toes. Urethritis for two months; gonococci present. There was marked improvement from the first, and after two injections of 5 million the pain and swelling in all the joints had greatly subsided. Each dose caused a slight rise of temperature, and 20 million was the largest given. No other treatment was employed.

CASE X.

Woman, aged 25. Five days before admission pain and swelling in knees and ankles, pain and stiffness in both shoulders. This cleared away except in the left knee-joint, which was tapped and gonococci found in the fluid. There was vaginitis with gonococci. There was fever, rising to 103° F. Salicylate treatment did no good. She then had vaginal douching (1 to 1,000 mercury chloride) and oil of copaiba dressing to the knee. The temperature fell at once, the pain and swelling disappeared more slowly, and after four and a half weeks she left hospital well.

CASE XI.

Man, aged 33. Urethritis with gonococci. Swelling with pain and redness had come on acutely in right wrist, tendon sheaths, and dorsum of hand, and in the second and third metacarpophalangeal joints. He was treated at once with copaiba internally and locally to the wrist and hand. Recovery took place in five weeks, but stiffness remained, due to adhesions.

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THE ALBUMEN REACTION IN TUBERCULOUS SPUTUM.

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THE difficulties in arriving at a correct diagnosis in early tuberculosis of the lungs are known to all of us, and in those cases which do not present physical signs it is almost impossible to form a correct opinion, much as we may suspect the presence of tubercle.

It is on this account that we welcome any new test which may assist us in a diagnosis, and to the patient it is of supreme importance that treatment should be commenced before the development of physical signs in the chest. The test which I propose to describe was introduced by MM. Lesieur and Prirey.¹ It is simple and can easily be applied at the bedside.

The technique is as follows: Five cubic centimetres of the sputum are mixed with 20 c.cm. of physiological salt solution in a test tube; 5 or 6 drops of acetic acid are added, and the whole well shaken up and then filtered. The filtrate is then tested for albumen by heat or nitric acid.

If the reaction is obtained it is claimed by the writers to be strong evidence in favour of pulmonary tuberculosis, although they admit that the reaction occurs in other diseases, to which I will refer. Lesieur and Prirey claim that the reaction is present invariably in cases of pulmonary tuberculosis, even in its early stages, when it may be difficult or impossible to discover tubercle bacilli in the sputum. They find this reaction present before the appearance of any physical signs in the lungs in 75 per cent. of cases, and declare it to be a more useful test than the microscopic examination of the sputum. In miliary tuberculosis or in pleurisy it is not constantly given.

They also find the reaction present during an attack of acute lobar pneumonia due to pneumococci, and its persistence in this disease during convalescence points to the probability of a new focus of infection or a complication. The reaction is found also in acute pulmonary oedema, acute congestion, and acute bronchopneumonia. As a rule it is negative in acute bronchitis, and it is always negative in chronic bronchitis and emphysema. In cardio-renal cases it is often positive.

They give a total of 840 observations from various authors in which the reaction was positive in 100 per cent. of cases, confirmed by microscopic examination of the

sputum for tubercle bacilli in 83 per cent. of cases of probable pulmonary tuberculosis, and in 37 per cent. of cases of non-tuberculous sputum. They find that the intensity of the reaction is in direct proportion to the importance and gravity of the lesions and the abundance of tubercle bacilli, and so consider the reaction to be valuable in prognosis as well as diagnosis. A negative reaction would, according to their opinion, appear to exclude pulmonary tuberculosis.

My junior colleagues at the hospital have very kindly undertaken to make a thorough test of this reaction, and the results of their work in the wards, and my own in private, are here given.

In cases of suspected tuberculosis we can obtain very valuable information by using tuberculin; and although this is not the time to mention the various tests that are employed by that method, it is my practice to perform the cuti-reaction (von Pirquet's test), which consists of scratching a few drops of concentrated human or bovine tuberculin into the skin and watching the effect. If the patient is tuberculous a pinkish areola surrounds the scratch, occurring in about twelve to twenty-four hours and persisting, as a rule, for five or six days.

A positive von Pirquet test, however, is no evidence of pulmonary tuberculosis, but is simply an evidence that there is or has been a focus of tubercle somewhere in the body; of course, if there are physical signs in the lungs, then the presumption is strong that the case is one of pulmonary tuberculosis. I attach great weight to a negative von Pirquet reaction, as we can almost certainly exclude tuberculosis excepting in those cases in which the disease is too acute or too advanced to give a reaction. In the 110 cases in which the reaction was sought for in the wards of Mill Road Infirmary the diseases were as follows:

Pulmonary tuberculosis	...	...	...	90
Pneumonia	...	...	...	9
Bronchopneumonia	...	...	...	4
Bronchitis	...	...	...	2
Asthma	...	...	...	2
Tuberculous joints	...	...	...	2
Neurasthenia	...	...	...	1

As far as was possible the von Pirquet reaction was obtained, and in addition the sputum was stained for tubercle bacilli.

There can be no doubt that in the large majority of cases of pulmonary tuberculosis the reaction is easily obtained, and out of the 90 cases which were diagnosed as pulmonary tuberculosis, 75 gave a positive reaction and 15 gave a negative reaction. The latter 15 cases presented the physical signs of tuberculosis with a positive von Pirquet reaction, but in 9 of the cases no tubercle bacilli could be obtained, so that it is possible that our diagnosis was at fault. In 6 cases, however, tubercle bacilli were found, and this test was found to be negative in these 6 undoubted cases of pulmonary tuberculosis.

In the cases of pneumonia in the acute stage the reaction is generally positive, although in one case the reaction was not present until the sputum became rusty.

In chronic bronchitis and emphysema the reaction is usually negative. In the two cases of tuberculous joints the reaction was negative, and in one case of neurasthenia without lung symptoms the reaction was positive.

CONCLUSIONS.

From this list of 110 cases I would not like to dogmatize on the certain value of the test to make a diagnosis of tubercle of the lungs before the onset of physical signs, and before tubercle bacilli appear in the sputum, and I propose to continue the investigation in a few hundred more cases before coming to a conclusion. In the meantime, however, I am of opinion that the test is valuable in certain doubtful cases, and, taken in conjunction with a positive von Pirquet reaction, we would be justified in making a diagnosis of pulmonary tuberculosis; moreover, the test has the advantage of being very simple and easily applied, whereas it is often difficult in private practice to apply the von Pirquet test.

I would like to express my indebtedness to Dr. Williamson and Dr. Joseph for the work they have done in the wards.

REFERENCE.

- ¹ *Paris Médical*, this year.