

FURTHER STUDIES OF RENAL FUNCTION IN RENAL,
CARDIORENAL AND CARDIAC DISEASES*

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The objects of this investigation are (1) to ascertain the value of quantitative determinations of the diastatic activity¹ of urine in revealing renal functional capacity in cardiac, cardiorenal and renal cases; (2) to compare in the same group of cases the findings of diastase, urea and phthalein in the urine with those of urea, total incoagulable nitrogen and cryoscopy in the blood, and (3) to compare the relative value and limitations of the tests of retention with those of excretion.

Renal functional capacity is usually ascertained in one of two ways: (1) *Tests of excretory capacity* through the quantitative determination of the secretion of various substances in the urine—dyes, methylene blue, indigocarmine, rosaniline and phthalein; other chemicals, potassium iodide, lactose, salicylates, sodium chloride, urea, sugar following phloridzin and the enzyme, diastase. (2) *Tests of retention* through the determination of the concentration of certain substances in the blood, ions—through electrical conductivity, molecules and ions—through cryoscopy, and urea, total incoagulable nitrogen and cholesterol.

The number of functional tests has increased to such an extent that it is essential to determine which can be discarded without loss. Only through familiarity with the reliability, value, limitations, peculiarities, and the significance of the findings of each test in the various types of disease is the most profitable selection of tests made possible.

THE TESTS EMPLOYED AND THEIR TECHNIC

1. The *phthalein* test² was used according to the usual technic.
2. *Diastase*.³ Diastase has recently been introduced into functional renal work by Wohlgemuth⁴ for determining the relative functional

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1. The expression "diastatic activity of the urine" is used in place of "diastase content" or "quantitative urinary diastase," because at present we have no method for the quantitative estimation of an enzyme, but only methods for the quantitative expression of relative enzymatic activity.

2. Rowntree and Geraghty: *THE ARCHIVES INT. MED.*, 1912, ix, 284.

3. For the results of our diastase studies in unilateral and bilateral surgical diseases of the kidneys, see *Ann. Surg.*, 1913, xxxvii, 801; *Surg., Gynec. and Obst.*, 1914, xviii, 196.

4. Wohlgemuth: *Biol. Ztschr.*, 1909, xxi, 432.