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News Release

GRADUATE RESEARCH CENTER OF THE SOUTHWEST SOUTHWEST CENTER FOR ADVANCED STUDIES

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EMPHASIS ON TEACHING, MAJOR AWARDS TO FACULTY HIGHLIGHT
CENTER'S 1966 REVIEW; STRUCTURE OF SOLAR MAGNETIC FIELDS
SEEN BY SPACE FLIGHT, MOON INSTRUMENT TASK UNDERWAY

DALLAS --

A new long look at the needs and future of graduate education in the southwest, with objectives and emphasis centered on teaching, highlights the 1966 story of the Graduate Research Center of the Southwest.

The advanced education emphasis will continue, President Gifford K. Johnson said in his report to the trustees and advisory council at the annual meeting in November, while the Center also adds to its research programs "at a modest rate" during the next five years.

Two major awards were received by faculty members during the year. Prof. Francis S. Johnson, head of Earth and Planetary Sciences, was named by the American Institute of Aeronautics and Astronautics as the 1966 Space Science Award winner, for his solar and atmospheric research. Prof. Lloyd Berkner, who was the Center's founding president and now heads the board of trustees, received the National Aeronautics and Space Administration's Distinguished Public Service medal for his many contributions to national and international space programs, during the early years of the space research effort.

The order of magnetic fields in the Sun's atmosphere was seen in data returned from PIONEER 6, carrying Center cosmic ray instruments into deep space for the first time.

Among the tasks of research, major programs in molecular genetics, materials investigation, and the feasibility of atmospheric measurements on the Moon by small, hand-carried instruments were all underway in 1966.

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Total personnel reached 348 as of Dec. 1, 1966, with 261 faculty, scientific, and supporting staff in the Southwest Center for Advanced Studies. All teaching and research activities are conducted in this division.

In its fiscal year summary, the Center reported a total expenditure of \$3,462,412 for teaching and research activities, with four-fifths support from granting agencies. Physical plant investment reached \$8,492,748, with \$433,000 invested during the fiscal year.

Month-by-month, highlights of the year were:

JANUARY -- Professor Johnson received the AIAA 1966 Space Science Award; W. W. Overton, Jr., Chairman of the Board, Texas Bank & Trust Co., Dallas, was named chairman of the National Corporations Committee in the Center's Committee on Resources.

A regional high-field magnet facility, to be used by university and industrial research teams, was formally announced. The facility is the first element of the Materials Research Division, headed by Prof. Lauriston C. Marshall. The addition of this new research field was approved by trustees.

The National Institute of General Medical Sciences, National Institutes of Health, announced that a broad, seven-year program of research in molecular genetics would be conducted by the Biology Division, headed by Prof. Carsten Bresch.

FEBRUARY -- President Gifford K. Johnson was named chairman of a Research Advisory Committee to help the Texas College Co-ordinating Board form policies on state-fund university research expenditures.

Dr. Philip Abelson, Carnegie Institution of Washington, began a series of invited seminars on Exobiology: Life Beyond the Earth. He pointed to the oceans as the sources of most life on Earth, expressing the view that amino and fatty acids were first formed in water by radiation effects of the Sun, followed by formation of nucleic acids and the development of genetic

coding. Some previous theories have held that the protein-building acids were formed in a dense Earth atmosphere and gradually accumulated in the oceans to be transformed into primitive life, rather than forming directly in the seas. The studies of atmospheric history at the Center, however, have also pointed to water as the first home of life; these continuing studies by Professors Berkner and Marshall were expanded further during the year, and directed toward the typical history of atmospheric generation on Earth-like planets.

MARCH -- The Center marked its fifth anniversary in a five-day program. Major item was a Symposium on Regional Development of Graduate Education, in which more than 125 educators, scientists, and businessmen surveyed the regional needs and problems of the next five years.

Industry and business of the area joined in ceremonies formally opening Technology Park, a 160-acre development on Center lands for industrial research activities.

APRIL -- First reports of solar atmospheric structure, from PIONEER 6 data, were made by Prof. Kenneth G. McCracken at the American Geophysical Union meeting in Washington, D. C. The million-mile-an-hour solar wind, pulling out magnetic fields from near the Sun, creates extensive interplanetary fields. The magnetic fields are "snarled" near the Sun, and are bent and twisted about each other as they are drawn out. But there is clear separation into long filaments, or "tubes" of magnetism, along which outbursts of charged particles from the Sun can reach the Earth's magnetic boundary in an hour or so, over distances in the order of 100 million miles.

The first regional issue of the United States Geological Highway map series was released. The map, showing relation of geological surface features and hidden structure to highways and cities, in the mid-continent region, was prepared by a committee headed by Dr. Philip Oetking of the Geosciences scientific staff. Next in the series of 11 maps, covering a southern Rocky

Mountain area, is to be released early in 1967.

