AAS Executive Director Robert Milkey about committee membership.

As described in the Bylaws, Vice-Chair Barbara Welther will chair the Obituary Committee. Milkey will be consulted about committee membership.

The financial report was read by the Treasurer and accepted.

Thomas Hockey moved (Krisciunas seconded) that the HAD endorse dissemination of historical information about the 2000 Grand Conjunction, in order to counter alarmist information appearing in popular media. The motion carried.

With the immortal words "Ich bin HAD," Trimble assumed the Chair.

Devorkin moved (Trimble seconded) to adjourn. The motion carried. Adjournment was at 12:40 PM EST.

Submitted,

Thomas Hockey
Secretary-Treasurer

Washington Conference Commemorates 150th Anniversary of the American Nautical Almanac Office

Steven Dick
USNO

March 3, 1999 marked the 150th anniversary of the establishment of the U. S. Nautical Almanac Office (NAO). Congress established the Office in 1849 to prepare and publish an official national almanac. Up to that time, American scientists and seamen relied on foreign almanacs--particularly those of Great Britain--for astronomical and navigational data. Privately published almanacs, such as Benjamin Franklin's *Poor Richard's Almanac*, were generally not adequate for scientific use.

Since its founding, the NAO and the U. S. Naval Observatory (its modern-day parent organization) have served a variety of users, including the U. S. Navy, the other armed services, the international scientific community, and the public, by providing reliable, practical astronomical data. These data are used for a wide variety of purposes including navigation, surveying, scientific research, mission planning, and everyday activities.

To commemorate this special event, the U. S. Naval Observatory hosted the Nautical Almanac Office Sesquicentennial Symposium on 3-5 March 1999 in Washington, DC. The symposium covered a broad spectrum of topics including the history of the office, its mission, the users of its products, the underlying science, and a look toward the future. The attendees, all invited, came from diverse backgrounds, both military and civilian. In addition to papers presented by the Nautical Almanac Office staff, invited speakers included scientists and historians from a variety of institutions around the world. A *Proceedings* is planned to be published later this year. Program information for the Symposium may be found on the Astronomical Applications Department web site at URL:

<http://aa.usno.navy.mil/NAO150/>

The historical session was dedicated to the memory of LeRoy Doggett, a long-time member of the Office, and its head from 1990 until his death in 1996. Most HAD members will know that the HAD Prize was named after LeRoy.

From the Secretary

It wasn't a "killer asteroid." It was a hard-disk drive crash that threatened to evaporate this issue of *HAD News*. You may notice that some regular features are missing. However, all time-sensitive information remains, including that pertaining to the imminent Centennial Meeting. (Anybody need a hotel roommate for Chicago?)

There are still a few issues of *HAD News* #43 (February 1998). Highlights include the January HAD Meeting in Washington, Chair Virginia Trimble's review of two new cosmology books, and (of course!) Ruth Freitag's comprehensive bibliography. Those who wish a copy may write to the Secretary.

Contributors: The deadline for submissions to *HAD News* #49 will be July 9, 1999.

Correspondence

[The following was published by the *New York Times Book Review* (March 14, 1999) under the title, "Fairy Tale." It is reproduced here with the permission of HAD members Donald Osterbrock and William Sheehan. - T. H.]

"To the Editor:

Concerning Carolyn T. Hughes review of Richard Panek's "Seeing and Believing" (Books in Brief, Feb. 14), it is certainly true that George Ellery Hale was the greatest telescope builder of all time. He was also a manic-depressive who had several nervous breakdowns. But it is a complete myth that he thought he was visited by an elf who spoke to him. This statement first appeared in an otherwise excellent biography of Hale, "Explorer of the Universe" (1966), by Helen Wright, who misinterpreted one letter Hale wrote to [Harry M. Goodwin, his long-time friend since MIT student days]. In reality Hale's "demon" (the word he actually used) was a metaphor, referring either to his conscience or to his depressed mood (like Winston Churchill's "black dog"), and certainly not an apparition. Nevertheless the "elf" has taken on a life of its own in the history of astronomy, referred to not only by Panek but in several other books and on television programs from PBS shows to "The X-Files."

Donald Osterbrock
Santa Cruz, Calif.

William Sheehan
Fargo, N. D."

