HISTORY NEWSLETTER

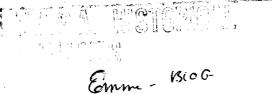
HISTORICAL OFFICE (AAH) NATIONAL AERONAUTICS AND SPACE ADMINISTRATION WASHINGTON, D.C. 20546

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For information only;	not to be interpreted as an official	directive

The continuum of NASA's history was evident during the year 1972. <u>Apollo 17</u> last month was the sixth and last of the manned missions to the surface of the Moon, some say the last in this century. But President Nixon in March 1972 had approved the beginning of NASA's Space Shuttle program. It will ultimately produce a space transportation system for the 1980's in contrast to the "race-car technology" of Apollo with its throw-away Saturn stages. In May 1972, the U.S.-U.S.S.R. agreement was reached providing for the rendezvous and docking of an Apollo spacecraft with a Russian Soyuz spacecraft during 1975. The launching of ERTS in July 1972 was considered to have opened a new era in using space sensors for practical uses of men on earth. In April of this present year, the Skylab will be launched into orbit by a Saturn V, and three different crews of three astronauts will be rotated to engage in extended manned earth orbit in addition to monitoring earth resources and astronomical experiments.

All these recent events are grist for the historian's mill years from now, while the work of today's historian must be concerned with history already transpired, documenting a re-creation of the past as well as the origins of future accomplishments. Hopefully this Newsletter will help inform those in the historical vineyards on activities and persons involved in NASA-related history.

Administrator James C. Fletcher re-established the NASA Historical Advisory Committee in September 1972 and included current Federal procedures on general advisory committee meetings being open to the public. The meeting was announced in the Federal Register and Technology and Culture. With Professor Louis Morton (Dartmouth) as Chairman, the Committee met on December 1-2, 1972. Other members are: Professors A. Hunter Dupree (Brown), Melvin Kranzberg (Georgia Tech), Elting Morison (MIT), and Rodman Paul (CalTech), with James Nolan (NASA) serving as Executive Secretary. Its annual review of the NASA historical program provided once again a pivotal opportunity to inventory our on-going historical effort as well as to enhance vital relationships with the historical community. Dr. Homer E. Newell, Associate Administrator of NASA, who is the overseer of the NASA Historical Program, participated in the discussions of the Committee.





The staff of the NASA Historical Office has remained stable: three historians (E. M. Emme, F. W. Anderson, Jr., and Tom Ray), archivist (Lee Saegesser), editor (Carrie Karegeannes), and office secretary (Gloria Taliaferro). If anything, however, the workload seemed to have grown. This was mainly a consequence of the rising tide of draft chapters transmitted for review prior to distribution for widespread comment by participants. It is a hallmark of contemporary historiography that those involved in the historical action are invited to comment upon the research and accuracy of It also enforces the need for oral history interviews to the historians. supplement the documentary record and greatly enhances the overall perspectives of historians. Additional workload in the Historical Office derived from intensified communication with historical activities in the manned space flight centers involved with the first phase of the Apollo history as well as from the archival tasks stemming from retirements and resignations as the contraction of NASA continued. The lack of historians at research centers -- except for While the Jet Propulsion Laboratory--also increases time-consuming concerns. NASA resources seem destined to remain austere it is of importance to maintain a vigorous historical effort that capitalizes on the two unique advantages of contemporary historiography--full documentation and access to participants.

Previous Newsletters have reported most of the 10 contract and 9 in-house on-going historical projects under Headquarters and at the field Centers. The integrated history of the Apollo Launch Facilities and Operations at Kennedy Space Center got underway with University of Florida historians, Dr. Charles Benson and Fr. William Faherty. Because of the long origins and expected short operational life (April-December 1973) of the Skylab program, combined efforts for the preparation of a documented chronology were initiated. Roland Newkirk (MSC) was assigned the task of integrating Headquarters and Center pre-launch inputs this month. This not only provides NASA with a reference but it also provides a preliminary bibliography for initiation of a program history once the operational phase of Skylab has concluded. David Balderston of Syracuse University was supported for a history of NASA's Technology Utilization Program, which he has completed. Ivan Ertel, who retired from the MSC Historical Office, undertook preparation of Vols. III and IV of the Apollo Spacecraft Chronology on contract. Walter T. Bonney continued his research in the National Archives and interviewing on the history of the NACA. and his gleanings continue to be of great interest.

