

# 14 astronauts visit MIT



Astronauts at Thursday's press conference are, left to right: Neil Armstrong, James McDivitt, Russell L. Schweickart, Alan Sheppard, Edward White II, Thomas Stafford, Charles Conrad Jr., and Frank Borman.

By **BILL JUDNIOK**

Fourteen of the sixteen National Aeronautics and Space Administration astronauts, with several other officials of the Manned Spacecraft Center in Houston, Texas, spent last Thursday and Friday at MIT's Instrumentation Laboratory.

Purpose of the visit was to familiarize the group with the design and operation of the guidance and navigation system that will be used aboard NASA's Project Apollo spacecraft—the vehicle that will take three men to the moon and back. Commander Charles Conrad, one of the visitors has made arrangements for the group to examine all systems that will comprise the Apollo craft — both manual and automatic.

### 300 Work on Design

The guidance and navigation system is being designed at the Laboratory by a team of over 300 engineers and scientists from MIT and three participating contractor firms: The AC Spark Plug Division of General Motors Corporation, the Raytheon Company, and Kollsman Instrument Corporation.

Astronauts included in the visiting group were M. Scott Carpenter, L. Gordon Cooper, John H. Glenn, Virgil I. Grissom, Alan B. Sheppard, Walter M. Schirra, Neil A. Armstrong, Frank Borman, Charles Conrad, James A. Lovell, James A. McDivitt, El-

More photos of conference on Page 6

liott M. See, Thomas E. Stafford and Edward H. White.

### Schwickart in Group

Russell L. Schwickart, a full-time engineer at MIT's Experimental Astronomy Laboratory, and one of the 14 new astronauts recently selected by NASA, was also in the group. Two NASA officials, Chris Kraft, chief of the

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## In five to six years

# Library report forecasts critical space problems

by **Henry Lichstein**

MIT's libraries will face serious space problems within five or six years. According to a report to the Academic Council, the situation could become critical.

Submitted over ten months ago, the report considers the growth of branch libraries, the use of libraries for studying, the expansion of the library, and the automation of library operations.

Saying "we stirred up the Administration," Prof. Thomas Sherwood, Committee chairman, commented, that at the time of the report, "The Administration hadn't studied the situation to determine how quickly it would develop into a real crisis."

Stressing that the present services are entirely adequate, Sherwood added the "situation is critical if you look ahead at all."

Sherwood feels that the libraries, while faced with expanding requirements, have maintained a "reasonable compromise between funds and needs."

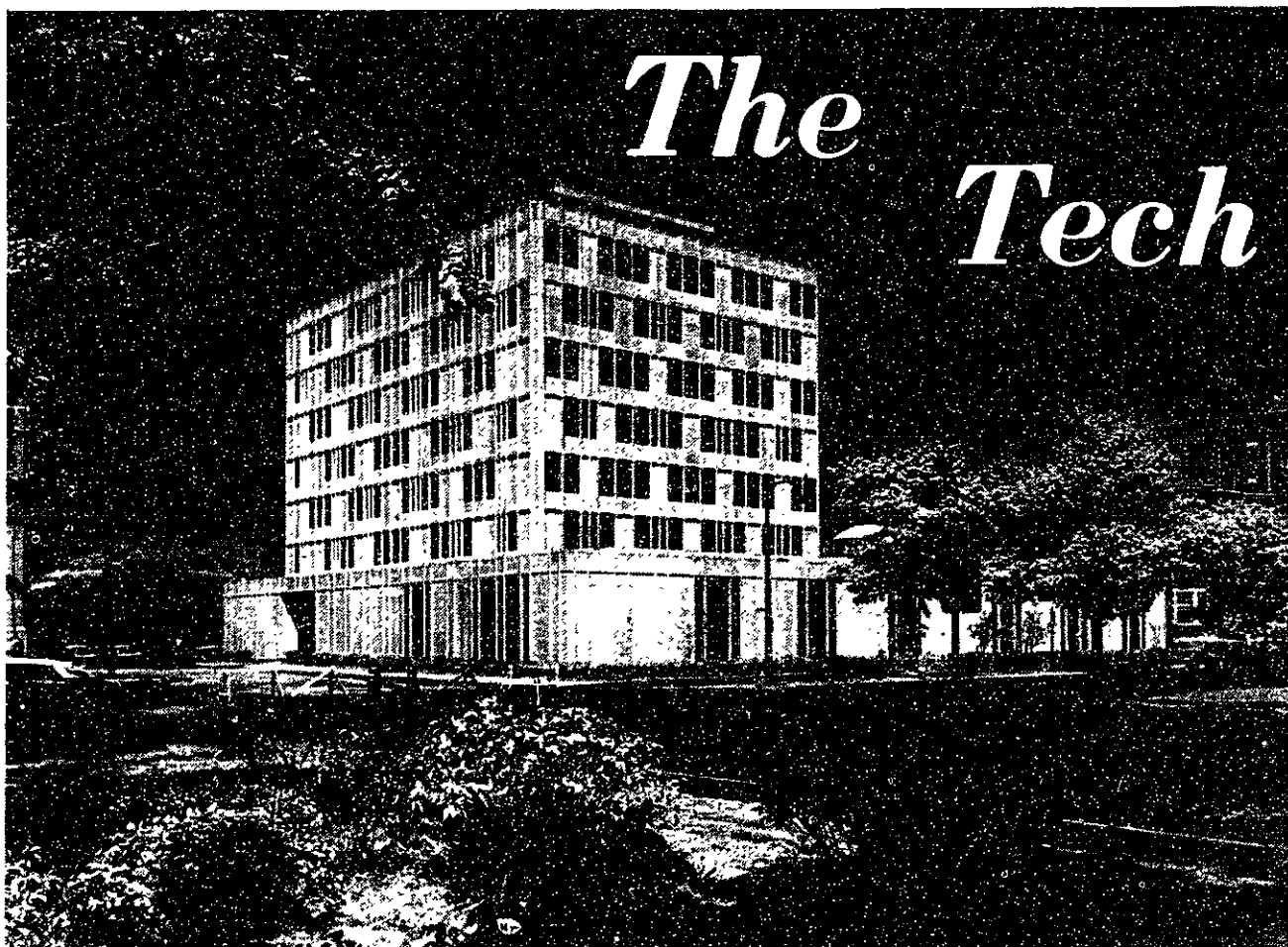
Commenting on branch libraries, he said "while people want books near them, the problem of branch libraries can get out of control."

