Problems of Inner Space

plague U. scientists studying satellite stresses in a $5 shack

by William F. Smiley

KNOW WHERE the Space Age is at the University of Utah?

It's crammed into a $5 building that's sort of a suburban area to Beagleville, America's most valuable dog kennel.

That $5 may be an exaggeration, too. The building is one of those wooden shells set on cement blocks and hastily thrown together to help Fort Douglas meet its emergency requirements in 1942. Five years was the life expectation of the structure. It was written off the books in 1948.

But today it houses more than $100,000 in valuable scientific equipment — most of it irreplaceable because it is the only equipment of its type in existence.

Building 541 bears a sign, "Physics, Solid State Laboratory." It's at the foot of the rise topped by the Cancer Research Center.

INSIDE ITS shed-like structure four professors and 20 students, mostly graduate students with a sprinkling of undergraduate helpers, conduct research that may answer many of the problems of space flight.

Dr. Peter Gibbs, associate professor and associate resident professor of physics and ceramic engineering, pridefully points to the work going on—covered this year by $130,000 in grants, mostly from agencies of the federal government.

In a cell-like cement structure to the rear of the building is a two-cylinder high pressure machine which U. of U. scientists have concocted from the landing gear of a B29 Flying Fortress.

"It's the only high pressure machine in the world we know of that enables us to put materials inside it and subject them to pressures and heat," Dr. Gibbs said. "Other universities and laboratories have higher pressures and more heat, but you can't put the materials being researched inside them."

EDWIN K. BEAUCHAMP has contrived machinery to measure "creep," the slippage of molecules under high pressure. Lee Seely's inventive mind has found a way to measure vibrations within solid materials. Together these men will make the first test of internal friction under high pressure.

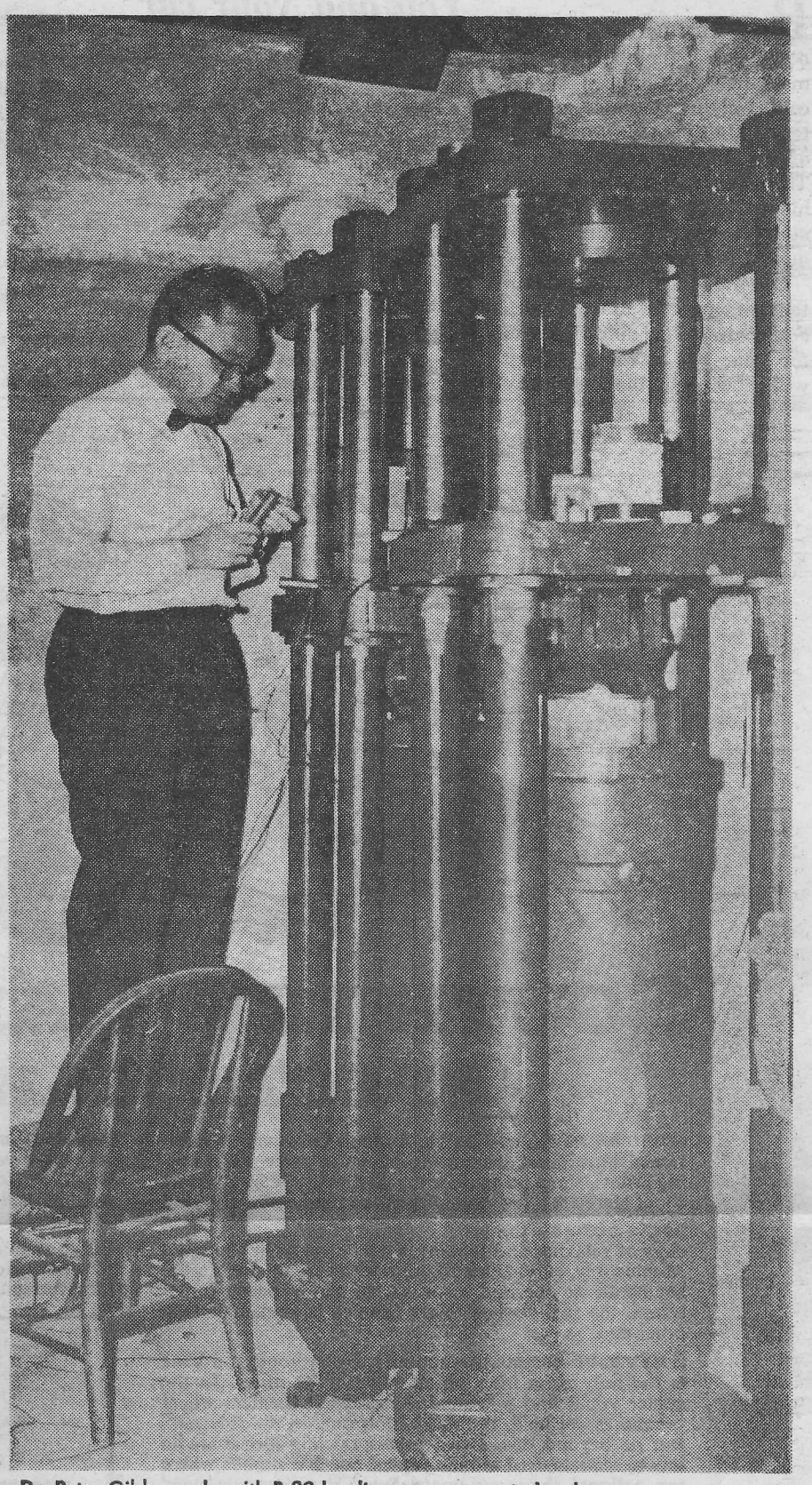
They may solve some of the trouble encountered by Discoverer and Explorer satellites.

