On February 7th large sloughs appeared on both buttocks in spite of the use of an air bed, etc.; later diarrhoea set in, and the patient succumbed on February 10th, just a month after admission. The treatment maintained throughout was in the direction of local disinfection and supporting the patient's strength, amputation being out of the question.

The case presented many interesting features. The duration of the mental disorder was said to be fourteen days. In any case it was early, so early as to make so gross a trophic change unusual. The gangrene was spontaneous, secondary, infective, the toes being dry and the rest of the foot moist. The exact cause was obscure. Double embolism was possible but not probable, and was practically inadmissible with regard to the sloughs on the buttocks. There was no traumatism, no sore or injury. The question of diabetes arose, but there was neither polyuria nor sugar in the urine. The question of some general change like scurvy, purpura hæmorrhagica, etc., also arose, but succeeding events lent no support to such a view, and the only conclusion one can come to is that the occurrence was due to an obscure neurotrophic change depending upon some morbid change in the central or peripheral nervous system.

A SIMPLE METHOD FOR DEMONSTRATING THE PRODUCTION OF GAS BY BACTERIA.

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(From the Pathological Laboratory of Cambridge University).

The following simple modification of the fermentation tube, which has proved very useful in my hands, appears to be unknown generally. Small test tubes are placed in an inverted position within the ordinary test tubes used for cultivations; it is necessary that they should be freely movable when placed inside. The larger tube is then plugged in the usual manner with cotton wool and sterilised.

The capacity of the small tubes should be measured so that in filling the tubes an allowance of about 50 per cent. in excess of that amount may be made. The tubes are filled in the ordinary manner by means of a burette or other measuring apparatus (a glass three-way cock connected on the one hand with a reservoir, and on the other with a graduated tube, is the form I generally use for all media). They are then sterilised in the steam steriliser on three successive days. In most cases the smaller tubes become completely filled after the first sterilisation; sometimes a tiny bubble remains, but this always becomes disposed of in the second or third steaming; indeed, it is not usual for a bubble to persist after the second. It need hardly be mentioned that the tubes must not be tilted too much when they are inoculated.

The inner tubes can also be filled by boiling the medium *in vacuo* at a low temperature; this was the means of filling which I tried at first; but when the media will not become deteriorated at 100° C., it is much simpler to subject them to the steaming process at the atmospheric pressure.

In testing the power of gas production of any given bacillus in the presence of a given sugar or other fermentable substance, care should be taken that the medium contains no other substances which are capable of producing gas. Theobald Smith has pointed out the importance of using meat broth free from "muscle sugar."

In my own work I never use any meat broth unless the object is to see whether gas is formed from muscle sugar; moreover, care is taken that the media are not exposed to the temperature of 100° C., except when in the neutral condition. A 1 per cent. solution of Witte's peptone (without the addition of salts) in distilled water forms the basis of my gas-testing media. This is carefully brought to the litmus-neutral point by means of a weak solution of citric acid; the substance to be tested (sugar, starch, mannite, etc.) is then added in any desired proportion (1 per cent. is quite sufficient

for most purposes); when this is dissolved the reaction is again tested, and corrected if necessary; the solution is then filtered and placed in the prepared tubes. Some substances, such as mannite, are apt to lead to some precipitation or cloudiness when they have been steamed, so that if a clear medium is desired it must be heated in the water bath, and refiltered or allowed to sediment before it is distributed in the tubes; white of egg is not admissible for clearing purposes.

It should always be remembered that grave alterations may occur in sugars, if they are heated in the presence of acids (mineral) and alkalies. It appears to me that it is an advantage to use media tinted with neutral litmus solution, so that the reducing action of the bacterium on this coloring agent as well as any change of reaction may be observed simultaneously with its gas-producing power.

The use of stab or shake cultivations in gelatinising media, which is one of the modes in common use, necessitates preliminary experiments to ascertain that the gelatine or agar is not a source of possible fallacy; for this purpose combinations have to be tried. Some agar-agar was tested in a strength of 1 per cent.: (1) alone, (2) with peptone, (3) with glucose, by means of two or three of varieties of the *B. coli* group; although growth occurred in the two latter there was no evolution of gas bubbles. The addition of a few drops of glucose solution to the peptone agar, and of peptone to the glucose agar, determined the formation of gas. Gelatine is notoriously variable in its constitution; I have not subjected any samples to this form of test.

The other common mode of determining gas production is by the use of "fermentation tubes"; the form of apparatus described above is, in fact, a modification of the U-shaped "fermentation tube"; but both in filling and in cleansing the use of two separate tubes presents advantages not possessed by the U-shaped tube. Moreover, no special form of rack or support is required. The inoculation of liquid media is less laborious than the process of preparing shake-cultivations.

