creas itself. Two animals with a distinct fall in the blood sugar after operation gave no evidence of lymphadenitis. The mean rise for ten observations was from 125 to 140 mg. per 100 cc. blood for the first 12 days, or, from 125 to 165 mg. for the first month after the introduction of infectious material in the gall-bladder. Experiment No. 19 with an abscess of the head of the pancreas was narcotized on the 32nd day, during a rise in sugar, to determine the possible effects of anesthesia upon the blood sugar. It was observed in this instance that the percentage fell from 170 to 135 mg. in the succeeding three days. It is felt that the rise in the blood sugar in these experimental animals has been due not to anesthesia, not to diet, not to confinement of the laboratory animals, but to morphological changes in the pancreas consequent upon infection lymphatic-borne from the gallbladder and liver.

The frequent association of diabetes or hyperglycaemia with cholecystitis, lymphadenitis and pancreatic thickening in the human patient, as met with in the surgical ward of Bellevue Hospital, has led to the suspicion that the diabetic state may be in part at least of infectious origin. The above experiments were undertaken to determine whether infection arising in the gall-bladder and spread by the lymphatics gives rise to hyperglycaemia.

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Differentiation of B. aerogenes and B. coli of non-fecal origin from B. coli of fecal origin.

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Koser [1, 2, 3] has demonstrated with the "colon bacilli" that *B. aerogenes* and *B. coli* isolated from soils utilize citrates as a a source of carbon and that *B. coli* of fecal origin does not use it.

[1] Koser, S. A., *Abs. Bacteriol.*, 1924, viii, 6.

[2] Koser, Stewart A., *J. Bacteriol.*, 1923, viii, 493.

[3] Koser, Stewart A., *J. Bacteriol.*, 1924, ix, 59.

One of us was interested in isolating iron precipitating bacteria. Harder's[4] medium which consisted of K_2HPO_4 0.5 gm., $MgSO_4$ 0.5 gm., $(NH_4)_2SO_4$, 0.5 gm., $CaCl_2$, 0.2 gm., $NaNO_3$, 0.5 gm., Ferric Ammonium citrate 10 gm., H_2O, 1000 gm., Agar 18 gm., was used. The medium is pale yellow in color; when the iron precipitating bacteria grow on this they produce a vivid heavy iron rust streak. It is possible that these bacteria use the citrate and mechanically precipitate the red iron compound. It was thought of interest to try the "colon bacilli" on this medium and compare it with Koser's medium, which consists of NaCl, 5 gm., $MgSo_4$, 0.2 gm., (NH_4) H_2PO_4, 1 gm., K_2HPO_4, 1 gm., and sodium citrate 2 gm., in 1000 gm. H_2O.

Ninety-one strains of the "colon bacilli" were isolated from sewage, (and in addition a *B. coli* of fecal origin, a *B. coli* of non-fecal origin and a *B. aerogenes* kindly supplied by Dr. Koser) were used. These were streaked on the Harder medium and inoculated into Koser's medium. The Voges-Proskauer test was also carried out. The incubation was 2 to 5 days at 37½° C. The following results were obtained:

45 (*B. coli,* Voges-Proskauer negative) did not darken the Harder medium nor produce turbidity in the Koser medium.

47 (*B. aerogenes,* Voges-Proskauer positive) darkened the Harder medium and produced turbidity in the Koser medium.

2 (*B. coli,* Voges-Proskauer negative, Intermediate) darkened the Harder medium and produced turbidity in the Koser medium.

The *B. aerogenes* and the *B. coli* of non-fecal origin produced a vivid red iron rust growth on the Harder medium. This was very pronounced and easier to read than turbidity in the liquid medium.

The Harder liquid medium (without the agar) was next tried. *B. aerogenes* and *B. coli* of non-fecal origin produced a dark brown flocculent precipitate. This was, however, delayed for several days. The reaction was not as fast or as intense as on the Harder solid medium.

In addition to this work the sodium citrate was replaced in Koser's medium by the ferric ammonium citrate and agar added. This new medium was compared with Koser's liquid medium. Thirty-one cultures were tested with the following results:

[4] Harder, Edmund Cecil, United States Geological Survey, 1919, Professional Paper, 113.

15 (*B. coli*) did not grow on the solid medium nor did they produce any turbidity in the liquid medium.

15 (*B. acrogenes*) darkened the solid medium and produced a turbidity in the liquid medium.

2 (*B. coli* intermediate) darkened the solid medium and produced a turbidity in the liquid medium.

Comparing the Koser solid medium in which ferric ammonium citrate was substituted for the sodium citrate with the Harder solid medium, it was evident that on the latter the growth and intensity of the red color was much better.

The Harder solid medium offers an easy and brilliant method for the differentiation of *B. acrogenes* and *B. coli* of non-fecal origin from *B. coli* of fecal origin.

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The specific fraction of alcohol soluble specific substance of the tubercle bacillus.

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In a previous paper[1] it was shown that the specific substance of the tubercle bacillus, soluble in lipoid solvents, can be prepared from ether, ethyl and methyl alcohol extracts in a similar grade of purity; the potency and the chemical composition of the preparation is very similar. With the further purification of the product as described in the paper mentioned, and with the separation of it into different fractions by precipitation from warm methyl alcohol, from acetic acid and from chloroform solution, etc., we never obtained markedly more potent preparations. The bulk of the purified substance, which is supposed to contain a large percentage of the specific substance, is composed of fatty acids. Besides these, it contains quite a large amount of P. (2.6 per cent), home reducing sugar (in one case only 4 per cent), and it contains only traces of N. (0.3 per cent).

[1] Dienes, L., and Schoenheit, E. W., *J. Immunol.*, 1925, x, 631.