XE128.0106768
12-20-67

SOUTHWEST CENTER FOR ADVANCED STUDIES
FORMERLY
GRADUATE RESEARCH CENTER OF THE SOUTHWEST
POST OFFICE BOX 30365
DALLAS, TEXAS 75230

(214) ADAMS 1-1471

Al Mitchell, Director of
Information Services

Extension 215

CENTER YEAR BEGINS WITH NAME CHANGE,
ENDS WITH SUCCESSFUL LAUNCH OF PIONEER 8;
TAGER TV TOWER ON SCAS CAMPUS IS SYMBOL
OF CENTER'S RISE AS EDUCATIONAL CENTER:
BOARD OF GOVERNORS CHAIRMAN ERIK JONSSON ANNOUNCES
$3 MILLION COMMUNITY CAMPAIGN TO BEGIN MARCH, 1968;
FOUNDING PRESIDENT DR. LLOYD BERKNER DIES JUNE 4;
CENTER PRES. G. K. JOHNSON ELECTED CHAIRMAN, BOARD OF TRUSTEES

Richardson, Texas --
The Year 1967 is the year a major regional research institution, the Southwest Center for Advanced Studies, made its greatest strides forward toward its role of leadership as a center of graduate education. The Center is one of Texas' top four institutions in the size of its research program, with 90 major research projects in Space Sciences, Earth Sciences, Biological Sciences, Mathematical Physics, Materials Sciences, Computer Science, Pion Dosimetry, the fields in which Center educational programs are conducted.

Symbolic of the major expansion in educational programs is the 250-foot TAGER TV tower on the SCAS campus, with its closed-circuit, three-channel microwave linkage between universities and industry in the North Central Texas area, providing more than 1,000 students with courses in mathematics, statistics, atomic and molecular spectra, quantum mechanics, and physiology.

Substantial contributions to the educational literature were made with scientific publications by Center faculty reaching a total of 324 at the close of the year. Among this year's 45 publications were two widely-reviewed textbooks, "Introduction to Research in Ultraviolet Photobiology" by Prof. John Jagger, Division of Biology, and "The Structure of Life" by Prof. Royston C. Clowes, also of the Biology Division.

(more)

Noting the tremendous changes in the field of education, SCAS President Gifford K. Johnson, has related the history of growing participation by youth in this country's educational programs. "Fifty years ago, only 15% of our young people graduated from high school; today 76% do. Fifty years ago, 4% entered college; today 50% do."

Mr. Johnson described further the growing need for individuals with graduate education for managerial and technical staff in government, public service, the military, business and industry. "North Central Texas alone needs to produce five times the number of masters degrees and seventy times the number of doctorates in science and technology by 1977 to meet the national average."

Dual programs to help develop sources for these students for graduate programs included this year: the Center's most comprehensive undergraduate summer program to date, with 69 students from 23 different colleges and universities assigned to each of SCAS' Divisions for practical laboratory experience under distinguished scientists in their field of study; and the August three-week short course in Earth Sciences for the benefit of 30 visiting college professors, sponsored by the National Science Foundation and staffed primarily with Center faculty, to acquaint teachers with recent advances made in understanding of Earth structure through geophysical and geochemical techniques.

Erik Jonsson, Chairman of the Board of Governors, referred to the fiscal year, as "the completion of another year of achievement by the distinguished community of scholars who compose the Southwest Center for Advanced Studies." That community of scholars, with its supporting staff, increased in number from 342 the previous year to 390 at present. Drawn by the attractiveness of the Center's unique research activities, the Center's faculty constitutes a significant source for new and improved doctoral education in the region. Five of these faculty members have been recognized by major national awards; three have lifetime research grants as recognition of their eminence in their fields.

(more)

The Center has drawn to the area more than 650 visiting seminar speakers since the fall of 1962. This year, SCAS faculty and staff provided 92 seminars, and there were 143 additional visiting professorial speakers.

During the past fiscal year, faculty from the Atmospheric and Space Sciences, Geosciences, Biology, and Mathematics and Mathematical Physics Divisions taught 235 students on seven university campuses courses totalling 54 semester hours. Teaching was extended also at the high school level with a course in computer mathematics in the Richardson school system.

In addition to the TAGER TV tower, the year saw the construction of the 4,040-square-foot TAGER administrative and transmitter control building; the completion and dedication of the Regional Magnet Facility, the only one of its kind west of the Alleghenies, capable of producing magnetic fields of 100,000 gauss (compare with Earth's magnetic field of 1/2 gauss), second only to the National Magnet Laboratory at MIT in the versatility of equipment offered for use in research and teaching.

