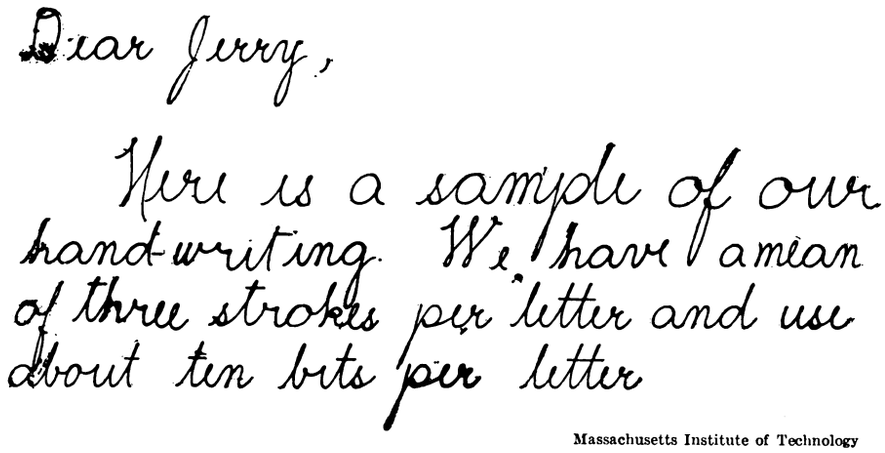

Massachusetts Institute of Technology

LETTER FROM A COMPUTER—Shown is a section of a letter written by the TX-O computer to Dr. Jerome B. Wiesner.

TECHNOLOGY

Computer Teaches Writing

The famous MIT computer TX-O has been taught to write in cursive script, not for letter writing, but to teach handwriting and help study human behavior.

➤ AN ELECTRONIC computer can imitate a person's handwriting but this latest Massachusetts Institute of Technology wonder will not commit forgery but will help teach writing and detect crime.

The machine still lacks its own language in which to write, but it may be helpful in verifying handwritten documents and in learning how people recognize patterns.

Prof. Murray Eden of the MIT department of electrical engineering and Prof. Morris Halle of the department of modern languages collaborated in developing this novel program.

With it, MIT's famous TX-O computer has written a letter demonstrating its skill to Dr. Jerome B. Wiesner, President Kennedy's science advisor.

Cursive writing can be produced from four primitive elements called the bar, hook, arch and loop. By manipulating these elements according to a simple set of rules, any letter in the alphabet can be produced. Sequences of strokes containing these elements are collated and further manipulated according to additional rules in the computer to reproduce a given individual's handwriting.

"The implications of this unique research are both practical and theoretical," Dr. Samuel Jay Keyser said in The Technology Review, February 1963. Such a program could lead to a way of verifying signatures on checks, settling questions about handwriting in court, and establishing the authorship of historical documents. Furthermore, its development has given theoretical support to methods of teaching penmanship, such as the Palmer Method formerly used in many schools, which stress duplication of primitive elements and their various transformations.

"Drs. Eden and Halle," Dr. Keyser emphasizes, "have been able to make the computer replicate to an amazing degree a portion of human behavior. The assumption that there is a strong relationship between what the machine must know to write by hand and what humans must know to write by hand is unavoidable."

The decisions of the machine have not only thrown light on why people are able to recognize handwriting in a set of scratches on paper, but also have focused attention on a theoretical approach. This is expected to have important implications in the study of pattern, the field in which one asks why it is that people are able to see faces in a bank of clouds or hear sentences in a jumble of sounds.

• Science News Letter, 83:87 February 9, 1963

BIOTECHNOLOGY

New Computer Studies How a Person Sees

➤ QUICKER than the batting of an eye, a giant computer can process the eye's electrical impulses sent to the brain where they create images.

A new biological computer at California Institute of Technology controls experiments and analyzes results of the phenomenon of sight in the human nervous system. It cuts research time from weeks to seconds and speeds results.

About the size of an upright piano, it follows how the eye converts light into nerve impulses, how the impulses are transmitted to the brain, how they are formed into an image and how a person becomes aware of the image that is seen.

• Science News Letter, 83:87 February 9, 1963

TECHNOLOGY

Astronaut Decisions by Mathematical Formula

➤ A NEW MATHEMATICAL formula may relieve astronauts of interplanetary transportation headaches, engineers reported in New York.

The formula would be built into a spaceship's automatic "brain," Prof. Rufus Oldenburger and Norval Peter Smith told the Institute of Electrical and Electronic Engineers. The computer would take note of conditions inside and outside the spaceship, calculate what was going to happen next, and adjust conditions of the ship to the new circumstances.

Astronauts would be free from worrying about fuel, oxygen, temperature and other potentially hazardous conditions, because the computer would handle such problems.

Prof. Oldenburger and his associates at the Automatic Control Center of Purdue University developed the formula, with the support of the National Aeronautics and Space Administration. It may shed new light on human decision-making processes in similar circumstances.

• Science News Letter, 83:87 February 9, 1963

GENERAL SCIENCE

UN Conference to Spread Science Knowledge

➤ A MASSIVE EFFORT to spread the world's knowledge about agriculture, industry, health, resources, education, communications and many other fields has brought to Geneva scientists, economists and government officials of 80 countries and 20 specialized world agencies.

Reminiscent of the two gigantic conferences on the peaceful uses of atomic energy held in 1955 and 1957, this United Nations Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas, to give it its full title, has 1,800 communications and more than that number of delegates.

Fortunately the plan was not to read the papers. They were printed so that they could be read in advance and the time used in discussion and questions.

Called the UN Science Conference, for short, economics, politics and national rivalries mingled with the science and technology. The USSR and the U.S.A. are the great rivals in exporting their leadership and "know-how" to the less developed areas of the world. Both nations have thrown aid in the form of experts, money and ideologies into the fight, for the sake of the peoples of the aided nations and for the enhancement of their own prestige.

The General Assembly of the United Nations in 1961 designated the 1960s as the United Nations Development Decade and this UN Science Conference is one of the major ways designed to close the gap in per capita income between the world's wealthier and poorer areas. The goal for the end of the decade is a minimum annual rate of growth of aggregate national income of 5%.

• Science News Letter, 83:87 February 9, 1963