interest, for it depends on the production of referred pain. The appendix is supplied by nerves corresponding to the tenth dorsal segment. The same level controls the kidney, and since testis and kidney develop together their spinal segmentations are identical. The pain, therefore, in the appendix was referred to two other viscera of similar innervation, and shot from one to the other, making both tender.

In this connexion let me warn you of the manner in which the pain of an early pneumonia will sometimes simulate appendicitis. In these cases the earliest and most prominent symptom is sudden severe pain—referred pain—in the right iliac fossa; the abdomen is often rigid, and the diagnosis of appendicitis seems probable, yet if the patient be watched the abdominal symptoms mollify, and the signs of pneumonia develop at the right base.

Still more difficult diagnoses are those where the patient complains of pain which is undoubtedly referred and yet corresponds to no spinal segmentation. Such cases show the pain transgressing the limits of the spinal areas with perplexing freedom, and are illustrations of what has been called the "generalization" of referred pain. By this is meant the tendency that exists in some patients, especially those in indifferent health, for the pain gradually to spread to more and more remote areas until the original referred pain forms but a fraction of the whole. This spread is seen—I select common examples—from so simple a primary lesion as dental caries. The referred pain probably takes at first the form of a neuralgia limited to one branch of the trigeminal. This continues for a time, and then the greater part of the same side of the head is affected, and later the neuralgia attacks the opposite side. As a result the patient grows exhausted and run down, and pains begin to show themselves all over the body, especially in such places as have at previous times been painful—the joints feel rheumatic, dyspepsia accompanies digestion, or dysmenorrhoea becomes accentuated. If a patient has reached this stage when first seen, you can readily understand the difficulty of tracking the trouble to its lair. Yet the pursuit is worth undertaking, for to discover the prime cause is to convert your patient from a state of misery and dejection to one of relief and happiness.

As the most frequent causes of this generalization you should remember, in addition to hunger and fatigue, anaemia in its various forms, and hypermetropia—both fertile provocations—while in women menstruation and pregnancy fan the spread. Remember, too, that in women the spinal areas which are earliest to fall before the attack are the sixth and tenth dorsal—in other words, pain and tenderness in the breast and in the ovary.

No lecture on referred pain would be complete without reference to that interesting condition known as *allochiria*. With this uncommon symptom the patient refers stimuli applied to one part of his body to a corresponding position on the opposite side. It occurs in certain nervous diseases, and has been described in connexion with diphtheritic paralysis. Gowers has recorded a case where a stimulus was referred to both sides at once.

A last condition that bears on our subject is true neuralgia. This depends on no nerve lesion, neither is it referred from any remote condition. It is a distinct entity as a disease, and as such must be carefully distinguished from referred pain. The diagnosis may be difficult, and the points on which you must rely are the area of distribution and the presence or absence of superficial tenderness. As we saw earlier, referred pain is associated with hyperalgesia; with neuralgia this is unusual. Referred pain (and its superficial tenderness) is limited by boundaries set in the central nervous system; the distribution in neuralgia corresponds to some peripheral nerve. These distinctions, however, will sometimes fail to settle the question, and a definite diagnosis may have to be withheld until the effects of treatment have been watched.

HOLIDAY COURSES IN BERLIN.—The next "cycus" of the Berlin Dozenten-Verein for medical holiday courses will begin on September 30th and continue till October 26th. A list of the courses, etc., will be sent free, and any information required will be supplied on application to Herr Melzer, Ziegelstrasse, 10-11, Berlin.

THE TREATMENT OF LOCOMOTOR ATAXY BY FIBROLYSIN.

By F. M. POPE, M.D.,
LEICESTER.

In the following case of locomotor ataxy treatment by fibrolysin was followed by much improvement and by return of the knee-jerks.

J. B., aged 32, was admitted to Leicester Infirmary on December 20th, 1906, complaining of shooting pains in the legs and numbness of feet. He had noticed the symptoms for the past two years; had had great difficulty in walking in the dark; for the previous four weeks he had been confined to bed unable to walk at all.

Past History.

He had an "abscess on the chest" fourteen years ago, urethral discharge ten years ago; no clear history of syphilis.

Condition on Admission.

His nutrition is fair, general health fair, sleeps poorly; complains of legs feeling cold. Ill-marked areas of paraesthesia in both legs; tactile sense impaired; thermal sensation impaired but not lost; no complete analgesia; tactile conduction retarded. He is very ataxic. Romberg's symptom marked. Inco-ordination of both upper and lower extremities marked. Is quite unable either to stand or walk.

Argyll-Robertson pupil phenomena marked; no nystagmus. Left pupil smaller than right. Knee-jerks absent. Plantar reflex flexor. Has slight difficulty in micturition, none in defaecation. Facial muscles of right side slightly atrophied. Right side of tongue slightly atrophied. No morbid changes to be detected in other organs.

Treatment.

He was kept under observation for nearly a fortnight without treatment, and his condition underwent no change.

On January 2nd, 1907, treatment by intramuscular injections of fibrolysin was commenced. He received 2.3 c.cm. every alternate day.

February 12th. He has had nineteen injections. He can stand better, and walk a little with assistance. Says legs are warmer. Still much inco-ordination.

February 20th. Has had twenty-one injections. Knee-jerks are present on both sides.

March 6th. Had in all twenty-four injections. No injurious local effects. Immediate effects of each injection were a feeling of warmth and diaphoresis. He goes out to-day walking with assistance.

May 1st. He walked up to the hospital to-day. He can walk with two sticks. The knee-jerks are still present. He has no shooting pains. Pupil reaction unchanged. Achilles reflex faint but perceptible.

I have little to add to the above facts. A second case treated at the same time shows little or no improvement, but this does not, in my opinion, outweigh the positive results obtained in the first case. Ormerod, in *Allochiria's System of Medicine*, says: "We think that when ataxia has developed steadily and become thoroughly established it is likely to be permanent"; and most people will agree with him. In this case advanced ataxia has retrogressed so that the patient can get about and the knee-jerks have returned.

I regard this communication as merely a preliminary note, hoping that it may lead to a farther trial of this remedy.

ON THE CAUSES AND SIGNIFICANCE OF CERTAIN AMBIGUOUS REACTIONS OBTAINED IN TESTING URINE FOR SUGAR.

By HUGH MACLEAN, M.D.,

LECTURER ON CHEMICAL PHYSIOLOGY IN THE UNIVERSITY OF ABERDEEN.

(From the Physiological Laboratory.)

Fehling's Test.

For the detection of sugar in the urine, the test most in vogue in this country is Fehling's alkaline cupric tartrate solution. This test depends on the fact that dextrose in hot alkaline solution is capable of reducing cupric salts (which are soluble in Fehling's solution) to the cuprous form in which they are insoluble, and so separate out as a red or yellow precipitate. When the amount of sugar present is not too small this test answers admirably, and a distinct reaction with Fehling's solution indicates in almost every case that sugar is present in excess. With regard to the detection of small amounts of sugar in urine,