

PUSH-BUTTON BRAIN

Valuable Power
Network Analyzer
is presented to
University by
Missouri firms.

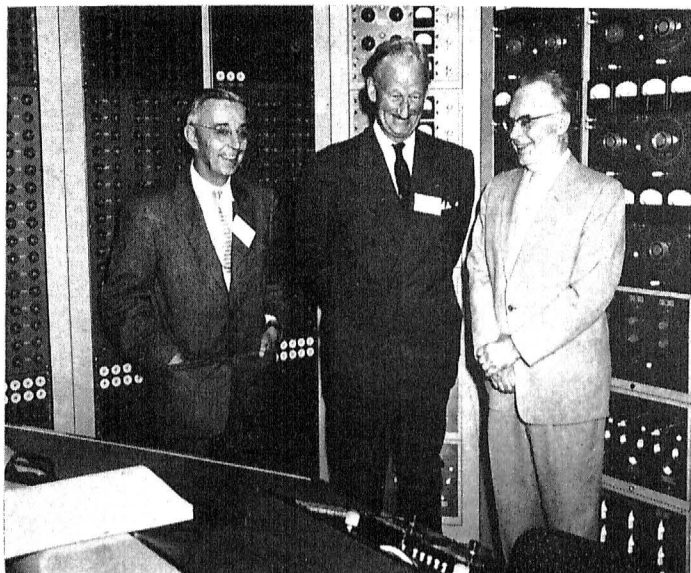
An electronic Power Network Analyzer, valued at \$200,000, has been donated to the College of Engineering by a group of Missouri industrial firms. With this complex instrument, the University inaugurates an unusual new service—power system analyzing, for industry of Missouri and the Midwest. The equipment also makes possible a new program of research and teaching on the campus for the further advancement of engineering science.

The network analyzer is designed to solve quickly and accurately, some of the most complicated and time-consuming problems in the power transmission field. It is especially valuable to power companies and to engineers in figuring electrical transmission line loads and regulation, as well as capacities and limitations, and in making short circuit and fault studies.

A utility company can set up a model of its electrical system on the control board. With this, it is possible to determine proper methods of expansion, the most economical ways to inter-connect with systems of other companies, and what will happen if the system is crippled by accident.

If a utility company is planning an additional two-hundred-mile network of lines, for example, it may take engineers many months, sometimes a year or more, to figure numerous normal factors. They must consider line loads, line losses, capacity of wires needed in various localities, types and sizes of transformers, voltage, wattage and ohms. In addition they must anticipate emergency overloads, short circuits, transformers struck by lightning, and unpredictable faults. Much time and expense are involved.

But with the network analyzer, the engineer brings his preliminary plans



Engineering Dean Huber O. Croft, Gen. Leif J. Sverdrup of St. Louis, and University President Elmer Ellis at dedication of analyzer

to the laboratory, where he and the analyzer operators can set up a simulated system duplicating all known and estimated conditions of the proposed line by plugging in a series of electrical contacts. They press a control button—and they have their new system in full operation in a single room, with answers to many problems.

It isn't quite that simple, of course, and it may require as much as a week or ten days to get the answers. But the results are equivalent to those formerly requiring months of work by an engineering staff.

The decision to install a network analyzer program in the University's College of Engineering was made about three years ago. Nine utility and engineering companies agreed to contribute to the purchase of the intricate analogue computer. They also signed contracts as participating companies who would utilize the services, paying a per diem rate.

The nine companies, all of which operate in Missouri, include: the Arkansas-Missouri Power Company of Blythesville, Ark.; Central Electric Power Cooperative, Jefferson City; Empire District Electric Company, Joplin; Kansas City Power and Light Company, Kansas City; M. and A. Electric Power Cooperative, Poplar Bluff; Missouri Public Service Company, Warrensburg; Missouri Utilities Company, Cape Girardeau; St. Joseph Light and Power Company, St. Joseph; and Sverdrup and Parcel, Inc., St. Louis.

The A. B. Chance Foundation of Centralia, Mo. and the Union Electric Company of Missouri at St. Louis also made donations toward the purchase of equipment.

Actual installation was under the direction of Dr. Joseph C. Hogan, associate professor, and James R. Tudor, assistant professor, in the electrical engineering

department. They were assisted by senior students, two of whom remain as graduate assistants to serve as operating personnel.

Dean Huber O. Croft assigned Dr. Hogan as supervisor and Prof. Tudor as associate supervisor of the analyzer program. Both Dean Croft and Dr. C. M. Wallis, chairman of the department of electrical engineering, emphasize that the network analyzer will be utilized primarily in teaching and research for specific benefit of students in engineering.

Dean Croft also feels that operation of the analyzer will promote close relationships between engineers in industry, members of the University faculty, and students of the College of Engineering.

At the dedication ceremonies, President Elmer Ellis said: "This is another manifestation of the fine spirit of cooperation and the tremendous contribution American industry is making to higher education. It is through such splendid contributions as this that our institutions of learning are able to obtain expensive technical equipment which is so necessary in modern education in science, and which is so far beyond the reach of our available funds."

General Leif J. Sverdrup of St. Louis, president of Sverdrup and Parcel, Inc., said in his presentation remarks: "We consider our contribution to this analyzer a sound business investment. Indirectly, we shall benefit greatly from the education of more and better young engineers, better equipped to help us solve our problems. And, directly, we will benefit from the services of this equipment which the University is making available to Missouri's industry."

The equipment is housed in a three-room suite of the New Engineering Laboratories. Only eight other universities have one of these network analyzers. Only about forty have been manufactured.