the "standard Gram-negative" emulsion is 1,500 millions per c.cm., then: — $200 : 250 :: \times : 1,500 = 1,200$ millions per c.cm. as the strength of the Gram-positive emulsion. This Gram-positive emulsion may be used as a "standard Gram-positive" emulsion, but if used as such more than 200 of the bacteria should be counted to ensure great accuracy, about 500 of each bacterium being counted before the calculation is made. Of course plate estimations can be made, using staphylococcus instead of *B. coli*, the process being similar to that just described, and a "Gram-positive standard" obtained in this way; but the obtaining of the "Gram-positive standard" from the "Gram-negative" standard saves two series of dilution experiments.

Having now obtained two "standard" bacterial emulsions (which keep well from the addition of the formalin, and are readily and thoroughly mixed from the presence of the glass beads), we are in a position to estimate the strength of any unknown emulsion by simply mixing it with equal parts of a "standard" of opposite Gram staining properties, making a film, and counting by the methods already fully described. The only precaution to be observed with regard to the "standard" emulsions is to cap them suitably to prevent evaporation.

This method has now been used for the past fifteen months in private and hospital practice, and it was found from the first as rapid as Wright's method, and after practice more rapid than this method. From numerous observations on Wright's method, the Thoma-Leitz counting slide method, and the method under consideration, it has been found that the lowest estimations of any bacterial emulsion are given by Wright's method and the highest by this method now described, while the Thoma-Leitz method is intermediate between the two. It is probable that the method under consideration is much more accurate than those commonly employed, and for the following reasons: (1) A constant "standard" obtained under the most accurate conditions possible is used; (2) one is comparing objects of approximately equal size; and (3) one is able to use a one-twelfth objective. In Wright's method the "standard"—that is, the red corpuscular count—is a fluctuating quantity, and ought to be re-estimated at each estimation of the strength of a vaccine, and, further, the standard is many times the size of the bacterium with which it is compared. In the Thoma-Leitz method one must allow thirty to sixty minutes to elapse from the making of the drop preparation to allow the bacteria to settle sufficiently, and one is unable, moreover, to use a one-twelfth objective.

To now briefly summarize the process:

1. Obtain a Gram-positive and Gram-negative "standard" by the diluting and plating out processes described. These "standards" keep good for at least six months in our experience.
2. Take equal parts of the emulsion of "unknown" strength and a "standard" of opposite Gram staining properties and mix thoroughly.
3. Make a film and fix it carefully.
4. Stain by Gram's method, using a counterstain.
5. Count 200 to 300 bacteria, using a "counting square" and a one-twelfth objective and noting the Gram-negative and Gram-positive organisms in the squares counted.
6. Knowing the strength of the "standard" and the proportion of Gram-negative to Gram-positive organisms, the strength of the unknown emulsion is easily worked out by proportion.

In conclusion, I should like to thank Mr. F. R. Chopping, senior laboratory assistant to the hospital, for his invaluable assistance and suggestions in the early part of our investigations and repeated co-operation in the subsequent laborious counting tests so necessary to prove the value of the method.

THE second Shakespeare commemoration service held at Southwark Cathedral, formerly the church of the parish in which Shakespeare was a resident, was held on April 23rd, when Mr. F. R. Benson gave an address on "Shakespeare and the fuller life of the people." It is announced that the fund, of which Dr. R. W. Leftwich is the honorary secretary, for the Shakespeare memorial in the cathedral, has been completed by a gift of £180 by Mr. Sanford Saltus, of New York.

A CASE OF TUBERCULOUS POLYSEROSITIS.

BY

G. J. CONFORD, B.A., M.D., B.Ch.Oxon.,

FELIXSTOWE.

MULTIPLE inflammation of serous membranes is a somewhat uncommon condition, and the case here reported presents features of unusual interest, particularly in its exceptional onset, its abnormal course, and the final *post-mortem* proof of its tuberculous nature.

The patient was a married woman aged 46, with a healthy family history. She had no personal record of any serious illness until ten years ago, when she had an attack of pneumonia, involving the lower lobe of the right lung, and terminating in complete recovery after suppuration, and coughing up of the pus. No abnormal physical signs could be found at the commencement of the illness recorded in this paper.

On November 11th, 1909, the patient was taken ill with the symptoms of influenza, including headache, pain in the back and limbs, and severe prostration. She did not, however, seek medical advice until November 25th, when she was found to be in a state of high fever and nervous excitement, her temperature being 103.4°. She had been performing her household duties intermittently during the previous fortnight. During the following week she was kept in bed, and treated with quinine and simple antipyretic medicine. There were no arthritic symptoms, and no abnormal signs in the chest or abdomen.