News from the AIP Center for History of Physics

The center for History of Physics of the American Institute of Physics has a program of grants-in-aid for research in the history of modern physics or allied sciences (such as astronomy, geophysics, and optics) and their social interactions. Grants can be up to \$2,500 each. They can be used only to reimburse direct expenses connected with the work. Preference will be given to those who need funds for travel and subsistence to use the resources of the Center's Niels Bohr Library (near Washington, DC), or to microfilm papers or to tape-record oral history interviews with a copy deposited in the Library. Applicants should name the persons they would interview, papers they would microfilm, or the collections at the Library they need to see; you can consult the online catalog at our website, <http://www.aip.org/history>, and feel free to make inquiries about the Library's holdings.

Applicants should either be working toward a graduate degree in the history of science (in which case they should include a letter of reference from their thesis advisor), or show a record of publication in the field. To apply, send vitae, a letter of no more than two pages describing your research project, and a brief budget showing the expenses for which support is requested to:

Spencer Weart, Center for History of Physics
American Institute of Physics,
One Physics Ellipse,
College Park, MD 20740
Phone: 301-209-3174
Fax: 301-209-0882
Email: sweart@aip.org

Deadlines for receipt of applications are June 30 and December 31 of each year.

New History of Physics Exhibits on the Internet

"Werner Heisenberg / Quantum Uncertainty", and "Andrei Sakharov: Soviet Physics, Nuclear Weapons and Human Rights," two new historical exhibits on the World-Wide Web, have been announced by the Center for History of Physics of

the American Institute of Physics. The exhibits are designed to be useful for educational purposes to a wide spectrum of audiences including high-school and college students, teachers, scientists and historians. Besides many outstanding photographs and other illustrations, both exhibits include supplementary documentation and clips of the physicists' voices. They add to the Center's existing award-winning exhibits "Albert Einstein, Image and Impact" and "The Discovery of the Electron," and can all be accessed from the Center's homepage:
<http://www.aip.org/history/>

Heisenberg (1901-1976), one of the greatest physicists of the twentieth century, is best known as a founder of quantum mechanics and especially for the uncertainty principle in quantum theory. He also played a controversial role as a leader of Germany's nuclear fission research under the Nazi regime. After World War II he was active in elementary particle physics and West German science policy. All these topics are covered in the exhibit written by professor David Cassidy of Hofstra University, the author of the major biography *Uncertainty: The Life and Science of Werner Heisenberg* (1992).

Sakharov (1921-1989), the Soviet physicist who became, in the words of the Nobel Peace Committee, a "spokesman for the conscience of mankind," was fascinated by fundamental physics and cosmology, but first he spent two decades designing nuclear weapons. He came to be regarded as the father of the Soviet hydrogen bomb, contributing perhaps more than anyone else to the military might of the USSR. But gradually Sakharov became one of the regime's most courageous critics, a defender of human rights and democracy. He could not be silenced, and helped bring down one of history's most powerful dictatorships. The exhibit, which includes numerous photos provided by Sakharov's family, is authored by Dr. Gennady Gorelik, who is currently working on a scholarly biography of Sakharov.

Several further historical exhibits are in planning, including ones on Marie Curie, Max Planck and the quantum, and twentieth century cosmology. The Center invites comments on the existing exhibits and encourages historians to consider cooperating and using our services for additional projects in their areas of expertise. (See the Website for contact information.)

New Journal

The first edition (vol. 14, number 1) of *Archaeoastronomy: the Journal of Astronomy in Culture* (formerly *Archaeoastronomy: the Journal of the Center of Archaeoastronomy*) will appear in June, 1999 under an expanded editorial board and a new publisher (The University of Texas Press). Since its inception in 1977, *Archaeoastronomy* has always been a refereed journal and its editors have sought to maintain a high standard for publication. This has not changed.

The editors welcome the submission of articles reporting substantial research in the general areas covered by the terms Archaeoastronomy, Ethnoastronomy, and Astronomy in Culture. The acceptance of papers for publication has never been influenced by membership in any organization nor in degrees held by the author but by the extent to which the submission promotes further understanding of the questions arising in the study of astronomies in cultures and demonstrates the formal rigor necessary for academic recognition.

The Journal's style guide and further details on submission can be found at:

<http://www.wam.umd.edu/~tlaloc/archastro/style.html>

Please note, the journal *Archaeoastronomy: the Supplement to the Journal for the History of Astronomy*, continues to appear under the editorship of Michael Hoskin.

Upcoming Meeting

The North American Sundial Society hereby issues a call for papers to be presented at its 5th Annual Conference on October 8-10, 1999 in Hartford, Connecticut (USA).

Papers on topics related to sundials, dialing or dialists--whether dealing with history, art, technology, instruments, theory or current practice are welcome!

Presentations should be 15-25 minutes in length and may be published in *The Compendium*, the Society's quarterly journal.

