note the marked "keeping" properties of the urines of patients taking large doses of creosote. I have allowed some of these specimens to stand for nearly two months without any change occurring in their reaction or production of fermentative changes. I have, unfortunately, not had the opportunity recently of treating a case of cystitis, or other disease of the genito-urinary tract in which fermentative changes occur, and where a non-irritant disinfectant would be of value, but it seems possible that creosote would be of use in such a case, seeing that no symptoms, either subjective or objective, have been noticed in any of these cases to show that the drug produces the slightest irritation when the mucous membrane is normal, though, of course, it might prove harmful to a diseased mucous membrane.

Lastly, it is asserted by many that creosote cannot be given to children in more than minute doses. I regret I have not had the opportunity of testing this objection, as few children suffering from phthisis are admitted into this hospital. I have, therefore, only been able to watch the effects of the drug in three cases. Two of the patients were 5 years of age and the other was 2 years older. The two former had marked pulmonary tuberculosis, the latter was suffering from fibrosis of the left lung with bronchiectasis and foetid expectoration. They all took 30 minims of creosote three times daily, with decided improvement in each case, and certainly no signs of toxæmia.

Having compared the objections raised against the administration of beechwood creosote in phthisis with the results obtained at this hospital by treating 100 cases with this drug, I would suggest that the following points are worthy of consideration and further investigation.

1. The best beechwood creosote can be given with benefit, in amounts varying from 120 to 240 minims daily, in cases of pulmonary tuberculosis.

2. The drug is best administered in cod-liver oil or in a spirituous solution, and in some cases the "creosote chamber" or oro-nasal inhaler may be ordered in addition, with advantage.

3. The dose should be small at first, but it can be rapidly increased to 40 minims three times daily for an adult. In 3 cases doses of 30 minims three times a day were well borne by children.

4. Large doses rarely cause any gastric disturbance; on the contrary, the appetite is frequently increased, symptoms of dyspepsia disappear, and cod-liver oil is more easily assimilated. The cough, expectoration, and night sweats are diminished, and the physical signs improved.

5. Owing to its disinfectant action in the alimentary canal the drug probably diminishes the risk of tuberculous enteritis by autoinfection when patients swallow their sputa, but owing to the increased peristalsis, which is created by creosote, it is usually contraindicated in cases where the ulceration is already advanced.

6. The drug does not tend to cause hæmoptysis, but rather to prevent its recurrence.

7. Creosote does not irritate the normal mucous membrane of the genito-urinary tract.

8. Owing to its extremely small cost pure creosote can be given to a much larger number of patients than the carbonates of creosote and guaiacol, which respectively cost four times and twelve times as much as the older drug.

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PAPILLOMA OF THE NASAL SEPTUM.

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As true papilloma of the nasal septum is undoubtedly of rare occurrence, every instance met with should be added to the list of recorded cases. The following case, sent to the Royal Ear Hospital by Dr. Alexander, agrees in its microscopical

characters with those laid down by De Santi,¹ and may therefore be regarded as qualified for addition to the record.

E. B., female, aged 20, complained of pain in the right nostril lasting for three months. There was occasional slight bleeding on rubbing, picking, or blowing the nose. Some difficulty of breathing on the same side had been noted. On examination a small papillary growth was seen in the vestibule growing from the cartilaginous septum about three-quarters of an inch from the orifice. It bled rapidly on touching with a probe. There was in addition slight hypertrophic rhinitis with a small spur on the right side. The growth was easily removed, under cocaine, with the cold snare. It consisted of unbranched fimbriæ springing from a base about half an inch in breadth. The fimbriæ under the microscope were found to consist of a central vessel, with a very small amount of fibrous stroma, covered with several layers of epithelium. The specimen, a photograph, and section were shown at the Laryngological Society of London on April 13th.

Owing to the confusion caused by the papers of Hopmann² and Schaffer, in which both authors have included a number of growths which are not true papillomata, it is somewhat difficult to arrive at the number of undoubted cases on record. In compiling the following list I have not mentioned those in which no microscopic examination was made. Wright³ remarks "it is impossible to say how many cases of true nasal papilloma have been observed." He gives an excellent summary of the bibliography.

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A CASE OF GANGRENE OF BOTH FEET IN AN EARLY GENERAL PARALYTIC.

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THE trophic changes in general paralysis are many and varied, the most common being the occurrence of a large sloughing bed sore, usually forming very quickly; but the rapid and simultaneous occurrence of gangrene involving both feet is so unusual and perhaps unique that I have thought it worthy of recording. The case is as follows:

M. D., aged 50 years, was admitted to the Joint Counties Asylum, Carmarthen, on January 12th suffering from what appeared to be general paralysis of the insane, the supposed duration being fourteen days. Her mental condition mainly showed considerable loss of mental power, with ideas of grandeur as regards money, her musical capabilities, her connection with the Royal Family, etc. Physically she was a well-built woman, inclined to obesity, with flabby muscles, and exhibiting various signs which pointed to changes in the nervous system. The pupils were unequal, right larger than left, and the latter reacting much more readily to direct light and accommodation. There were coarse tremors generally, and the speech was suggestive of general paralysis. The left knee-jerk was exaggerated, but there appeared to be no motor or sensory paralysis. On January 15th she was examined carefully and nothing unusual noticed. On the following day, however, both feet were found to be cold and of a dark blue colour, nearly black, with swollen dorsa and ankles and considerable tenderness. There were swellings in each popliteal space and on the outer side of the left knee-cap a black patch, the latter disappearing in a few days. Her general condition was good and the temperature normal. The treatment adopted was thorough disinfection of the parts and protection in cotton wool.

By January 17th a change was noticeable. She was very exhausted, with a weak pulse and a dry brown tongue. The feet had become warm except the toes, and the dorsum and ankle had assumed a dull red black colour. The temperature in the evening was above normal. In three or four days blebs formed, and the peculiar odour of gangrene exhaled. She was restless and sleepless, requiring hypnotics, but otherwise her general condition had improved. For some days her condition remained stationary if it did not improve; but soon a downward course commenced, and she steadily grew worse. The temperature up to January 26th was normal in the morning with an evening rise to 100°; after that the temperature was usually 100° in the morning and in the evening above 102°.

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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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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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 dulness 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 dulness 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