Publications:

The NASA Historical Office has prepared an updated list of NASA historical publications, including translations, which is available upon request. In press, due to increased printing time, are a number of works. The Apollo Spacecraft Chronology, Vol. II, has a set a record for delay in printing but is due shortly. The Astronautics and Aeronautics Chronology, 1970, with a Foreword by Dr. Homer E. Newell, is at long last supposed to appear soon, while the 1971 volume, with a Foreword by Administrator Fletcher, will hope-

2

fully appear in much less time. Also in press were the <u>NASA Historical Data</u> <u>Book, 1958-1968</u>, Vol. I, <u>NASA Resources</u>, by Jane Van Nimmen and Leonard Bruno of the Library of Congress; and <u>Origins of NASA Names</u> by Helen T. Wells with Susan Whiteley. One notable translation published was Hermann Oberth's <u>Ways to Spaceflight (Weg zur Raumschiffahrt</u>, 1929) as NASA TT F-622, for which copyright permission was kindly granted by the author and the Oldenbourg Verlag.

Summer Seminars - 1972 and 1973:

One of the highlights of 1972 was the tenth annual summer seminar on "History and Space." It featured three Ph.D's and five graduate students in history, a high mark in numbers and qualifications. Orientation and discussion sessions involved key NASA people. Several prominant historians from academe each spent a full day with the seminar (Professors Louis Morton of Dartmouth, Melvin Kranzberg of Georgia Tech, and John B. Rae of Harvey Mudd College). Members of this past summer's seminar and their projects were: Prof. Norriss Hetherington (Univ. of Kansas) -- "Evolution of NASA Science Policy, 1958-1960," and "Interplanetary Flight and Gravitational Thrust"; Dr. William Ziglar (Eastern Baptist College) -- "A History of the Mississippi Test Facility and Michoud"; Dr. Donald Rotunda (recent Ph.D London School of Economics) -- "National Aeronautics and Space Act of 1958"; J. Van Voorhis (Ph.D Candidate, Johns Hopkins) -- "Technology, Policy, and the Aircraft Industry"; William Heimdahl (Ph.D Candidate, George Washington Univ.) -- "George Lewis"; Katherine Oser (M.A., Baylor) -- "History of NASA Education Program"; and Julie Furman (Ph.D Candidate, Univ. of California, Berkeley) -- "Impact of Apollo Missions." Other summer employees were undergraduates, Cynthia Swailes (Howard University) and Mary McDonough (Univ. of Delaware).

Applications are now being received for consideration for the NASA Summer Seminar on "History and Space" for 1973. <u>Applications must be received by</u> <u>April 15, 1973</u>, and are primarily from history graduate students and faculty. Personal Qualifications Statement (SF 171) and a List of College Courses (CSC Form 226), available at most Post Offices or upon request, should be submitted. Grades range from GS-7 (\$9,520 yearly) to GS-12 (\$16,682 yearly) depending on experience and qualifications. Selections will be made from those persons having demonstrated interest in the history of science and technology. Seminar discussion and research focus upon projects of mutual relevance to NASA and the participants. Many more apply than can be employed so the competition for these positions has been increasingly keen.

One of the major virtues of NASA historical projects of particular interest to graduate students seeking dissertation topics is the relative openness of NACA and NASA documentation and the numerous topics requiring original research. Preparation of the "Guide to NASA History" is still underway but we welcome any inquiries regarding possible research opportunities.

3

Archives:

The current thrust to implement President Nixon's executive order to declassify Federal records began with NASA in much better shape than most agencies. Efforts have now been made to declassify all records of the National Advisory Committee for Aeronautics as well as the Apollo program. A major chore remained the screening for the Historical Archives from the chronological correspondence files declared "surplus" under the Records Retirement System. Historical archives are also maintained at the MSF centers in Houston, Huntsville, and Cape Kennedy, and at Jet Propulsion Laboratory.

