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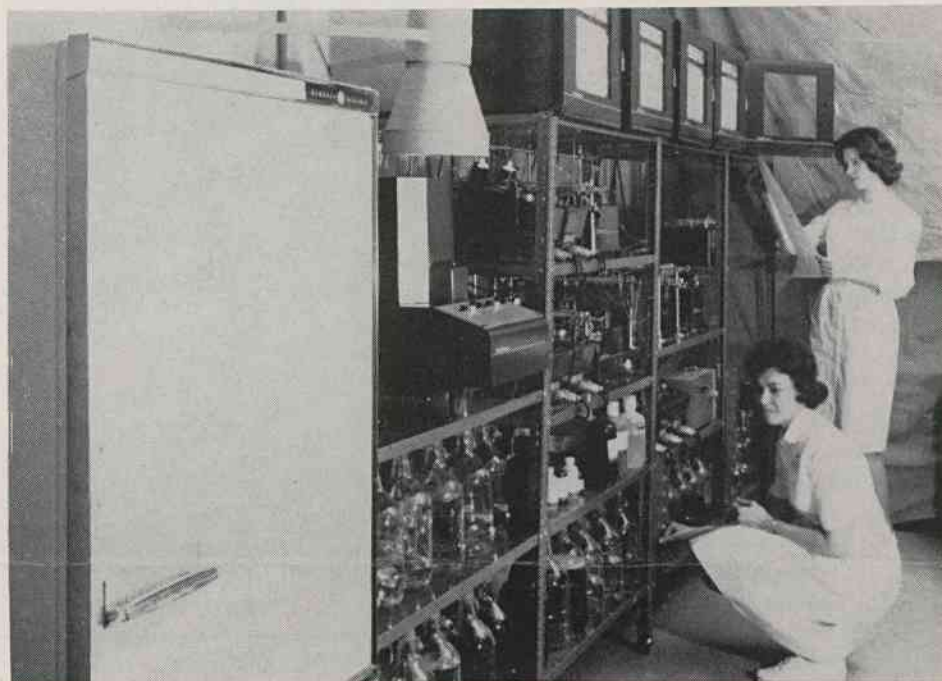
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Automation Comes to Clinical Chemistry

The Duke Medical Center may, in the not too distant future, be able to take a "giant step" in efficiency and accuracy in patient care. The Clinical Chemistry Laboratory is testing an automated device which can produce from a single blood sample ten-part serum analysis (sodium, potassium, chloride, carbon dioxide, calcium, phosphorus, total protein, albumin and albumin blank, uric acid). Two other determinations (sugar and urea) are done on a separate machine. All these determinations can be made from one small tube of blood, so with a minimum of discomfort for the patient and a maximum of speed for the physician a more complete blood chemistry picture is available.

The multichannel analyzer has been employed at Duke during the last year by Dr. Ralph Thiers, director of the Clinical Chemistry Laboratory, assisted by technologists, Jean Bryan, Judith Wearne and Glen Boegli. The first year of the study was supported by a \$35,000 grant from the John A. Hartford Foundation. Support of the project has now been assumed by the Medical Center. With the machine operational, focus of the study will shift to two questions: first, is it medically meaningful, and second, how does one fit so radical a departure into routine hospital operation.

In most hospitals chemical determinations increase from 10 to 30 per cent each year. In 1960 the Duke laboratory performed 100,000 determinations. This year the number will be over 250,000. Twenty years



Jean Bryan and Judith Wearne check the multichannel analyzer in the Clinical Chemistry Laboratory. Miss Wearne is reading one of the twin-pen recordings produced by the machine.

(Photo by R. McKee)

ago, the Duke laboratory was able to perform about 15 different tests. Today, over 50 different tests are performed, often involving more than 1,000 determinations a day. Sheer volume demands an automated approach.

The door to multichannel automation was opened several years ago with the advent of tandem auto analyzers, which can perform two determinations at once, and the later introduction of the electrolyte analyzer, which performs four tests. Duke was one of the pioneers in the use of the latter instrument, and, according to Dr. Thiers, it has proved a valuable medical tool and has made it possible to do the four tests for the price of two.



Miss Bryan places blood samples in rack on analyzer.

(Duke photo by Sparks)