MAY -- More than 200 high school science stars visited the Center for special seminars as the International Science Fair was held in Dallas.

NASA

Two/programs directed toward placing of atmospheric measuring instruments on the Moon were set underway. One is to determine the feasibility of making a 10-pound mass spectrometer, involving re-design of a 1,200-pound instrument forwarded to the Center. The alternate plan, suggested by the Center, involves use of a cold-cathode ionization gauge. The objective is to provide an instrument to be left on the Moon's surface by an early Apollo Astronaut team, and to make measurements of very small quantities of atmospheric gases before rocket exhausts and other products of manned flights cause gross contamination.

JUNE -- Sixty-five students, selected for their scientific abilities and interests, began an 11-week study and research program in Space Sciences, Geosciences and Biology. The students came from high schools, colleges and graduate universities across the nation, including 13 Texas schools and colleges.

President Gifford K. Johnson headed the report-writing team in "Goals for Dallas" as a conference of 87 persons constructed, debated, and approved by majority a statement of 12 general and more than 80 specific long-range objectives for the city. The "Goals for Dallas" program, based on a proposal by Mayor Erik Jonsson, who is chairman of the Center's Board of Governors, centered on public discussions of the proposals in the fall of 1966. Its next phase will see generation of long-range plans to achieve the goals as reviewed and revised by more than 6,000 persons in the public meetings. Dr. Bryghte D. Godbold, on leave from his duties as staff vice president of the Center during the year, heads the "Goals for Dallas" staff.

JULY -- Three years of operation of the Dallas Geomagnetic Center were marked by an open house. The DGC was first among facilities constructed and used on the campus. It combines both a standard geomagnetic observatory operated by the Environmental Science Services Administration (ESSA) and a university-industry observatory for study of magnetohydrodynamics (MHD). MHD waves are thought to be produced by interaction of the solar plasma stream, or solar wind, and the magnetic envelope of the Earth, and are observed as small pulsations in the Earth's magnetic and electrical fields. Observations made here are being exchanged with Russian observatories.

AUGUST -- PIONEER 7 was launched at Cape Kennedy August 17, carrying the Center's second cosmic ray detector into interplanetary space. The earlier PIONEER 6 spacecraft is in an orbit approaching the path of Venus; PIONEER 7's orbit will approach that of Mars.

The Hon. Ben Barnes, Speaker of the Texas House, headed a legislator team that visited the Center to review its program and plans for contributions to regional graduate education.

SEPTEMBER -- Dr. McGruder Ellis Sadler, trustee emeritus of the Center, died Sept. 11 while on a fishing trip. He was Texas Christian University's chancellor for nearly 25 years, prior to his 1965 retirement, and was among original members of the Center's board.

OCTOBER -- Doctor Berkner received the NASA Distinguished Public Service medal in Washington, D. C., on Oct. 7. As principal speaker in ceremonies honoring 31 persons and five technical teams, he set forth the need for national long-range planning of a balanced space program, "capable of sustaining United States' leadership in science, technology, and international affairs."

NOVEMBER -- "Our next five years are planned to give emphasis to education, while continuing to build our base of research at a modest rate," said President

Gifford K. Johnson in his report to trustees and advisory council members at the Annual Meeting of Nov. 9.

President Grover E. Murray of Texas Technological College at Lubbock was elected to a three-year membership on the board. Dr. O. H. Willham, former president of Oklahoma State University, was named trustee emeritus; President Robert K. Kamm of OSU was elected to complete Doctor Willham's board term, through November, 1968.

Doctor Berkner was re-elected chairman of the trustees, as well as to a new three-year membership on the board. Also re-elected to new three-year memberships were A. Earl Cullum, Jr., James J. Ling, Lewis W. MacNaughton, Eugene McDermott and Dr. Willis M. Tate, all of Dallas, and Murray Kyger of Fort Worth, from the regional area.

Re-elected from outside Dallas were President David W. Mullins of the University of Arkansas, Gov.-Elect Winthrop Rockefeller of Arkansas, President Earl Rudder of Texas A&M University, President Frederick Seitz of the National Academy of Sciences, and Chairman Julius A. Stratton of the Ford Foundation.

The Hon. John B. Connally, Governor of Texas, publicly announced and cited 51 Founding Members of "Patrons of Science," a new Center organization.

Founding memberships are held by husbands and wives, and individuals, who have contributed \$5,000 or more to the Center during its early years. Chairman of "Patrons of Science" is Mr. Ling.

Charter memberships were also opened in November. These will be available, through October, 1967, to families and individuals who pledge to contribute \$10,000 or more during a 10-year period.

DECEMBER -- The Western Company, first industrial research firm to build in Technology Park, occupied its new facilities.

A new Center building, providing auxiliary space at the main campus for the faculty of the Mathematics and Mathematical Physics division and for several supporting services, was also occupied in early December.