Over 130 persons did research in the Headquarters Historical Archives during the past year, and numerous historical queries were served. One of major increments were oral history interview transcripts, most of which directly relate to on-going NASA histories. At the Manned Spacecraft Center, for example, its archives already possess 298 taped interviews on the Apollo program, and 155 tapes on the Gemini history. These include NASA and industry people. One of the distinguishing marks is the remarks of satisfied users of the archives, and Archivist Lee Saegesser was awarded a within-grade promotion during the year for his dedicated service.

Dr. Richard K. Smith continued screening NACA and NASA records for the collection and collation of Hugh L. Dryden papers at the Milton Eisenhower Library of Johns Hopkins University. Dr. Dryden's personal papers were transferred. This project will be completed when a catalog of the Dryden papers is published, and we have been assured that microfilming service will be available.

Professional Notes:

As previously mentioned, the flow of draft chapters for various histories has been one of the most pleasing measures of progress in the NASA historical program. In the Apollo History Series prefatorial to definition of an integrated Apollo history, chapters from the Manned Spacecraft Center-University of Houston team (Courtney Brooks, Loyd Swenson, and James Grimwood), the University of Florida historians at Kennedy Space Center (C. Benson and Fr. Faherty), and Tom Ray in Headquarters proved noteworthy. Barton Hacker (Iowa State) at long last completed his chapters for the Gemini history, while a first draft of the Saturn history was assembled by Roger E. Bilstein (now at the University of Illinois) and others at Huntsville for evaluation. Cargill Hall, JPL Historian, has made steady progress on schedule on the Ranger history, Professor Daniel Kevles of CalTech assisting as reader.

NASA Historian Emme continued as liaison to the Preservation of Historic Sites Commission. Nomination of Apollo Launch Complex 39 by the Kennedy Space Center was forwarded to the State of Florida for endorsement (site will be used by NASA for some years). The State of California evidenced interest in the site of Robert H. Goddard's rocket tests in 1918, the location of which was explored by Thomas Carroll (now a graduate student at the University of Pennsylvania). Major NASA-wide effort was to inventory all potential sites

4

(which turned up the ruins of the manse of a signer of the Declaration of Independence (George Wythe's "Chesterville") on Langley Research Center and the well-surveyed Indian Mounds on old Cape Canaveral and Merritt Island). From March to December 1972, Emme was also tagged with the task of serving as Foreman of a Federal Grand Jury in Baltimore for a day or so each week. This was non-historic duty except for the Bremer case.

The 6th History Symposium of the International Academy of Astronautics convened in Vienna, Austria, on October 13, 1972, and was chaired by the NASA Historian. Highlights were memoir papers by Milton W. Rosen on the NRL Viking Rocket, William F. Pickering on the work of JPL from the Corporal to Explorer I, and Robert R. Gilruth on the Pilotless Aircraft Research Division of Langley Laboratory at Wallops Island, VA, which led to Project Mercury in 1958. These and other papers will be summarized in a future program report in Technology and Culture. It must also be noted that the first volume of the IAA History Symposia (1 and 2) proceedings has gone to the Smithsonian Institution Press in the Annals of Flight Series, edited by Frederick C. Durant, II, and George James (the Russian language editions have previously been reported). The 7th History Symposium of the IAA will meet in Baku, U.S.S.R., in October 1973, and is also being organized by the NASA Historian and V. N. Sokolsky of the Soviet Academy of Sciences. Invited papers include: Kurt Debus (Director of the Kennedy Space Center) on the White Sands and ABMA experience leading to Explorer I, John Sloop on the high-energy propulsion work at NACA-NASA Lewis Research Center in Cleveland, and Richard Porter (GE) on the V-2-Hermes rocket test program at White Sands after World War II and the coming of the International Geophysical Year.

