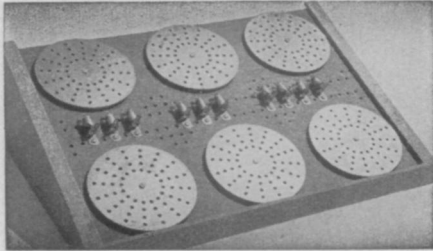


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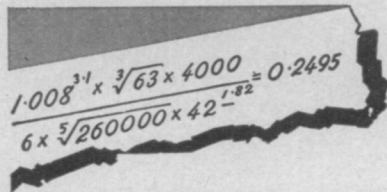


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## ENGINEERING

### "No-Hands" Factory Makes Defense Part

See Front Cover

➤ A "NO-HANDS" factory, automatically milling, drilling and boring vital parts for electronic defense systems, is in operation in Los Angeles, Calif.

The nation's first completely electronically controlled line of machine tools is operated from punched tapes and transistorized digital computers at a Hughes Aircraft Company plant adjoining International Airport.

The photograph on the cover of this week's SCIENCE NEWS LETTER shows some of the special tapes used to produce machine tools electronically. The tool part appears on the tape that guides its production.

The automatic production line is designed to handle the majority of machining jobs in lots of a few hundred or less, with dimensions no greater than eight to 12 inches in any direction. This is in contrast to the specialized mass-production machining of automobile manufacturers.

The "building block" principle is employed in designing both machine tools and control system. Each machine tool is designed to fit in a standard space on an automated assembly line, so that any number and sequence of machines can be used side by side.

The system has a simple dial-correction method to compensate for machine-tool wear.

A very accurate method of measuring the distances the machines must travel to reach the proper spot has been devised. It is based on counting off the proper number of ten-thousandths of an inch on an electromagnetic measuring scale that moves with the machine.

Changes in operations may be introduced or production may be started on new parts merely by changing punched tapes and without stopping the machines.

Because the line is automatic, only one operator is needed. Control tapes can be punched by a typist after only a few hours' instruction. In the prototype system, the human operator needs only to place unmachined castings on the line and remove finished parts. But even this operation can easily be made automatic.

Science News Letter, March 22, 1958

## GENERAL SCIENCE

### Group Forms to Aid World-Wide Economy

➤ PERSONS interested in economic development and technical cooperation throughout the world have come of age professionally with the organization of the Society for International Development, Washington, D. C. Invitations to charter membership are being issued by an interim commission of which Gove Hambidge, formerly of the Food and Agriculture Organization of the United Nations, is executive secretary.

Science News Letter, March 22, 1958