The researchers would like to study the materials subjected to pressure and heat by means of x-ray machines. They have a machine which could do the job, but it stands in the laboratory in crates—there's no place to set it up.

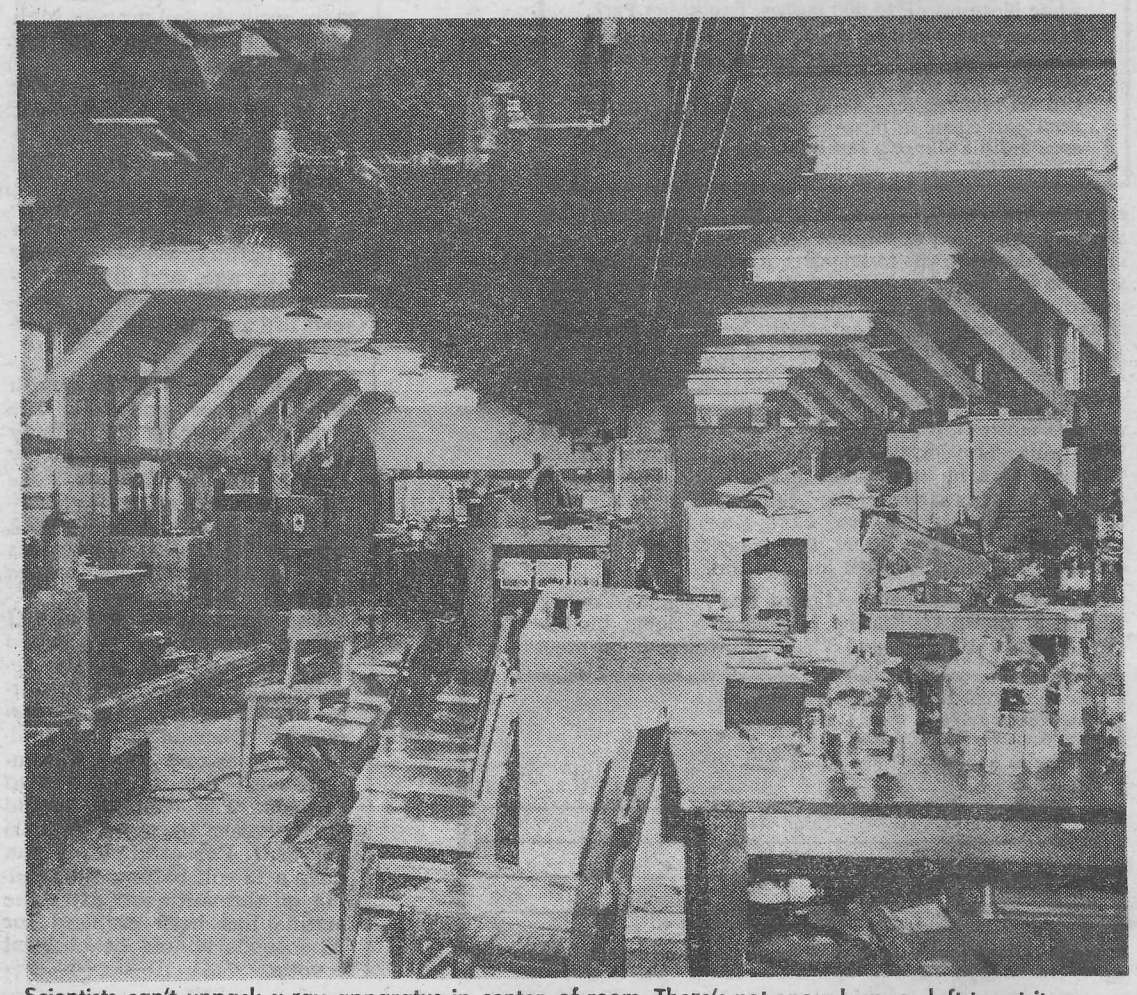
THE LABORATORY is not just crowded, it's overcrowded and overflowing. Parts of the research work are being conducted in the Physics Bldg., in the Chemical Engineering Bldg., and in other laboratories on the U. campus.