It has been noted by NASA-related historians that the editors of the following journals must be commended for their continued progress in serving aerospace history: Kenneth Gatland of the B.I.S. <u>Spaceflight</u>, John Sloan of the Journal of the American Aviation Historical Society, Melvin Kranzberg of <u>Technology and Culture</u>, and Robin Higham of the <u>Aerospace Historian</u>. It seems newsworthy to recognize such activities.

The National Space Club has announced the winners of the Robert H. Goddard Historical Essay Competition for 1972, who will be honored shortly. Winner was Professor Barton Hacker of Iowa State for his essay on "From Space Station to Orbital Operations in Space-Travel Thought, 1895-1951," for which he will receive the \$500 check, plaque, and certificate. Honorable Mentions were given to Professor Norriss Hetherington of the University of Kansas for his essay on "Gravitational Thrust," and James Wilson of JPL (now at UCLA for his doctoral orals) on "A Generation Gap: Tsiolkovsky, Goddard, and the Progress of Astronautics." Entries for the 1973 contest should be submitted to the National Space Club by 1 November 1973.

Dr. Roger E. Bilstein, recent University of Alabama/Huntsville contractor on the Saturn history, joined the University of Illinois faculty in September 1972. There he will have responsibility for editing historical monographs on aerospace subjects. Dr. Mae Mills Link, Dellbrook Institute for Advanced Study, Riverton, VA, has completed a draft of her history of NASA Life Sciences, which will be circulating for comment.

Many prominent persons and newsmen offered considerable thoughtful reflection upon the history of Apollo prior and subsequent to the launching of <u>Apollo 17</u>. An attempt will be made in the next edition of this Newsletter to provide references to these commentaries.

Across the street from NASA Headquarters on Independence Avenue between 4th and 7th Streets S.W., a gigantic hole spans a three-block strip on the Mall. This is exciting evidence that the new National Air and Space Museum of the Smithsonian Institution may be a living entity by 1976. Hats off again to Director Mike Collins, the White House, and the Congress for this historic achievement in the making. The NASA Historian recently made stimulating brief visits to the Deutschen Museum in Munich (Ernst Klee planning three new wings on aeronautics, astronautics, and aquanautics) and the new Air and Space Wing of the Swiss Museum of Transport in Luzern.

The passing of former President Lyndon Baines Johnson on January 22, 1973, placed finality upon the unsuccessful efforts of Robert Sherrod or NASA historians to interview him on his many boosts to the American space program as Senator, Vice President and President. Only Walter Cronkite of CBS succeeded just prior to the launching of Apollo 11 in 1969. Steps are now underway on Capitol Hill to name the NASA Manned Spacecraft Center after President Johnson.

The NASA Historical Office will also miss former Congressman George Mueller (D. Calif.), unsuccessful in the primary election, who, as Chairman of the House Committee for over eleven years (1961-1972) which first published annual NASA chronologies for 1961 and 1962. Senator Clinton B. Anderson (D. N.M.), Chairman of the Senate Committee for Aeronautical and Space Sciences (1962-1972) also retired.

Brig. General B. S. Gunderson, USAF, was appointed to be the Chief of the Office of Air Force History, replacing Maj. Gen. Robert Ginsburgh who was made Director of the Office of Information, USAF.

Dr. Henry S. Tropp has been appointed principal investigator of the Computer History Project, according to a recent Oral History Association <u>Newsletter</u> (March 1972). Originated in 1967, project is jointly sponsored by the Smithsonian Institution's Museum of History and Technology and the American Federation of Information Processing Societies (AFIPS). As of May 1, 1971, 75 individuals have been interviewed in the effort to tape those who played a role in the development of computers. Written materials also are collected. AFIPS is seeking funding to increase coverage in the 1930-50 period. The role of the Apollo program in helping generate the third generation of computer technology remains a project yet to be instituted by NASA. The Albert F. Simpson Historical Research Center of the U.S. Air Force was dedicated on May 30, 1972, at the Air University Library (Building 1405), Maxwell AFB, Montgomery, Alabama. It provides historical and archives service and is the principal repository for the Air Force historical records. It is open to accredited researchers. The late Dr. Simpson was the Air Force Historian, 1946-1969.

