

Cardboard "Computer" Helps Students

News of High School Science Program

"Understanding Computers"- the fifth in a series of Bell System Aids to High School Science programs-will introduce students to "the computer age" via a do-it-yourself, cardboard computer.

CARDIAC (Cardboard Illustrative Aid to Computation), a small, hand-operated, cardboard model computer, is one of the features of the new program-the first in the Bell System series to provide, among other items, student work kits for general class use. Earlier programs focused on solar energy, magnetism, speech synthesis, and crystal growing and, along with demonstration devices and books for use in the classroom, provided a kit for students who had demonstrated

high scientific aptitudes.

Program materials are distributed to high schools by the 23 Bell System operating telephone companies. Several of the operating companies have already begun demonstrating the new computer program to high school teachers.

CARDIAC can be assembled in minutes. It has most of the equivalent parts of larger, digital computers-accumulator, instruction register, memory cells, and input/output system-and a repertoire of ten instructions, enabling it to solve some surprisingly difficult problems.

Designed to illustrate the operations of a computer and serve as an introduction to programming, CARDIAC is accompanied by a 53-page manual which relates the device to faster and

larger computers and leads the student through ten programs, ranging from simple addition to complex computer game playing.

"Understanding Computers" was prepared by Bell Labs' Educational Programs and Exhibits Department with the aid of BTL technical staff and educators throughout the country. CARDIAC was developed by David Hagelbarger, a member of Bell Labs' Information Processing Research Department.

For the high school teacher, the new program features "Understanding Computers," an introductory book by Thomas H. Crowley, formerly Director of the Computing Science Research Center and now Executive Director of the Sentinel Design Division at Bell Labs.

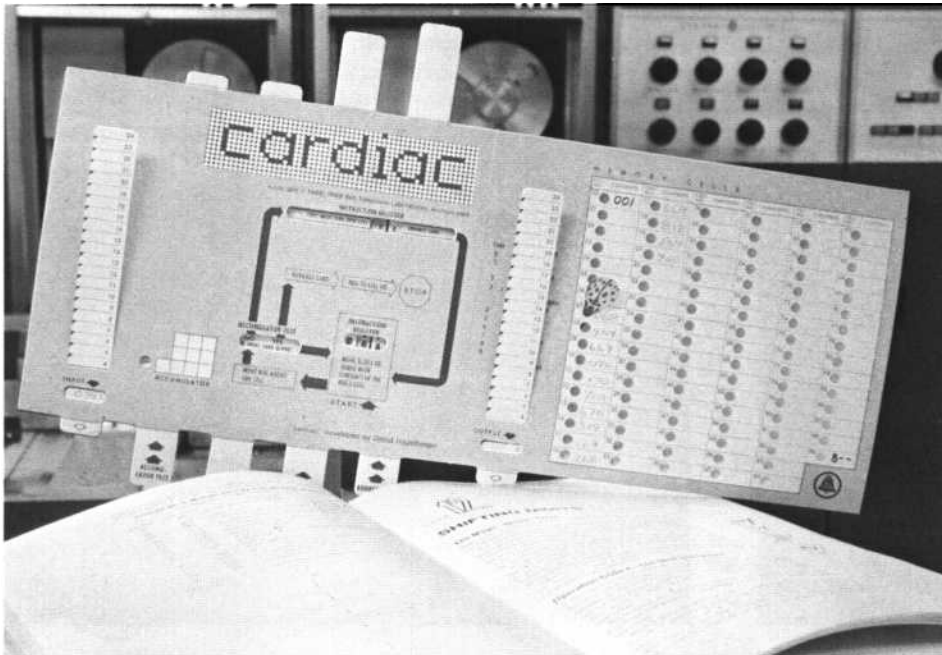
Because of the rapidly increasing influence of computer technology on our daily lives-in business, education, communications, and even art, to mention only a few areas-it is anticipated that the "Understanding Computers" program will be of interest to business and social studies as well as science and mathematics classes.

Other materials included in the computer program are:

- A 15-minute color film "The Thinking? ? ? Machines," designed to create classroom interest and discussion.
- A vu-graph of CARDIAC which provides the teacher with a step-by-step method of working out CARDIAC problems with his class.

Five silent super 8-mm film loops which are correlated with the CARDIAC manual.

High schools may obtain information on availability dates for this free material from their local telephone companies.



Complete with parts found in large digital computers, CARDIAC serves as an introduction to programming by illustrating the operations of a computer. A supplementary manual relates the device to larger and faster computers.