Phiysical research has pretty well established that the "wabble" in early satellites was occasioned by accumulation of electrical forces in sections of the satellites. The physicists now have a theory that the puncture holes in the walls of the satellites, at first attributed to unexpected numbers of meteorites in free space striking the shell, may have been caused by some of the factors research students Beauchamp and Seely are preparing to measure.

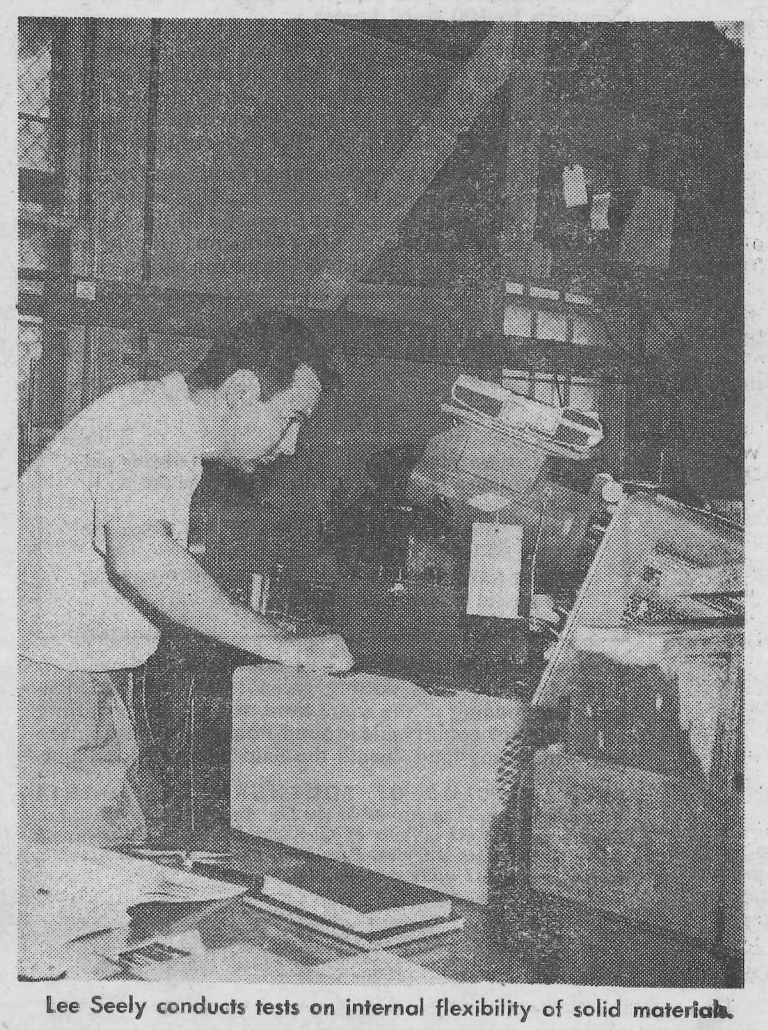
Maybe they are wrong, but they'll know soon, when they use their homemade equipment in their practically hand-made laboratory to conduct the first tests of their kind ever made by man.



Dr. Peter Gibbs works with B-29 landing gear converted to heat, pressure test unit.



Scientists can't unpack x-ray apparatus in center of room. There's not enough space left to set it up.



Lee Seely conducts tests on internal flexibility of solid materials.