Missed in the previous edition was noting that Mark C. Sloan, widely known and respected Curator of the Air Force Museum at Dayton, Ohio, for nearly 30 years, had officially retired in mid-1972. Dedication of the new Air Force Museum building by President Nixon on September 3, 1971, undoubtedly was a pleasing monument to Mark Sloan's career. We also missed previous mention of the sudden passing of Dr. Donald McVeigh, Historian at Air Force Systems Command.

It was announced that <u>Historia Mathematica</u>, an international quarterly journal of the history of mathematics, would publish its first volume in 1974. It will be published by the Commission on the History of Mathematics of the History of Science Division of the International Union for the History and Philosophy of Science. Inquiries should be addressed to the Editorial Office, Department of Mathematics, University of Toronto, Toronto 181, Canada. <u>Historia Mathematica</u> will deal with all aspects of mathematical activity from pre-historic times to the present, including theory, applications, and technology, and publish articles, book reviews, news, and correspondence.

Readings of Note:

- C. M. Barker and M. H. Fox, Classified Files: The Yellowing Pages, New York: Twentieth Century Fund, 1972, 115 p. Ignored NASA's response to their survey along with the relatively non-sensitive agencies. Conclusion: "The coalition of scholars, the press, Congress, and the public has a responsibility to formulate a new approach striking a balance between essential security and excessive secrecy." (p. 93).
- . Stephen G. Brush (ed.), <u>Resources for the History of Physics</u>, Hanover, N.H., University Press of New England, 1972, 90 pp., \$3.50.
- . L. K. Caldwell, <u>In Defense of Earth: International Protection of the</u> <u>Biosphere</u>, Bloomington: Indiana University Press, 1972, \$8.50. Political scientist argues for solution for "the threat is massive and increasingly swift."
- . John D. Clark, <u>Ignition: An Informal History of Liquid Rocket Propellants</u>, New Brunswick, N.J.: Rutgers University Press, 1972, no bibliography. Engineer of U.S.N. Air Rocket Test Station attempts to focus on the chemistry of rocket development.
- . H. L. Cooke and J. O. Dean (eds.), Eyewitness to Space, New York: H. N. Abrams, 1971, 241p., \$35. Oversize volume of 258 paintings by fortyseven American artists invited by NASA to supplement the historical record in real-time. Most are optical impressions but a few are impressionistic. Reviewed by Louis Vaczek in Technology and Culture, Vol. 13 (July 1972), pp. 312-15.
- . Henry S. F. Cooper, Jr., "Annals of Exploration: An Accident in Space," <u>The New Yorker</u>, Part I (November 11, 1972), pp. 48-52f., and Part II (November 18, 1972), pp. 75-76f. Detailed and chronological saga of the flight of Apollo 13, an outstanding article for its accuracy and depth of reportage.
- . Edgar M. Cortright, "Trends in Aeronautics and Space Research at the Langley Research Center," <u>Congressional Record</u>, Vol. 118 (May 18, 1972), pp. E5477-5479.
- . Tom D. Crouch, <u>The Giant Leap: A Chronology of Ohio Aerospace Events and</u> <u>Personalities, 1815-1969</u>. Columbus: Ohio Historical Society, 1971, 70 p. From Tom Kirby to Neil Armstrong, with the Wright brothers, McCook Field, NASA's Lewis Research Center and the Cleveland Air Races, etc.
- . Merton E. Davies and Bruce C. Murray, The View From Space--Photographic Exploration of the Planets, New York: Columbia University Press, 1971, 163 p. A thoughtful projection of the photographic uses of spacecraft by well-known specialists of Rand and Caltech.