Center land development included also the addition of an auxiliary office building, the North Office Building, housing the Mathematics and Mathematical Physics Division and a number of administrative and supporting services; the occupancy by The Western Company of its 39,000 square foot Research Division laboratory in 160-acre Technology Park; and the Texas Instruments Incorporated construction of electronic test facilities on a 125-acre campus area.

To its more-than-100,000 square feet of space in the Founders Building, the Magnetic Observatory, Super Neutron Monitor Station and Regional High-Field Magnet Facility, the Center now makes a four-year projection which anticipates construction of a Materials Research Building, a Biology Building, a Space Sciences Building, a Magnet Facility Annex, which would provide an additional 120,000 square feet of laboratory and working space.

The Year 1967 opened with the official name change from "Graduate Research Center of the Southwest" to "Southwest Center for Advanced Studies" to reflect more accurately the teaching as well as the research functions of the Center. The year closed with the successful launching of Pioneer 8 with SCAS instruments for monitoring cosmic radiation through which astronauts may travel to reach the

moon in this decade; this, together with the two previous Pioneers, with seven Platform / , and with instrumentation on/other the Interplanetary Monitoring unmanned spacecraft, places SCAS in the class of a major experimenter in the field.

The year saw many national awards made to Center faculty, and the gathering of a number of international scientific groups sponsored by the Southwest Center for Advanced Studies, both further emphasizing the recognition of the area's position of growing leadership in research and education.

Three Career Development Awards were made during the year by the National Institutes of Health, to Prof. Walter Harm, Prof. Dimitrij Lang, and Asst. Prof. Ronald H. Bauerle, with the stated purpose of increasing career opportunities for scientists "of superior potential and capability in the health-related sciences."

In the Center's first major meeting of the year, the Mathematics and Mathematical Physics Division co-sponsored the Third "Texas" International Symposium on Relativistic Astrophysics January 23-27 in New York City with the University of Texas, the Belfer Graduate School of Science of Yeshiva University, and Goddard Institute for Space Studies, with more than 650 registered participants from 25 countries including the U.S.S.R. The fourth symposium, in December, 1968, will be held in Dallas, site of the first symposium.

In February, Prof. Chaim Richman, director of the Pion Dosimetry Project, was advised of the President's direct recommendation to Congress of approval of the Atomic Energy Commission budgeting of $50-plus million for construction of a half-mile long linear proton accelerator at Los Alamos, N.M., to be ready in 1971, capable of producing a negative pion beam of sufficient strength for treatment of human tumor cells; human therapy requires a machine that can produce hundres of millions of pions per second.

(more)

March heralded the arrival of two of the strongest electromagnets in the United States for installation in the Center's high-field magnet facility. A third large-bore electromagnet was added, and under a 1967 grant by the Advanced Research Projects Agency of the Department of Defense the Center made the facility available to 15 "principal investigators" (the individuals named to conduct research programs) from Texas and Oklahoma universities, and to their graduate students. (Industrial users conducted first experiments in November.) The facility is the primary laboratory of the Materials Research Division of the Center, and offers opportunities for research in very basic properties of materials, and in the "perfecting" of materials by removing thermal imperfections using cryogenic techniques together with the magnetic field. Development of high-pressure and high-temperature laboratories are future additions planned for the regional facility's service to industry as well as universities.

In April the National Aeronautics and Space Administration named two Center scientists to receive part of the 50 pounds of Moon-surface materials to be brought back by the first Apollo astronauts for conducting analytical experiments of materials' texture, mineral content. Also in April Dr. Lloyd Berkner, late chairman of the Center's Board of Trustees, received the Bowie Medal, the highest honor awarded by the American Geophysical Union; and Prof. Francis S. Johnson, Head, Earth and Planetary Sciences Laboratory, was named adviser in science and engineering to the Environmental Science Services Administration.

In May the very successful launch of IMP-F (Interplanetary Monitoring Platform) placed a Center cosmic ray experiment into polar orbit for the first time. The national meeting of American Astronautical Society, held in Dallas with the late Dr. Lloyd Berkner as technical program chairman, took up the proposed commercial uses of space, including manufacturing, tourism, and medicine. Attendees included national authorities in science, business, and government. The SCAS library received the AAS annual award of bound volumes of the Society's publications.

