ing, it immediately becomes more transparent after irradiation. (4) Thin films of crude coal tar show this increase in transmissibility after irradiation to a more marked degree than does the ether solution of crude coal tar. (5) These changes in transmissibility, detected by changes in the absorption spectra, are regarded as evidences of chemical changes activated by the quartz mercury vapor lamp.

4125

Some Observations on the Urea Concentration Test.

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Some observations on the phenolsulphonephthalein excretion and urea concentration of the urine in 49 students are here briefly reported. The urea concentration test was carried out entirely as described by MacLean and de Wesselow.[1] The phenolsulphonephthalein tests were carried out in the usual manner, the dye being injected intravenously in all cases and colors matched without the aid of a colorimeter. All the students examined were normal, healthy adults between the ages of 20 and 30. Urinalysis was negative in all cases.

The maximum urea concentration of the urine varied from 2.4% to 4.1%. In 45 of 49 students the concentration varied from 2.5% to 4.0%. The average was 3.22%. Phenolsulphonephthalein excretion varied from 43% to 82.5% with an average of 66.3%.

When the results of the 2 tests in each case are compared a great variation is noted. Curves of phenolsulphonephthalein excretion and the corresponding maximum urea concentration (with the individual determinations arranged in the order of the phenolsulphonephthalein excretion), do not coincide, as they should if they were both quantitative indicators of the excreting power of the kidneys.

In comparing the results of these 2 tests, it must, of course, be remembered that whereas in the dye test the total amount of that dye excreted in 2 hours is measured, in the second test the concentration of urea in a *varying amount* of urine is determined. This fact is recognized in MacLean's instructions that specimens of 120 cc. or over should be discarded as the dilution of the urea is in such

[1] MacLean, H., and de Wesselow, O. L. V., *Brit. J. Exp. Path.*, 1920, i, 58.

cases too great to be reliable. Curves of volume of urine, plotted in relation to the corresponding urea concentration, indicate that the amount of urine, even when only quantities less than 120 cc. are considered, influences the reading more than has heretofore been recognized. Urea concentration rises and falls very definitely with the volume of urine in which the urea is dissolved. This obviously affects the value of the urea concentration test as a quantitative indicator of renal function.

Again since one test is concerned with the excretion of a dye totally foreign to the body, while the other is concerned with the end product of protein metabolism normally found in the body, another factor which may influence the urea concentration reading is the amount of urea normally being excreted by the individual at the time of the test. Some idea of this can be gained by determining the concentration of urea in the urine just before the test. This was done in 38 students. Concentration varied from 0.6% to 3.4%, with an average of 1.49%. There appeared to be some relation between concentration of urea prior to the test and urea concentration 2 hours following the taking of 15 gm. of urea by mouth.

Whether by some mathematical computation the above causes of variation in the urea concentration can be allowed for and the test thus made a more quantitative measure of renal function, remains to be seen.

In one respect the tests have been quite consistent. In practically all cases the urea concentration was 2.5% or more. Likewise, phenolsulphonephthalein excretion was 40% or over in every case, and in 46 of 49 cases was above 50% at the end of 2 hours. Both tests were consistent, therefore, in indicating a healthy state of the kidneys.

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An Example of Bacterial Synergism on Endo Medium.

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Bacterial Synergism has usually been studied in fluid medium. I wish to report here an example of the association of *B. welchii* and *B. faecalis alkaligenes* on an Endo plate with a resulting change of the type of colony formed by the latter. A swab taken from the drainage wound of an acutely infected shoulder, was planted in