- . Joseph Ben David, "The Profession of Science and Its Powers," <u>Minerva</u>, Volume X (July 1972), pp. 362-83. Presents thesis that the occupational activity of scientific research is a profession with corporate responsibilities and privileges.
- . David Dooling, Jr., "Space Museums and Tour Centers," <u>Spaceflight</u>, Vol. 14 (November 1972), pp. 406-408. Reviews NASA, USAF, and other centers for those interested in the physical aspects of space history in the U.S.
- . Charles Stark Draper, "Key to the Future," <u>Ordnance</u>, Vol. LVII (September-October 1972), pp. 135-37. Well-known leader in guidance systems discusses interrelationship between military and civilian technologies, and the overall benefits for society.
- . E. M. Emme, "The Papers of Robert H. Goddard," <u>Technology</u> and Culture, Vol. 13 (October 1972), pp. 94-96.
- . Paul W. English and R. C. Mayfield, Man, Space, and Environment: Concepts in Contemporary Human Geography, New York; Oxford University Press, 1972, \$5.95.
- . R. A. Foster, R. T. Herres, B. S. Morgan, and F. W. Penney, <u>National</u> <u>Aerospace Programs</u> (National Security Management Series), <u>Washington</u>, DC: <u>Industrial College of the Armed Forces</u>, 1972, 182 p. Text book with bibliography, pp. 165-70.
- Fliegen 90/71, Katalog der Heeresgeschichtliches Museum, Vol. I, Militarluftfahrt und Luftabwehr ir Osterrach von 1890 vis 1971, bearbertet von Erich Gabriel; Vol. II, Fliegen im Ersten Weltkrieg Gemalde und Zeichnungen, bearbertet von Liselotte Popelka, Vienna, Austria: Militarwissenschaftlichen Institut Wien, 1971. Useful reference on Austrian aviation and military air forces.
- . William E. Fruhan, <u>The Fight for Competetive Advantage: A Study of the U.S.</u> <u>Domestic Trunk Air Carriers</u>, Boston, Graduate School of Business Administration, Harvard University, 1972.
- . Joseph Haberer, "Politicalization in Science," <u>Science</u>, Vol. 178 (November 17, 1972), pp. 713-24. Historical review of nationalism and international science since 1914, with generalizations and questions concerning the past 27 years.
- Richard Hallion, Supersonic Flight: The Story of the Bell X-1 and Douglas D-558, New York: Macmillan, 1972, 248 p. Outstanding volume--the only solid history on the rocket research airplane programs--based on thorough documentary research including interviews with principals. Hallion is completing his doctorate at the University of Maryland and an old friend of the NASA Historical Office.

- . Edwin B. Hooper, <u>Mobility</u>, <u>Support</u>, <u>Endurance: A Story of Naval</u> <u>Operational Logistics in the Vietnam War</u>, <u>1965-1968</u>, <u>Washington</u>, DC: <u>Department of the Navy</u>, <u>1972</u>, <u>278</u> p., <u>#4.25</u>. <u>Naval History Division</u> <u>publication by its former chief</u>, <u>Vice Admiral Hooper</u>.
- . J. Allen Hynek, The UFO Experience: A Scientific Inquiry, Chicago: Regnery, 1972, 276 p. Professor Hynek's version of E. U. Condon and D. Gillmor (eds.), Scientific Study of Unidentified Flying Objects (New York: 1969), reviewed in Science, Vol. 177 (August 25, 1972), pp. 688-89.
- . Richard H. Lytle, <u>Preliminary Guide to the Smithsonian Archives</u>, Washington, DC: Smithsonian Institution Press, 1971, 72 p. Published on the occasion of the 125th anniversary of the Smithsonian. Of interest for Robert H. Goddard, Charles G. Abbot, Charles D. Walcott, Samuel P. Langley, and the institutional papers.
- . Sir Peter Masefield, "Gateways to the World: The Airports of New York and London--Past, Present, and Future," Sight Lecture, Wings Club, NYC, May 17, 1972. Spans part of the first century of flight since 1903, reviewing the 105 NYC airfields (70 different sites). In 1971, NYC airports handled 38,835,000 passengers (10,713,000 on international services) and London's five main airports handled 25,116,000 passengers (21,628,000 of them on international flights).
- . Kenneth Mellanby, "The Phoney Crisis," <u>Minerva</u>, Vol. X (July 1972), pp. 499-507. Critical review of Barry Commoner's <u>The Closing Circle</u>, submitting that less technology will not solve the environmental crisis.
- . "The NATO Communication Network," <u>International Defense Review</u>, Vol. 5 (August 1972), pp. 363-65. Review of NATO system since 1950, including SATCOM system.
- . Hermann Oberth, Ways to Spaceflight (Munich-Berlin: R. Oldenbourg, 1929), English translation of Wege zur Raumschiffahrt by the Agence Tunisienne de Public-Relations, Tunisia, (Washington, DC: NASA Technical Translation TT F-622, 1972).
- . Peter D. Olch and Forrest C. Pogue (eds.), <u>Selection from the Fifth and</u> <u>Sixth National Colloquia on Oral History, 1970, 1971, New York: Oral</u> History Association, 1972, 110 p. Useful guide to historians, including exceptional presentations by T. Harry Williams and James MaeGregor Burns.
- . Gerald Piel, <u>The Acceleration of History</u>, New York: A. Knopf, 1972, 369 p. Publisher of <u>Scientific American</u> collects his essays, the first being the title of his case against amoral science and narrow technological imperatives. Uses the 1961 Apollo program decision as one of his historical triggers. Based upon the assumption that the "cold war" is dead and that man has conquered nature, he focuses upon creation of a global affluent society.