(more)

Robert Olson, Vice President, TI Special Projects Office, became president of TAGER, succeeding Dr. Jesse E. Hobson who served as executive director of TAGER during the first year-and-a-half of operation. Cecil Green continued as Chairman of the Board. TAGER, the 7-member consortium of private universities and colleges, located in North Texas, was founded in 1965 to speed development of graduate education by combining physical and teaching resources of the membership.

In June, the Center experienced a great loss with the death of the Center's founding president, Dr. Lloyd V. Berkner, who served as Chairman of the Board of Trustees at the time of his death. Among his many scientific achievements, Dr. Berkner was known as the originator of the International Geophysical Year.

In July, the Chairman of the Board of TAGER received officially the keys to its administrative and transmitter building on the SCAS campus. The Center received a NASA grant of $708,589 for multidisciplinary research in space related science and technology. ESSA (Environmental Science Services Administration of the Department of Commerce) celebrated its second anniversary in the Dallas Geomagnetic Observatory, which at the same time was celebrating its fourth anniversary as the first building on the SCAS campus. Twelve new faculty members arrived in time to participate in the Center's most comprehensive undergraduate summer program in its seven-year history.

In August, the Geosciences Division' Short Course in Earth Sciences was presented to 30 college teachers from Maine to California, Florida to Washington, to acquaint them with recent advances made in the understanding of Earth Structure through geophysical and geochemical techniques. The course received the support of the National Science Foundation, and the faculty was drawn principally from the Center's Geosciences Division.

(more)

In September, TAGER began its pilot program, transmitting credit-courses from studios at the Southwest Center for Advanced Studies, Southern Methodist University, the University of Dallas, and Texas Christian University, with broadcasts into industrial classrooms at Texas Instruments Incorporated, Collins Radio Company, Ling-Temco-Vought, Inc., and General Dynamics Corporation. Extension of the network is planned to the three other TAGER member institutions: Bishop College, Texas Wesleyan, and Austin College, and to other industries of the region.

At the October Annual Meeting of Board and Advisory Council members, President Gifford K. Johnson was elected Chairman of the Board of Trustees. Mr. Johnson succeeds the late Dr. Lloyd Berkner in the chairmanship, and continues also as president of the Center. The High Magnetic Field Facility was officially dedicated at the close of the meeting, with educators and industrialists attending the Open House and Tour.

Chairman of the Board of Governors Erik Jonsson announced at the Annual Meeting the coming $3 million, 3-year Center campaign for private funding, to begin March, 1968, to assure the Center's continued building on the past year's achievements. President Gifford Johnson pointed with interest to the fact that the original funding gifts of the founders, supplemented by $5 million from the 1963 community campaign, since have generated almost $30 million in funds, including $14 million in federal research grants... an example of research investment pyramiding the economic return.

Among the scientific presentations made at the Annual Meeting, one Center biologist pointed to the continuing interest in the study of "aging." He stated that progress from the life expectancy of preshistoric man of 20 years to today's 70 years is a tribute to medical science which may have gone about as far as it can go toward lengthening the life span. The study of the molecular mechanisms of aging which could lead to knowledge of the means of slowing the process now becomes a problem for the biological scientist, he foresaw, calling for the combined effort of geneticists, biochemists, protozoologists, immunologists, radiobiologists, and cell biologists.

In the closing month of the year, the cosmic ray detector on the successfully-launched Pioneer 8 began to help its companion instruments draw

(more)

solar weather maps of benefit not only to astronauts but possibly to farmers and land-commuters as well. And equipment was being assembled for a land-based cosmic-ray project by a Texas-Toulouse team, using Mont Blanc, the Monarch of the Mountains in the French-Italian Alps, as a natural filter to "strain" high energy muons; the international expedition will look at and measure intensity of cosmic rays that come from low angles above the horizon. Great scientific interest centers on the interactions of cosmic rays or energetic particles that are triggered by impact with the Earth's upper atmosphere.

Since 1962, the Southwest Center for Advanced Studies has conducted cooperative research with 13 academic institutions in the Southwest, and 14 in other U.S. regions, as well as a number of international cooperative programs in the search for new knowledge. The attraction of eminent scholars and the advancement of the level of research programs has created the Center's tremendous capacity to teach, and it is to the full utilization of this capacity that the Center's new year is directed.

pa/ 12/18/67