A major proposal of the report concerned consolidation of the science and engineering libraries. While it is impossible to contract the present branch system, according to the report, the increasing interdependence of science and engineering indicates that the Science and Engineering Libraries should be consolidated.

In the report, the committee recommended that either a new building be erected on Ames St. to accommodate both Science and Engineering or that the Engineering Library be expanded downward into Bldg. 10.

According to Prof. Sherwood, "President Stratton looked favorably on the Bldg. 10 idea."

Another recommendation was that the Director of Libraries be given "a more potent title."



# The Tech

## Dr. Killian asks educational, scientific reforms; cites shortage of research funds and manpower



James R. Killian

Major educational and scientific reforms to keep pace with an accumulating knowledge were requested by Dr. James R. Killian, Jr., chairman of the corporation. Dr. Killian made his plea last night in a speech following the reception of the award of the Greenville Chapter, Society for Advancement of Management, at the Awards Dinner at the Poinsett Hotel in Greenville, South Carolina.

He complained that the proportion of effort and dollars going into basic research is too low, and he noted a tendency for "Big Science" to flourish at the expense of "Little Science." Dr. Killian observed that "the skill with which the Federal Government... deals with its responsibilities with respect to science and technology can profoundly affect not only the future strength of scientific and engineering professions in America, but also other domains of learning."

Dr. Killian pointed to a manpower shortage in the teaching field, citing the fact that in "1954-58 the net increase in faculty

members was 98,000 while the total number of Ph.D.'s awarded was 38,000, many of whom did not go into teaching." He noted that the schools and colleges of the United States have a steadily growing obligation to offer educational opportunities to those who have already entered careers, and he suggested that many more universities adapt a tripartite program of undergraduate, graduate, and postgraduate schools.

"Reform and refresh the obsolete curricula of our schools," Dr. Killian demanded, citing the Physical Sciences Study Committee program as an encouraging and inspiring development to that end. He added that universities must "maintain their integrity as educational institutions at a time when they and our society more and more penetrate each other."

In conclusion, Dr. Killian observed that we must adapt to the current change, that we develop and apply our talents well, that we not permit "short-term exigencies (to) upset programs of long-time value," that we support efforts to "upgrade, enrich, and refresh" subject matter in our schools, and that we take advantage of the growing economic value of advanced knowledge.

## Planned graduate dorms to house 600

Extensive renovation of Graduate House and new dormitories providing living space for 600 or more men are among the long-range plans of the Institute toward a Graduate Center.

Harry Weese and Associates, a Chicago architectural firm, has been assisting the needs of MIT in the area of graduate student life. Preliminary designs and cost estimates for various stages of the project are expected before next January.

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Cost: \$60 million

## Apollo LEM guidance system to be developed

The National Aeronautics and Space Administration has chosen the Instrumentation Laboratory of MIT to direct overall development of the guidance and navigation system for the Lunar Excursion Module of the Apollo spacecraft.

A complex phase of the Apollo project to land three astronauts on the moon consists of developing a Lunar Excursion Module, or landing vehicle, which can be released from an orbiting lunar spacecraft.

Collaborating with MIT's Instrumentation Lab will be the Sperry Gyroscope Co., the Kollsman Instrument Corp., the Raytheon Co., and the AC Spark Plug Division of General Motors. These

contractors are responsible for developing the inertial measuring unit, the scanning telescope, map, and visual display unit, the onboard computer, and the pulse integrating pendulum accelerometer.

The other main phase of the Apollo program consists of the development of the guidance and navigation system of the spacecraft that will go to the moon and back. This is known as the command and service module system. MIT's Instrumentation Lab has already been given primary responsibility for this system.

Of particular interest is the technical approach to be followed in the LEM system and the com-

mand and service module system. As many components and subsystems as possible will be directly interchangeable between the two systems. This approach will improve overall reliability and allow the astronauts to fly with one type of system as opposed to a different system for each module.

## 23 young Russians visit Tech, Harvard in late November

Twenty-three young Russian professional men and women are scheduled to visit MIT and Harvard during the week of November 24 to 30. The group includes journalists, engineers, physicians and teachers.

The visit of the Russians is being sponsored as an experiment in international relations. A main objective is to show the young professionals what American universities are like.

The group will tour MIT November 25 and 26. While here they will visit the departments of individual interest.

About a third of the Russian visitors will be women. All will be staying with individual host families in the area.

plans include as a final goal new housing for 1200 male graduate students with adjacent dining and living rooms. The dining facilities at Graduate House may be decreased in scale in consideration of the large public cafeteria that will be functioning in the nearby Student Center.

Professor Francis Bitter, House Master of the Graduate House, and his wife are the faculty representatives to the architects.