- . Jerome R. Ravetz, Scientific Knowledge and its Social Problems, Oxford: Clarendon Press, 1971.
- . Robert C. Seamans, Jr., "Challenge and Response," <u>Air Force/Space Digest</u> Vol. 55 (August 1972), pp. 74-75. Excerpts of graduation address at the Air Force Academy by the Secretary of the Air Force.
- . Eugene B. Skolnikoff, "Science and Technology: The Implications for International Institutions," <u>International Organization</u>, Vol. 25 (November 1971), pp. 759-75. "Barring major surprise or catastrophy, advances in science and technology and their application in the 1970's are likely to cause substantial but not revolutionary changes in the international scene. However, the potential for cummulative, more drastic change in the subsequent decade is very real." He suggests that more organizations like INTELSAT are needed to direct technology "more wisely."
- . Truman R. Strobridge, <u>The U.S. Coast Guard and the Civil War</u>, Washington, DC: USCG, 1972, 7 p. Initial publication of USCG (DOT) Historian.
- . Truman R. Strobridge and B. C. Naltz, "The Coast Guard's First Plane," <u>Coast Guard Academy Bulletin</u>, Vol. 34 (July-August 1972), pp. 51f. August 7, 1926 marks the beginning of USCG aviation with the purchase of three Loening OL-5 amphibians.
- . B. Valentine, "Obstacles to Space Cooperation: Europe and the Post-Apollo Experience," Research Policy, Vol. 1 (April 1972), pp. 104-21.
- . Wernher von Braun, "An Historical Essay," <u>Spaceflight</u>, Vol. 14 (November 1972), pp. 409-412. Reprinting of classic paper written by Dr. von Braun in June 1945 concerning the future of rocketry. It was to be a seminal document in U.S. military and scientific circles.
- . Frank H. Winter, "Out of the Past: "An Aerospace Chronology," <u>Astronautics</u> and <u>Aeronautics</u> (AIAA), Vol. 10 (September 1972), pp. 71-72, 77. First in regular feature sponsored by the AIAA History Committee.
- . Frank H. Winter, "Sir William Congreve: A Bi-Centennial Memorial," Spaceflight (BIS), Vol. 14 (September 1972), pp. 333-34.
- . I. L. White, C. E. Wilson, and J. A. Vosburgh, Law and Politics in Outer Space: A Bibliography, Tuscon: University of Arizona Press, 1972.
- . H. Wright, J. N. Warnow, and C. Weiner (eds.), <u>The Legacy of George Ellery</u> <u>Hale: Evolution of Astronomy and Scientific Institutions in Pictures and</u> <u>Documents, Cambridge, Mass.: MIT Press, 1972, 293 p.</u>