Please submit title, time requirements, and an abstract of not more than 200 words to:

Frederick W. Sawyer III, 8 Sachem Drive,
Glastonbury CT 06033 USA
(fax=860-403-5295;
email=frederick.sawyer.es.72@aya.yale.edu)

no later than June 15, 1999.

If you have items for show-and-tell or for display, please provide details so that appropriate time and space can be allocated. For information on the conference, address inquiries to NASS at the above address.

Current Activities of HAD Members in the Central United States

Mary Lestina
University of Northern Iowa

As a senior at the University of Northern Iowa, I am working on my undergraduate degree in All Sciences and Earth Science Education. Dr. Hockey and I were interested in what the HAD members of the central United States were currently working on in regard to historical astronomy. The responses to our inquiry were rather interesting and are summarized as follows:

Many HAD members are working on, or have recently completed, biographies or research studies concerning historical astronomers. Rudi Paul Lindner (University of Michigan) is in the process of writing a biography of Heber D. Curtis. In addition, he is writing the history of the astronomy program at the University of Michigan and is researching the rhetoric of Curtis and Harlow Shapley's "Great Debate." Authoring the biography of the much forgotten T. J. J. See, arguably the most controversial astronomer in this country a century ago, is Charles Peterson (University of Missouri). Horace Smith (Michigan

State University) is studying the Harvard astronomer Solon Bailey and his role in preparing the way for Harlow Shapley's use of variable stars in determining the distances to globular clusters.

The historical study of observatories has captured the interest of several HAD members. Patricia Whitesell (University of Michigan) recently published the book, *A Creation of His Own: Tappan's Detroit Observatory*, which discusses the history of the Detroit Observatory and the motivations and historical context behind its creation. Presently, she is researching the scientific instruments (including the Pistor and Martins meridian circle) and significant achievements of the scientists at the Observatory, along with the architecture of additional observatories.

Frank Edmondson (Indiana University) is currently working on a paper about Daniel Kirkwood for *Mercury* entitled "Daniel Kirkwood and the Astronomical Society of the Pacific." In addition, the AAS Centennial Volume will highlight his 21 years as AAS Treasurer.

Controversial astronomical topics intrigue a couple of members. Michael Friedlander's (Washington University) focus is the public controversy over the works of Galileo and Oppenheimer. Also, he developed a course called "Physics and Controversy." Look for David Wilson's (Iowa State University) article in an upcoming issue of *Physics in Perspective*, entitled "Galileo's Religion Versus the Church's Science? Rethinking the History of Science and Religion." Graduate student Herb Folsom is writing his dissertation on the history of theories of the lunar surface, from Galileo into the 20th century.

Additionally, Gene Ammarell (Ohio University) is working in South Sulawesi, Indonesia, right now; he is studying traditional navigational knowledge and practice, along with technological and social change. Tom Hockey (Northern Iowa) is looking forward to feedback on his new book, *Galileo's Planet: Observing Jupiter Before Photography*.

The HAD News is supported in part by the Department of Earth Science, University of Northern Iowa.

Layout by John Alexander

Current HAD Members

Abraham, Peter
Agueros, Marcel
Ahmad, Imad
Aizenman, Morris
Allen, Robert
Alpher, Ralph
Ambruster, Carol
Ammarell, Gene
Anderer, Michael
Anderson, Gerald
Applebaum, Wilbur
Apt, Adam
Aveni, Anthony
Barmore, Frank
Barry, Donald
Bartky, Ian
Bassi, Joseph
Becker, Barbara
Beiser, Antoinette
Bernabeu, J. Guillermo
Best, Jason
Boyce, Peter
Bracher, Katherine
Brashear, Ronald
Brawer, Roberta
Brecher, Kenneth
Briggs, John
Brown, Timothy
Brush, Stephen
Bryant, Light
Burkhardt, Robert
Burnham, Robert
Burton, Butler
Butrica, Andrew
Cameron, Gary
Caplan, James
Catt, Patrick
Chamberlain, Joseph
Chambliss, C. R.
Chiu, Bella
Churchill, Christopher
Clarke, Randolph
Clarke, Thomas
Clayton, Donald
Cobb, Wesley
Cohen, Howard
Collins, George
Condon, Jack
Conselice, Christopher
Contopoulos, Nicholas