May, 1898.

A CASE OF PNEUMONIA.

BY

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M.B., M.D.,
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On February 19th, 1898, B. F., aged 9 years, was found to have well-marked pneumonia on the right side, and some pleurisy near the base in the axillary line. She had a good deal of pain. The temperature was 104° F. and the respiration 40. This pneumonia cleared up under treatment, the temperature falling by lysis, and becoming normal on February 23rd. The physical signs in the lung were clearing well, some pleurisy persisting, and on February 25th and 26th she was so well and bright that she wished to be carried downstairs to the sitting room.

On the morning of February 27th she had again a temperature of 104° F., and intense dyspnoea. There was absolute dullness all over the right lung below the level of the fourth rib behind, with complete absence of local fremitus, resonance, and breath sounds. On February 28th and 29th the temperature varied between 101° F. and 104.5° F., with occasional rigors and perspirations. The diagnosis of empyema was made, and she was admitted into the cottage hospital on the morning of March 1st. The temperature on admission was 103.6° F., pulse 140, and respirations 43. She lay on her back, and turned always towards the left side. There was still complete dullness below the level of the fifth rib, with some ægophony posteriorly. Above the fourth rib the lung was hyper-resonant.

On March 2nd she was seen by Dr. Hurd-Wood, when the physical signs were found to be the same, and he advised exploration for pus, which was done on March 3rd with an aspirator, but with no result. On March 4th the morning temperature was 104.2° F., respirations 30, pulse 136; the evening temperature 99° F., pulse 110, respirations 25. Her condition remained almost unchanged till March 8th, when she was put under chloroform, and the pleural cavity

thoroughly explored by puncturing in three places with an aspirator, but again with negative results.

On March 9th the temperature was: 10 A.M., 103° F.; 2 P.M., 99° F.; 9 P.M., 102° F. She had several perspirations, the tongue, furred at the back, was raw and cracked. She was slightly delirious during the night, and appeared hopelessly ill. On March 10th the lung condition remained the same. There was marked ægophony below the sixth rib posteriorly, with absolute dullness on percussion. We came to the conclusion that any further operative interference would be useless, and that we could only keep up her strength and wait. Dr. Hurd-Wood advised a mixture containing: R Potassium iodide gr. j; ammonium carbonate gr. ʒ; liquid extract of cinchona m x every two hours. On March 11th the temperature had fallen to 99° F., and remained so all day. Pulse 104, respirations 25. The dullness seemed somewhat less marked, so that down to the sixth rib breath sounds and vocal resonance could be slightly heard; below this there was absence of breath sounds, with ægophony as before. Her temperature never rose again, except for two-tenths or three-tenths of a degree after this date, the respirations and pulse beats falling to normal. She was then sent home. Now (March 26th) the little patient is very well and running about. The dullness is nearly gone, but has left an obscurity in the breath and vocal sounds. There is a diminution of fremitus on the affected side, and a good deal of rough friction. In the hospital her diet consisted of large quantities of champagne and milk, with bovril and fruit.

NOTE BY DR. HURD-WOOD.

The chief points of interest in the above case are: The absolute dullness of the right lung below the fifth rib, with complete absence of vocal fremitus and resonance; the absence of fluid following any of the four aspirations; the almost typical pyæmic temperature and perspirations without any empyema; the severity of the general condition almost rendering a fatal prognosis necessary. The relief given by the punctures in themselves seems an additional proof of the value of the treatment advocated by Mr. Treves in a recent paper, in which he points out the value of exploratory incisions. The relief following also so rapidly on the administration of the potassium iodide was very interesting. There was no retraction of the right side. The measurement was actually one inch more than the other unaffected one. At the present time, as above stated, the little girl is almost completely restored to health.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL, THERAPEUTICAL, PATHOLOGICAL, Etc.

THE TREATMENT OF ADDISON'S DISEASE WITH SUPRARENAL GLAND SUBSTANCE.

In April, 1897, a gentleman, aged 49, consulted me with the following symptoms:

For three months he had constantly fainted, often in bed, and for seventeen days running he had fainted in bed in the early morning between the hours of 2 and 4 A.M.; he also fainted in the daytime. He complained of pains in his legs, and also of their feeling heavy, and of his inability to walk. He was very depressed, crying at times, and declaring he would drown himself. He complained also of pains in the back and of nausea; his pulse was very feeble, about 60, and the pulse waves ran in pairs, the so-called pulsus bigeminus (Traube). I observed pigmentation and leucoderma on the back of the hands and forearms, and also in a marked degree on the scrotum. I ordered him to rest, and prescribed tabloids of suprarenal gland substance, gr. v (B. W. and Co.), beginning with two a day and telling him to increase the number as long as he found no ill-effect from them.

