

XE128.0346667
3-14-61

REF. ORAL HISTORY 2

SOUTHWEST CENTER FOR ADVANCED STUDIES

FORMERLY

GRADUATE RESEARCH CENTER OF THE SOUTHWEST

POST OFFICE BOX 30365

DALLAS, TEXAS 75230

(214) ADAMS 1-1471

LAURISTON C. MARSHALL

RELEASE ON RECEIPT

Al Mitchell, Information
Extension 215

POWERFUL MAGNETS TO BE USED FOR RESEARCH, TEACHING; FACULTY MEMBERS, GRADUATE STUDENTS
FROM OKLAHOMA, TEXAS TO BEGIN WORK AT CENTER UNDER ARPA GRANT

DALLAS --

Two of the strongest electromagnets in the United States arrived Monday at the Southwest Center for Advanced Studies. Their installation in the Center's high-field magnet facility will bring about 15 faculty members from Oklahoma and Texas universities here for research and teaching. During the summer, about the same number of graduate students will join their teachers, to use the regional facility in their degree programs.

The research and teaching projects have been approved by the Advanced Research Projects Agency of the Department of Defense, which has granted a total of \$100,000 for operation of the facility and the experimental work. The grant is effective April 1.

Among the investigators from universities will be Prof. George W. Crawford and Prof. Grover C. Wetsel, Jr., both of Southern Methodist University; Profs. Lloyd E. and Mary F. Gourley, both of Austin College at Sherman; Profs. J. R. Sybert and H. J. Mackey, both of North Texas State University at Denton; Prof. Sybrand Broersma of Oklahoma University at Norman, and Prof. Jack Yahia of Oklahoma State University, at Stillwater.

In addition, Asst. Prof. C. Girvin Harkins of the Southwest Center will conduct research in magnetic effects on complex ion compounds and on thin films.

Effects of the high magnetic fields on silicon radiation detectors, rare-earth ions, and gallium metal crystals are among the observations scheduled by the visiting faculty members.

Use of powerful magnetic fields in materials research, says Prof. Lauriston C.

-more-

Marshall of the S.C.A.S., "opens up entirely new areas of investigation by providing drastic changes of environment for specimens. Magnetic fields in the range of 10,000 to several hundred thousand gauss alter the fundamental properties of practically all materials, even some biological materials. By observing changes in optical, electrical, structural and mechanical properties of materials, over a wide range of temperature and pressure, researchers can obtain much new information about the basic structure of matter and its behavior."

Under Professor Marshall's direction, the magnet facility here is nearing completion. Electrical generating equipment capable of supplying enough power for the needs of a town of about 1,000 people has been installed to supply the magnets.

The motor-driven generators, originally designed to power a street railway system, were given to the Southwest Center by Massachusetts Institute of Technology. The machines were formerly used in the Bitter Magnet Laboratory there.

The two magnets received this week will be supplemented soon by a third, formerly used by the Naval Ordnance Laboratory.

The three magnets have flat, spiral windings made of copper plates and discs of insulating material. Their internal "windings" are stacked in precise positions, so that pure cooling water can pass through holes at a rate of 900 gallons a minute.

Within an open core area just over two inches in diameter, magnetic fields in the order of 100,000 gauss will be produced. By comparison, the Earth's magnetic field is about one-half a gauss, and the field of a large "atom-smashing" cyclotron may be 20,000 gauss.

The Southwest Center's magnet facility ranks second only to the National Magnet Laboratory in the versatility of equipment offered for use in research and teaching. There are only four such facilities in the nation.