

April 26, 1945

Mr. Manfred Bowditch, Director,
The Commonwealth of Massachusetts,
Department of Labor and Industries,
23 Joy Street,
Boston 14, Mass.

Dear Manfred:

I am very glad to have had a chance to go over the paper which you sent me. I find very little in it to criticize, but I have indicated a few minor editorial suggestions which may or may not be of interest to you or your associates.

I think the paper is a very good one, and that it has made a significant contribution. I think Levine and Fahy are to be complimented on having recognized this issue and on having studied it with sufficient care to demonstrate its significance and its practical application. They are quite right in pointing out as they have, in submitting the paper to you that this should have been done sooner on the basis of certain facts which were rather apparent. I think also they are very right in pointing out that various persons including myself have referred to the usefulness of knowing the specific gravity but have not used this measurement with the precision that was justified. In extenuation of our failure to do so, and more especially to point out one or two practical considerations I should like to comment on this procedure.

1. One of our most persistent efforts has been to simplify the procedures for collecting, handling and analyzing samples of urine so as to avoid any and every step that might add its quota of contamination to the sample. Contaminations are so common in the hands of many experimental workers in this field that we have been loath to add any suggested procedure which might result in additional opportunities for contamination. When one has only a spot sample of 100 ml or thereabouts it is necessary to determine the specific gravity on the very sample that is to be analyzed. Now it is quite clear that this can be done without contamination, but it is also quite clear that many workers will not appreciate the care that will be required to prevent such contamination. Indeed the elimination of this step in our own Laboratory in dealing with spot samples has been considered advisable in most of our work. Therefore, we have never made routine observations on the specific gravity, but have limited this to a comparatively few samples on which we wanted this information for specific reasons.

2. The second point is that we have worked out the variability of spot samples in relation to 24-hour samples, under a variety of conditions of exposure and have been quite content to make such

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interpretations as the actual statistical indications would permit. This in general is quite adequate for clinical purposes.

3. The last sentence of the above paragraph is particularly true when one obtains analytical results on blood samples obtained at the same time urine samples are collected. We like the latter procedure above all other corrective measures, and we carry it out routinely in diagnostic work involving spot samples for two reasons; (a) that it gives us a check on any possible renal excretory inadequacy, and (b) that it also gives us a rather good check on the occurrence or non-occurrence of contamination in the urinary sample. As a matter of fact I believe that in medico-legal work as distinguished from control work which naturally involves repetition, it is necessary either to have repeated observations on the urine or to have at least one determination on the blood. This double procedure eliminates the question that may arise concerning the excretory efficiency of the kidney.

It is quite apparent that I make the above comments in no critical relationship to the manuscript you sent me. I merely wish to make the issue as clear as I can and to suggest that it is not well to encourage analysts to be too dogmatic in their conclusions concerning the significance of an analytical result. Obviously, in the broad physiologic sense, the more manipulations that are necessary in dealing with original data, the less likely we are to fall into the error of more or less arbitrary decisions which do not take into account all the physiologic factors.

Again I compliment this paper and the thought behind it, and I hope it will be published at a very early date. When it is published I would like two or three reprints of it for my own use.

With kindest personal regards,

Sincerely yours,

Robert A. Kehoe, M. D.

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