On December 2nd the patient left her bed for a few minutes and fainted, and on examining her shortly afterwards she was found to be cyanosed and almost in a state of collapse, her pulse being 145 per minute. A very faint friction sound could now be detected near the base of the heart, and two days later there were definite signs of general pericarditis. Sodium salicylate was administered on the assumption that the pericarditis might be of rheumatic origin, but was discontinued after a few days, on account of its depressing effect. Treatment with quinine and stimulants was resumed.

On December 13th pleurisy developed over the lower lobe of the left lung, and signs of effusion were found on the following day.

On December 20th the dull area was explored for fluid, but none was found, for the probable reason that the needle was inserted too near the middle line, considering the position of the patient, who was lying on the affected side, so that the lung, no doubt, sagged down towards the axilla, and was wounded by the needle.

The erroneous conclusion was drawn, however, that the dullness was due to solidification, and a second exploration was not made at the time. The temperature continued febrile, ranging from 99° in the morning to 101° to 102° in the evening, while signs of scattered bronchopneumonia became perceptible in the right lung, and the signs of pericardial friction disappeared.

On January 4th, 1910, Dr. Brown, of Ipswich, saw the patient in consultation with me, and the chest was again explored—this time with success—and 52 oz. of clear serous fluid was withdrawn. Respiration was, of course, greatly relieved by the operation, but the fluid again accumulated with great rapidity, and paracentesis was again necessary on January 10th, 15th, and 19th, more than two pints being withdrawn on each occasion. The fluid was clear each time, and was examined for tubercle bacilli, as was also the sputum, with negative results.

The skin of the back was now oedematous, and scattered crepitations were heard over the right lung. On January 21st the temperature became normal and remained so for nearly a month, though the sputum, during the weeks immediately previous and subsequent to this, was deeply bloodstained.

Paracentesis thoracis was again done on January 31st, February 16th, March 4th, and March 21st, the patient always being greatly relieved for a day or two after each operation. A consultant who saw the patient on February 22nd considered the case one of polyserositis of rheumatic origin, and negated the previous diagnosis of tubercle. Potassium iodide and caffeine were now given, but the symptoms of iodism and depression were so marked during its use that it was discontinued after a week.

On March 23rd oedema of the legs became very troublesome, and Southey's tubes were inserted for its relief. They were removed after two days, and again used on several occasions during the remainder of the illness.

Enlargement of the liver and ascites now began to be very obvious, and the abdomen was tapped on April 11th, 5 pints of fluid being withdrawn. The operation was repeated on May 10th, June 2nd, and June 18th.

From July 16th the temperature became regularly hectic, and continued so during the subsequent progress of the case, though emaciation was not so marked as might have been expected.

On July 20th the chest was again aspirated and 3 pints of clear serous fluid were withdrawn.

On August 20th a third consultant saw the case and considered it was not tuberculous, on the ground that emaciation and debility were less than would be expected in the presence of tubercle. Von Pirquet's reaction was then tried, with a

negative result, as was also the diazo reaction for the urine. The chest was aspirated for the last time on October 19th, much less fluid being found than on the previous occasions. The patient now became gradually weaker and more emaciated, suffering occasionally from alarming attacks of syncope. She died during her sleep on December 2nd.

At the *post-mortem* examination the following observations were made:

Abdomen: Intestines everywhere roughened with nodular chronic granulations and coated with a layer of lymph, the intestinal coils being adherent and the omentum thickened.

Liver enlarged and fatty, pale in colour, and showing the characteristic appearances of passive congestion.

Kidneys and spleen normal.

Chest: The pericardium was greatly thickened and its cavity completely obliterated by firm fibrous adhesions between its two surfaces. The orifices of the superior and inferior venae cavae were contracted.

The right pleural cavity was obliterated by adhesions, the lower lobe of the lung being congested, oedematous, and partly collapsed. The upper lobe was congested and studded with small hard tuberculous nodules. The left pleural cavity was obliterated in its upper half by pleuritic adhesions, and shut off from the lower part, which contained about a pint of serous fluid. The lower lobe of the left lung was collapsed, and the upper lobe contained the same tuberculous-looking nodules as the right lung. They were arranged in scattered groups, but had all the appearance and consistence of tuberculous nodules.

Portions of the peritoneal nodules and the pulmonary tissue sent to the Clinical Research Association for microscopic examination presented the typical appearance of tuberculous disease.

The clinical course of this case presents several unusual and interesting features, especially when viewed in the light thrown upon them by the autopsy.

Thus the rapid subsidence of the signs of pericarditis would at first sight render the extensive thickening revealed after death a matter of surprise.