Corbin, Brenda
Corwin, Harold
Craine, Eric
Crane, Patrick
Cranmer, Steven
Crawford, David
Crowe, Michael
Deen, Glen
Dennis, Tom
DeVorkin, David
Di Stefano, Rosanne
Dick, Steven
Doney, Robert
Dudek, David
Durig, Douglas
Edmondson, Frank
Eisberg, Joann
Esposito, Larry
Evans, David
Fairman, Rita
Faulkner, John
Felten, James
Fiala, Alan
Fimels, Maria
Fischer, Lynn
Fleck, Robert
Fraknoi, Andrew
Fredrick, Laurence
Freitag, Ruth
Friedlander, Michael
Garstang, R. H.
Giclas, Henry
Gingerich, Owen
Giver, Lawrence
Gloria, Karen
Goldsmith, Donald
Goldstein, Samuel
Goodway, Martha
Gordon, Kurtiss
Green, Daniel
Green, Kevin
Gurshtein, Alexander
Haisch, Bernhard
Hall, Robert
Haramundanis, K.
Harris, Alan
Hartkopf, William
Harwit, M.
Hatch, Robert
Haubold, Hans
Hawkins, Gerald
Hemenway, Mary Kay
Hilton, James
Hoag, Arthur
Hockey, Thomas
Hoffleit, D.
Hofstee, Mariet

Hollabaugh, Mark
Houck, J. R.
Howard, William
Hufbauer, Karl
Iadevaia, David
Jarrell, Richard
Jefferys, W. H.
Johnson, Hugh
Kammeyer, Peter
Keenan, Philip
Kellermann, Kenneth
Kerr, Frank
Kidwell, Peggy
King, Lonnie
Kloss, Jacqueline
Kolb, Edward
Krisciunas, Kevin
Krupp, E. C.
Lacombe, Pierre
Lanning, Howard
Lattis, James
Laubscher, Roy
Levy, David
Liller, William
Lindenblad, Irving
Lindner, Rudi Paul
Littmann, Mark
Lukac, Marie
Marche, Jordan
Marsden, Brian
Marshack, Alexander
Marshall, James
Martin, Robert
McCluskey, Stephen
McCutcheon, Robert
Mead, Jaylee
Mendillo, Michael
Meo, Michael
Mickelson, Michael
Miller, Jay
Milone, Eugene
Molnar, M. R.
Morrison, Philip
Mumford, George
Munns, David
Newburn, Ray
Nook, Mark
O'Neal, Douglas
Offenbecker, Dawn
Olowin, Ronald
Olsen, Kenneth
Olson, Donald
Osterbrock, Donald
Outten, Burnet
Pacholczyk, A. G.
Pang, Kevin
Pasachoff, Jay

Peregrine, David
Peters, James
Peterson, Cynthia
Peterson, Charles
Pierce, David
Plotkin, Howard
Pompea, Stephen
Preston, Robert
Price, Leland
Probst, Ronald
Radzilowicz, John
Rafferty, Theodore
Rawlins, Dennis
Reaves, Gibson
Reynolds, Clark
Richardson, Terry
Rivkin, Andrew
Robbins, R. R.
Robinson, Jack
Robinson, Leif
Roemer, Elizabeth
Romer, Alfred
Rothenberg, Marc
Roughton, Norbert
Rowe, Robert
Rubin, Vera
Ruffa, Gregory
Russell, John
Russo, Richard
Sakurai, K.
Schaefer, Bradley
Schaumburg, Dorothy
Schechner Genuth, Sara
Schorn, Ronald
Seeds, Michael
Seitzer, Patrick
Settle, Thomas
Shawcross, William
Shields, Joseph
Shipman, Harry
Sinclair, Rolf
Smith, Robert
Smith, Charles
Smith, Horace
Sperling, Norman
Standish, E. Myles
Stencel, Robert
Stephens, Carlene
Stephenson, Bruce
Stern, S. Alan
Stoner, Jeff
Strauss, David
Sullivan, Woodruff
Sweltzer, James
Swerdlow, Noel
Taff, Laurence
Talbert, Freddie

Tarbell, Theodore
Tatarewicz, Joseph
Tenn, Joseph
Terzian, Yervant
Thomas, Norman
Thompson, Don
Trimble, Virginia
Trudel, Jean-Louis
Usher, Peter
Van Paradijs, Jan
Voelkel, James
Waff, Craig
Walker, Richard
Walker, Arthur
Wallace, William
Weart, Spencer
Weaver, Harold
Webb, George
Wells, Ronald
Welther, Barbara
White, Richard
White III, Raymond
Whitesell, Patricia
Wilds, Richard
Williams, Thomas
Willson, Lee Anne
Wilson, Curtis
Wilson, David
Wing, Robert
Wlasuk, Peter
Woodard-Eklund, Laura
Yau, Kevin
Yeomans, Donald
Zaidins, Clyde
Zehnle, Ronald
Zeilik, Michael