ily improved and was discharged from hospital August 19; temperature normal, pulse 80.

CASE 5.—*Pernicious Nausea in Typhoid*.—Mrs. R., admitted to hospital July 28, with temperature of 103.2, pulse 100, respiration 32, severe headache, constipation, slight nausea, continued in about this condition until August 14, with temperature 101.4, pulse 88, respiration 30; vomiting became pernicious, occurring after each meal, accompanied with severe headache and severe nausea. Temperature during illness fluctuated from normal to 102. August 22, she complained of pain in lower part of abdomen, intermittent in character. August 24, there was hemorrhage from bowels, large clots. Blood examination, August 24, showed 11,000 white cells; Vidal, faint positive reaction; polynuclear cells 78 per cent. Urinary examination specific gravity 1026, acidity 60 degrees, trace of albumin, no sugar; indican 0.04 per cent., diazo reaction present, trace of diacetic acid and large amount of acetone, hyaline, granular and epithelial casts, trace of pus-cells and many kidney-cells. Lower part of abdomen was tender on palpation; temperature 100.4, pulse 108. September 2, temperature was 99, pulse 86, but patient vomited several times a day. Urine showed specific gravity 1010, trace of albumin, heavy acetone and strong diacetic acid reaction, few hyaline casts and 0.75 per cent. pus (by volume). Dram doses of bicarbonate of soda were now administered three times a day, under which vomiting occurred four more times and then stopped entirely, after having continued for five weeks. September 6, urine showed no acetone, but trace of albumin and 0.33 per cent. of pus. September 14, the patient was removed to her home, with still some pain in lower part of her abdomen. One month later she was again taken to the hospital and a small abscess was opened in a scar of the abdominal wall, which accounted for the abdominal pain and increase of polynuclear leukocytes.

CASE 6.—Miss S., aged 21, single, domestic, constipated, with a temperature of 102.2, pulse 120, complained of frequent urination, spasmodic pain in right lower abdomen, nausea, vomiting and extreme nervousness. She had had previous attacks of this nature; no other illness. Physical examination showed well-defined mass in right inguinal region most marked when pain was present. Blood showed polynuclears 85 per cent. Urine on the day she entered the hospital showed 3 per cent. albumin, a few waxy and hyaline casts, and 0.5 per cent. by volume of pus. Strong acetone reaction, no diacetic acid. On the third day acetone disappeared coincident with marked improvement under treatment of sodium bicarbonate, 60 grains three times a day, hexamethylenamin (urotropin) $8\frac{1}{2}$ grains three times a day, and autogenous colon vaccine 250 million. Improvement was shown on the third day and she left the hospital in one week.

CASE 7.—Woman, four months pregnant, suddenly fell over in coma and died in twelve hours. Pulse was 130 to 150; temperature normal and respiration 40 to 50. Frothy mucus ran from mouth and diagnosis of pulmonary edema was made. Bladder urine catheterized just before death showed specific gravity 1035, acidity 130 degrees, no albumin or sugar, no pus, heavy acetone reaction and faint trace of diacetic acid.

CASE 8.—W. C., aged 26, following ingestion of lobster salad had attack of vomiting and diarrhea lasting two days, followed by slight jaundice, fever and pernicious nausea. Urine examination showed specific gravity 1032, acidity 125 degrees, albumin 3.5 per cent. by volume, strong bile and acetone reactions, no diacetic acid. Sediment showed trace of hyaline casts. Blood showed 21,000 leukocytes, differential count normal, Vidal negative. Stupor gradually developed and granular casts appeared in the urine. Examination of vomitus showed a sediment amounting to one-third the total bulk and consisting of changed blood-cells, no hydrochloric acid, but organic acids amounting to 105 degrees tenth-normal sodium hydroxid present. Lactic and butyric acids negative, acetone reaction strong. Diagnosis by consulting physicians: "Toxemia resembling acute yellow atrophy of liver." Patient died on the sixth day of illness. Post-mortem was not obtained.

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THE VACUUM-BOTTLE AS AN INCUBATOR

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Recently J. H. Schrup¹ of Dubuque, Ia., described the use of the vacuum-bottle as a means of incubating bacterial cultures. As I have had some experience with the method I think that it may not be amiss, while interest in the subject is still fresh, to communicate a brief summary of the observations which I have made.

The vacuum-bottle occurred to me as a convenient expedient in a case of some urgency seen last June in the country where no laboratory method of incubation was available. I had never heard of a vacuum-bottle being used for this purpose before, and, after several satisfactory trials, it seemed so valuable a resource that I undertook some experiments to test its reliability under varying conditions. One series of experiments was made in June, 1911, during very hot weather, and I had intended, for comparison, to make a second series of tests during this winter.

In a preliminary series of tests with five vacuum-bottles, comprising three pints and one quart with cork stoppers, and one quart carafe with ground-glass stopper, there was an average drop of 4 C. in twelve hours and 5.5 C. in eighteen hours, which corresponds very closely with Schrup's observation.

I also found that plain water retained its heat better than any other liquid medium which I employed, and that the introduction of from one to three tubes in a single bottle made no appreciable difference in loss of heat, provided the precaution was taken of warming the tubes just before introduction.

From 40 to 41 C. (from 104 to 106 F.) seemed to be the best starting point to give an optimum growth from throat cultures in the minimum time.

For practical tests I made triplicate streak-cultures from the throats of diphtheria patients in the Willard Parker Hospital, using the regular slant tubes of Loeffler's blood-serum furnished by the New York Health Department, and placed one of each set in a quart vacuum-bottle, another in a pint bottle and the third, as control, in a laboratory incubator in the Research Laboratory of the New York Health Department. Each set of tubes was placed to incubate at the same time, and always within a half hour after the time of taking the cultures from the throat. The culture tubes were removed from the bottles at varying periods of time (from eleven to eighteen hours), and with their controls examined as to macroscopic and microscopic appearance of the growth.

In each experiment the following points were noted: (1) site and character of the exudate; (2) time of taking the culture; (3) time of beginning incubation period; (4) temperature of water in the bottles and of the incubator at the start and finish of incubation; (5) time of ending the incubation period; (6) temperature of outside air at beginning and end of the incubation period; (7) macroscopic appearance of the growth; and (8) microscopic appearance of the stained specimen.

The results of these experiments were very nearly uniform. The growth in the vacuum-bottle tubes was, in general, more abundant macroscopically and showed greater moisture; and in some of the positive cultures it was noted on microscopic examination that the Klebs-Loeffler bacilli appeared larger and slightly more numerous than in the control.

These differences were explained by the facts that the control tubes were at a constant temperature in the laboratory incubator at about 34.5 C., while the mean temperature of the bottle tubes was about 37 C., and that the bottle tubes were tightly capped with rubber, whereas the controls had, in most cases, paraffined cotton stoppers but no rubber caps.

For examining cultures and making notes on the findings, I am indebted to Miss H. L. Wilcox, of the research laboratory, without whose valuable aid I could not have made these experiments with the necessary precision.

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1. Schrup, J. H.: THE JOURNAL A. M. A., Jan. 27, 1912, p. 273.