His report of May 26th, 1897, was that he had been worse, and that if he walked about he went faint, and he also still fainted in bed. His report of June 21st, 1897, was that he felt better; his pulse was 72 and normal in rhythm. He had taken 20 of the suprarenal gland tabloids daily. The patient continued taking the tabloids about 20 or 35 a day, and he

found at times that they caused pain in the back, which was relieved by diminishing the number taken. He also complained of their making his tongue sore, but he was getting gradually better and stronger. On January 4th, 1898, he drew my attention to a growth of hair across his back, opposite the first lumbar vertebra. At this date he had not fainted for six months, and he had continued to improve in health. At the present date (May, 1898) he is perfectly well; the pigmentation and bleaching of the skin are almost gone, the pulse is normal, and he can do a heavy day's work, and tells me that he very often pulls the garden roller about for an hour or two at a time for exercise. The urine has been perfectly normal throughout.

Birmingham.

C. W. SUCKLING, M.D.

A CASE OF ACUTE YELLOW ATROPHY.

[Communicated by the DIRECTOR-GENERAL, of the Medical Department, Royal Navy.]

Mrs. B., aged 32, but looking at least ten years older, first complained on January 21st, 1898, of feeling unwell. The family history was good, and she herself had enjoyed good health until seven years ago, when, after the birth of her first child, she suffered more or less complete proclivita, for which she has worn a stem pessary. There are two children. She was apparently suffering from an attack of ordinary catarrhal jaundice, characterised by yellowness of skin and conjunctivæ, light coloured stools, bile in urine, constipation, and anorexia, with normal temperature. The usual remedies were adopted. During the next week the jaundice deepened, and there was much difficulty in getting a satisfactory action of the bowels.

She had been doing well for a week, and the colour was disappearing to some extent, when on February 11th she had a relapse. Obstinate vomiting came on, and the skin again became deeply jaundiced. Urine not very high coloured. The temperature was normal or subnormal. Liver dullness was normal. The edge could be felt below the costal margin. The pulse was 70 to 80, and of good strength. The bowels obstinately confined.

Surgeon Mornement, who had been attending the patient from the commencement of her illness, was not satisfied with her condition, and a consultation was held. Brandy, ice, and milk were ordered, with bismuth and calomel at intervals. The following notes were made by Surgeon Mornement during the next few days:

February 15th. Patient's condition worse. Vomiting returned and she was unable to retain any food; pulse 100, temperature normal; jaundice increased. Diet: milk only. Treatment: ice to suck; iced champagne 3 every ten minutes. By 6 P.M. the vomiting had ceased and patient's general condition improved.

February 16th. Passed a restless night, and at times lapsed into a state of muttering delirium. No vomiting; temperature normal, pulse 120; liver dullness present but less defined; 6 P.M. Condition unaltered; constant muttering delirium; has not slept during the day. Sulphonal gr. xx given.

February 17th. Slept two hours after the sulphonal, but is decidedly worse this morning. Pulse 140, temperature normal; tongue very dry and furred, sordes on lips and teeth; no distension of abdomen; liver dullness almost absent; edge cannot be felt. Crystals of leucin and tyrosin found in urine, which also contains a little albumen. Patient is now almost unable to take anything.

February 18th. Condition worse; quite unconscious; passes urine in bed; muttering delirium continues; liver dullness not distinguishable. Leucin and tyrosin again found in the urine.

The patient gradually got worse, and sank and died at 7 A.M. on February 21st. The temperature rose to 101° eight hours before death; it had not previously been above 99°. When the relapse occurred malignant disease was suspected; but there was no tenderness nor sign of a tumour, and the vomited matter contained nothing suggestive. When delirium supervened and the hepatic dullness diminished acute yellow atrophy was suggested.

A partial necropsy was allowed, with the following results: Liver: weight 32 oz., capsule firmly adherent, consistence firm and tough on section, bright yellow colour; no structure can be made out. Kidneys: much enlarged, each weighing 7 oz., capsule not adherent, structure normal. Spleen: 8½ oz., structure normal.

J. C. B. MACLEAN,
Fleet-Surgeon R.N.

By a recent Imperial ukase female medical practitioners in Russia are granted the right to hold appointments in the public service.