



*Roy F. Keller, acting director of the Center, is seated at the control console, and Cecil L. Gregory, supervisor of College of Agriculture programming, stands in front of the electronic digital computer.*

## The University's new computer center

A new addition to University facilities is a Computer Center, recently established in the new Business and Public Administration Building. High-speed electronic computing facilities became available to the entire University staff with installation of the Burroughs 205 electronic digital computer system. Through this system complex mathematical problems that would occupy an expert a week can be solved in minutes. The Center is under the general direction of the Graduate School, of which Dr. Raymond E. Peck is acting dean, in order to make it more readily accessible to the entire University.

The new computing system was made possible by a grant of \$46,400 for establishing a center from the National Science Foundation and an amount equal to the grant made available by the University Research Council and the Agricultural Experiment Station, each of which provided half of the extra funds.

The Center replaces, on an expanded basis, temporary expedients adopted for several years to provide much-needed fast computing facilities. One such temporary facility has been a small electronic computer rented in 1957 and installed in the College of Agriculture, with the financing of the Research Council and the Agricultural Experiment Station. For a period a time-consuming problem in medical research was sent to New York University to be processed. In February, 1958, the University made arrangements

with a local business firm to use its computer part time, to supplement the rented computer.

Dr. Peck said the primary objective of the new Computer Center is "to assist in the further development of the research program of the University. This is to be accomplished by developing methods of increasing the capabilities of the Computer Center to serve the staff, teaching of courses in programming and numerical analysis, and having available mathematical, statistical and programming consultants to aid researchers in problem solutions."

Roy F. Keller, former instructor of mathematics at the University School of Mines and Metallurgy, Rolla, Mo., and former electronic computer programmer at the University here, is acting director of the Center. He will be assisted by a staff of seven persons. An instructor in mathematics at the University, Keller is a native of Cape Girardeau, Mo., and received a B.S. in Ed. degree in mathematics and physical sciences from Southeast Missouri State College, Cape Girardeau. He holds an A.M. degree from M.U., where he is now working for his doctorate in mathematics. He also has had service as a Ground Electronic Officer in the U. S. Air Force.

College of Agriculture programming will continue under the supervision of Cecil L. Gregory, associate professor of rural sociology, who has had supervision

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JOHN L. HACHTEL, BS EE, is an engineer with Boeing Aircraft. His home address is 2603 West 24th, Wichita, Kan.

VAN G. SAUTER, AM, is a reporter on The Standard-Times of New Bedford, Mass.

JANICE JAMISON, BJ, is production manager for National Fur News, Denver. Her home address is 128 Ivy, Denver, Colo.

DONG SUNOO, AM, is with Facts Consolidated, research and counsel in marketing, San Francisco. His home address is 1635 9th Ave., San Francisco, Calif.

JAMES UNDERWOOD, BJ, is advertising manager for the Rolla (Mo.) Daily News.

CHARLES E. DURHAM, Jr., BJ, 3522 N. Bosworth, Chicago, Ill., writes that he is pleased with his new job . . . "As near as I can tell it's just about the greatest thing since sliced bread." . . . as Director of Publications for the American Bar Association.

## weddings

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Joan B. Mannix and JOHN G. NECKERMAN, BS BA, Dec. 23, in Los Angeles. They make their home in Seattle, Wash., where he is associated with Monsanto Chemical Co.

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Patricia Callison and DONALD WEEKS, Jan. 17, at Eldon, Mo. Mr. Weeks is an assistant cashier in the Bank of Eldon, and the couple lives at 312½ N. Spruce St., Eldon.

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BARBARA ANN BREISCH, BJ, and Capt. K. WENDELL GOOCH, BS Ed. '52, Jan. 30, in Columbia, Mo. Their address is 401 Leslie Ct., Columbia. Capt. Gooch is on the instructors staff of the Army ROTC at the University, and Mrs. Gooch is employed at KOMU-TV.

Sharon Lee Enlow and JOEL T. NEEBE, BS EE, Dec. 24, at Inglewood,

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of the rented electronic computer in the College. Various other colleges, schools and departments of the University have appointed liaison men to coordinate their activities with the Computer Center staff.

The heart of the new computer system is the electronic digital computer, a medium-sized "electronic brain" which can make up to 500 additions or subtractions, 120 multiplications, or 85 divisions a second. A magnetic drum in the computer serves as the device's "memory," being capable of storing 40,080 digits, or more than 4,000 words in the form of digital combinations, during the processing of complex problems. The computer can accept data necessary for the solution of problems from punched cards, punched paper tape, magnetic tape, or from a keyboard.

Establishment of the Computer Center has been under consideration for a number of years because of the growing need for fast computing equipment in the extensive research activities of the staff. Since the summer of 1956 a university-wide committee had been investigating the need.

The small electronic computer set up in 1957 was used to capacity almost continuously from the time it was installed in the College of Agriculture, because of the number of research projects requiring an electronic computer. Not infrequently the equipment was more than six weeks behind on its schedule, despite the fact that some problems which were too complex and time consuming were done on the computer of the business firm. Approximately two-thirds of the work was in the College of Agriculture, especially the Agricultural Experiment Station. However, a wide variety of problems was handled by the machine, including work in the College of Engineering, the College of Arts and Science, and in medicine.

In addition to its value for research, an electronic computer is considered an important asset in the teaching of courses which make use of electronic

equipment. Such courses are being given in the College of Engineering and in the School of Business and Public Administration.

Indicative of the wide scope of research at the University requiring such computer facilities as are now available, are some of the projects undertaken by staff members:

Projection of trends in unemployment rates, in the department of economics and business; air flow through a grain mass, department of agricultural engineering; stochastic properties of a vascular bed, department of physiology; determination of structure of liquid sulphur, department of physics; coating thickness of one metal on another, department of electrical engineering; structural capacity of reinforced concrete members, department of civil engineering; continuous girder bridges with a variable moment of inertia, also in civil engineering; relationship of chemical treatments to yield and quality of agricultural products, departments of field crops and horticulture; and relationship of ration to gain of livestock, animal husbandry department.

Units auxiliary to the digital computer that complete the computing system include a floating decimal point control unit which permits automatic arithmetic computation (addition, subtraction, multiplication, and division) with numbers that vary in magnitude over a much wider range than would be possible with a fixed decimal point.

There also are in the system a punch card converter which permits standard punched card machines to be "linked" or used with the digital computer; a magnetic tape control unit that "directs" the search for information from magnetic tapes as such information is required by the computer; two magnetic tape readers that store on reels of magnetic tape the information from the computer for use in future computations; a paper tape punch for making paper tape records of computations received from or to be fed into the computer; and a control console.