

ESTIMATION OF URIC ACID BY HAYCRAFT'S PROCESS.

MR. ALFRED M. GOSSAGE, B.A., OXON., M.R.C.S., L.R.C.P., writes: With your permission I should like to reply to Dr. Haig's letter, On the Estimation of Uric Acid, published in the *BRITISH MEDICAL JOURNAL* of January 17th. He begins by criticising Salkowski's method, pointing out sources of error and denying its infallibility. I admit that the method is not as perfect as methods of chemical analysis should be. It has, however, been carefully worked out, and the amount of error determined, both in manipulation and in crystallisation. The error of crystallisation depends only on the amount of the mother liquor and of the wash water, and can be accurately compensated for, the solubility of uric acid being known. The error of manipulation ought, in fairly skilful hands, to be less, to give a very wide margin, than 2 per cent. Hence all chemists, who have inquired into this subject, except Dr. Haig, allow that it is justifiable to employ this method in scientific investigation.

Salkowski¹ says that he devised a volumetric method for the determination of uric acid by precipitating the uric acid with excess of silver nitrate, and determining the excess of silver in the filtrate; he, however, gave up this method on finding that the precipitate produced by adding silver nitrate to urine contained varying proportions of silver, magnesium, and uric acid with different urines.

Haycraft then devised his method, which only differed from this discarded method of Salkowski's in that he determined the silver in the precipitate instead of in the filtrate.

Czech² proposed as a modification of Haycraft's method, that the silver in the filtrate should be determined, thus saving the time spent in washing, etc. He found that his method gave excellent results, just as Haycraft's does, when used with solutions of pure sodium urate, to which certain quantities of magnesium sulphate, etc., had been added; but that with urine, the method, as compared with Ludwig's, showed errors varying between 5 and 20 per cent.

Thus, against Haycraft's method, there are the results obtained by Salkowski, before and after the publication of Haycraft's paper, by Czech and by myself; while for it there are only the results of Hermann, who compared Haycraft's method with Ludwig's (a slight modification of Salkowski's). The fact that Dr. Haig has obtained results by Haycraft's method during the last five years, "which agree *inter se*," is quite worthless as a test of the accuracy of that method, just as Haycraft's own results with solution of sodium urate are useless, when the method is applied to the determination of uric acid in urine.

I consider, then, that until further evidence of its accuracy is forthcoming, a method which has shown errors in its results, sometimes of at least 25 per cent., and in which these errors are not constant, is quite useless for any scientific purpose, clinical or otherwise, however short and simple it may be. I am sure, too, that no scientific man will accept deductions drawn from results obtained by such a method without a sufficient mass of evidence collected by other methods or from other sources, although such deductions may eventually be proved to be correct.

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¹ *Pfiffer's Archiv*, vol. 5, 1872, p. 210.

² *Hoppe-Seyler's Zeitschrift*, 1888.