or insulated wire attached to the positive sponge-electrode is connected with the first plate (carbon) or positive pole of the battery. The negative rheophore is connected with the milliampère-meter: this latter is connected with the rheostat, and this in turn is connected with the last plate (zinc) or negative pole of the battery. The circuit is then made up as follows, viz., from the positive pole of the battery through the rheophore and sponge-electrode to the body, and from the body through the negative sponge-electrode and rheophore to the milliampère meter, from the latter to the rheostat, and from the rheostat to the negative pole of the battery. The apparatus need not necessarily be corrected up in this order, however, and it is of no consequence whether the current traverses the rheostat before or after passing through the part of the body to be operated upon. Great care is taken to make all the connections firm, so that there shall be no accidental break in the circuit while the patient is being operated upon.

ADVENTITIOUS AND INTRINSIC ALBUMIN.

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THERE are various causes for the presence of albumin in the urine, some of which are unimportant and lead to no serious results; others are indicative of very grave lesions of the kidneys, while again there may exist very serious diseases of those organs and yet ordinary testing will not reveal the presence of albumin.

Albuminuria is not a certain sign for the diagnosis of renal disease absence of albumin in any given sample does not necessarily prove absence of renal disease. Dr. Fothergill says, "It is not proper to assume that albuminuria indicates Bright's disease. A medical man has no moral right to alarm a person by assuming Bright's disease merely on the discove of albumin in his urine."

Bright's disease, however, may be present and no albumin detected as in interestitial nephritis or in chronic diffuse nephritis with large white kidney where albumin varies from none to abundance.

In order, therefore, that the presence of albumin may have any clinical significance it is necessary that urinal examinations be made thoroughly, scientifically and with an intelligent understanding of what its presence indicates. If albumin be found a microscopical examination is then necessary to discover further evidences of a renal lesion. If no albumin be found and kidney disease suspected from general symptoms, fresh samples of urine should be obtained from time to time and carefully tested.

If albuminuria is not always diagnostic of kidney disease how shall we account for its presence in the urine and how estimate its clinical value? Prof. Porter in his *Treatise on Urinary Analysis* makes the division *adventitious* or false albuminuria and *intrinsic* or true albuminuria, the former having its origin in intestinal indigestion or incomplete hepatic digestion from errors in diet, as the too free use of eggs or abstinence from salt, or it may be from certain forms of indigestion during the severe fevers or a form of cyclic albuminuria all of which possibly denote some change in the blood but do not indicate any renal disease. It is scarcely possible that digestion can always be so perfect and so complete that some of the albuminates either in the form of derived albumins or of peptones may not enter the blood and appear in the urine.

Such, no doubt, is not an infrequent occurrence and the presence of small traces of albumin in the urine persisting for some time without serious consequences and disappearing on a regulated dietetic treatment must mean something far less serious than any one of the diseases of the kidneys commonly included under the term Bright.

In the intrinsic variety the albumin found in the urine is chiefly serum-albumin and as this is not as a rule excreted by healthy kidneys we must regard its presence an evidence of some structural change either in the parenchyma or interstitial tissue, or in both, or some obstruction to the renal circulation together with a change in the blood itself. The causes which produce these changes in the kidneys, in the blood, and in the circulation are very numerous and vary according as they belong to the different forms of Bright's disease in almost all of which albumin appears as a symptom.

The two chief features in connection with this subject of albumin in the urine are:

Firstly.—How to detect its presence.

Secondly.—To estimate its clinical significance.

Tests for Albumin.—There are a great many methods for detecting albumin in the urine. Some are very delicate, a number of them more or less