The enlargement of the liver during a portion of the progress of the case was so great that the edge could be felt well below the level of the umbilicus after the fluid had been withdrawn by paracentesis, but there was none of the tenderness usually associated with the cardiac liver. The subsequent diminution in size of the liver was also remarkable, since at the end of the illness its edge reached only about 3 in. below the costal margin on deep inspiration. During the earlier months of the illness the urine contained a large quantity of albumen, but latterly this practically disappeared. Various diuretic drugs were administered from time to time, the most successful being theocin sodium acetate, which in 5-grain doses twice a day produced a very abundant flow of urine, but was discontinued on account of the nausea and depression it appeared to produce. The injection of adrenalin into the pleural and peritoneal cavities was considered, but rejected on account of the risk to life, the writer having had a patient who died suddenly from cardiac spasm immediately after its use for recurrent pleural effusion. The question of the incision and drainage of the pleural cavity was also considered in consultation; but the probability of converting the simple effusion into an empyema, which might be slow to heal and would involve a serious drain upon the strength of the patient, led to its rejection.

The term "polyorrhomenitis" has been applied to a multiple suppuration of serous membranes by Italian physicians, and this condition was fully dealt with by Dr. Frederick Taylor in a paper in the *BRITISH MEDICAL JOURNAL* for 1900 (vol. ii, p. 1693), but in the case here reported no suppuration occurred. Many writers consider that recurrent pleurisy is almost always tuberculous, and this opinion is borne out by this case, notwithstanding the negative results of the various clinical and pathological tests.

DURING the past winter semester the number of students in the medical faculty of the University of Vienna was 2,334, of whom 125 were women. This number does not include 62 students who entered for particular parts of the curriculum; of these, two were women; or 238, of whom 9 were women, who attended special courses.

THE total number of legally qualified practitioners of medicine in the German Empire at the end of 1911 was 32,500. Taking the whole population of the empire this gives a proportion of about one doctor to every 2,000 inhabitants. The number of medical students in the universities of the empire during the past semester was 12,446, of whom 582 were women. The number of persons who passed the State Examination in the academic year 1909-10 was 945.

THE DIAGNOSIS AND TREATMENT OF SCIATICA.

*WITH A NOTE ON THE METHODS IN USE AT
HARROGATE.**

BY

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CASES of sciatica, for the purposes of classification, may be conveniently divided in the following manner:

A. Primary Group—

1. Sciatic neuralgia.
2. Sciatic perineuritis.
3. Sciatic neuritis.

B. Secondary Group.

Sciatic Neuralgia.

By sciatic neuralgia is meant a painful condition arising in the area of distribution of the sciatic nerve. As with other neuralgias, it is probable that there is no definite inflammatory change in the nerve trunk, the condition being purely functional. It occurs most frequently in flabby, anaemic, debilitated subjects, more often in women, and appears to be the expression of nervous exhaustion. Occasionally associated with dysmenorrhoea, or irregular menstruation, I have seen it alternate with facial neuralgia. Over-fatigue or mental anxiety will precipitate an attack. In such cases little is to be made out by examination. There is no muscular wasting, and neither movement of the limb, nor pressure on the "tender points" elicits the exquisite pain accompanying the other conditions. The pain is intermittent, and the patient, although the attacks may be very severe, is quite comfortable between them.

Sciatic Perineuritis or Neuritis.

This is a disease of adult life, and in my experience four times as common among men as women. There is almost invariably a gouty or a rheumatic history. The ordinary pathological changes of neuritis have been observed when the nerve has been cut down upon for the purpose of stretching. Exudation and effusion have been found in the sheath, swelling and redness of the nerve trunk, and occasionally small haemorrhages, these changes being most marked at the level of the sciatic notch and at the middle of the thigh.

The disease is, then, primarily a perineuritis, and the pain and tenderness are due to the irritation of the sheath nerves. As the disease progresses the nerve fibres become involved in an interstitial inflammation, and a definite neuritis supervenes.

In cases of fully developed neuritis muscular atrophy, paresis, and the reaction of degeneration are present, with diminution of tactile sensibility, areas of anaesthesia, and hyperaesthesia, tinglings, pins and needles, formication, etc.

The exciting cause of an attack of sciatic perineuritis—and one attack predisposes to another—is in the majority of cases the exposure of the limb to local cold, not dry cold, but cold associated with wetting—for example, sitting on wet grass or upon a damp seat.

Special attention must be directed to the association between lumbago and sciatica. How common is the history of acute pain in the lumbar muscles, followed in two or three days by sciatic pain—in other words, a spread of fibrositis and involvement of the nerve trunk.

It is stated that direct pressure on the nerve by sitting in an uncomfortable position sometimes causes sciatica, as, for example, in the city clerk, dangling his legs from a high stool. In the case of two patients who had always been accustomed to wear woollen underclothing, the attack was attributed to changing to linen and silk respectively.

Secondary Group.

In this group are included all those cases in which the condition is due to involvement of the sciatic nerve by pressure, or the spread of inflammatory processes. Hence the importance of making a complete and systematic examination before diagnosing primary sciatica. It is stated that a rectum overdistended with scybalous masses sometimes exerts sufficient pressure to give rise to sciatica,

* Paper read before the York Medical Society on February 14th, 1912.