

ELECTRONICS

"Adam" Computer System

A COMPUTER THAT can reproduce itself and that can improve successive models of itself can, theoretically, be built.

Prof. John Myhill of Stanford University, speaking at the University of Michigan in Ann Arbor, advised students of the possibility of an "Adam" automata computer system.

The mathematics professor said a self-improving series of machines would each have builder, instructor and computer components.

After instructions to reproduce itself and improve its "offspring," the machine would produce a better version of itself.

Each succeeding machine would be better than its predecessor. Its computer would be faster and more efficient. Improvements

mainly would come from the devising of better circuits, as the machines reproduced.

A self-reproducing system already exists at Bell Telephone Laboratories in an electric toy train that takes cars from a siding and reproduces itself.

Prof. Myhill predicted that a self-improving, self-reproducing system "will happen as soon as somebody wants to build a non-trivial self-reproducer, and has the money."

Prof. Myhill was asked if the machines could even become smarter than the men who originated them. He answered that if a computer network can build another network "smarter" than itself, the brain could also build a network smarter than itself.

Science News Letter, July 16, 1960

METALLURGY

Metals in Single Crystals

NEW USES for many highly refractory metals and some of their compounds may result from a new process whereby these materials may be obtained in the form of single homogeneous crystals.

Single crystals can be worked at significantly lower temperatures than are normally possible with refractory materials.

The Linde Company, a division of the Union Carbide Corporation, reported the crystals are at present produced as cylinders a quarter of an inch to one inch in diameter and a few inches to over a foot in length.

Complete details of the process are being withheld. However, it is similar in some respects to the Verneuil process for making synthetic sapphires. In this process alumina, aluminum oxide, together with a little coloring matter, is slowly fed as a powder through a very hot combustion flame where

it melts and collects on a pedestal below. This pedestal is slowly lowered as the crystal builds up and a long cylindrical crystal, called a boule, results.

One of the main advantages of the Verneuil flame fusion process is that no container is required for the molten substance. This advantage is reported to be retained in the new process. The heat source, however, is an electric arc rather than a chemical flame, allowing a wider range of temperatures and atmospheres to be used.

Materials so far produced as single large crystals by this process include tungsten, molybdenum, vanadium, columbium, and tantalum among the pure metals, and titanium carbide, titanium monoxide, titanium sesquioxide, and molybdenum disilicide among the compounds.

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GENERAL SCIENCE

Stifle Self-Expression

"DO-IT-YOURSELF" kits that do not leave much for you to do except read the directions" stifle self-expression, an associate professor at the University of Tennessee told the American Home Economics Association meeting in Denver, Colo.

In design and decorating problems today, Miss Velma M. Riley, who teaches related arts and crafts, said people seem to want packaged answers, like the frozen TV dinner ready to pop into the oven.

"You and I know that 'packaged' answers in interior design just will not work, nor should they! In this push-button age, we seem to be expected to produce push-button answers. I hope we never come to that!"

She urged educators to uphold and strive to raise standards of taste—in effect, to "create dissatisfaction."

Miss Riley said there are some signs

United States taste is improving. "The emergence of the small, simple, economical American car this year, brought about by the impact of foreign competition," she said, "is the healthiest and most heartening sign of our times."

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TECHNOLOGY

Aid for Peaceful Uses Of Atomic Energy

ELEVEN COUNTRIES will be aided in developing peaceful uses of atomic energy by the International Atomic Energy Agency. IAEA has approved \$320,000 for Afghanistan, Argentina, Brazil, Greece, Iceland, Israel, the Philippines, the Sudan, Turkey, the United Arab Republic and Venezuela.

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PHYSIOLOGY

Heat or Cold With High Humidity Hurt Hearing

HEAT OR COLD, combined with high humidity, reduce a person's ability to hear well, Prof. Lucia C. Morgan, speech specialist at the University of North Carolina, reported to the Alexander Graham Bell Foundation for the Deaf. Speaking at the Foundation's national convention in Rochester, N. Y., she said research she performed with others at Louisiana State University and other work at Michigan State University disclosed hearing is most keen at 50 degrees Fahrenheit, with a relative humidity of 70%.

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