

clearing stations by means of hospital barges along the system of canals to Calais. The medical authorities try to reserve the hospital barges for non-operative cases, such as bad fractures of the humerus and certain severe head injuries. The barge hospitals struck us as the most comfortable method of transportation. A barge accommodates some 20 odd patients, in charge of a medical officer and a nursing sister. A canal tug would take seven such barges. It required two days to go from the front to Calais. We were told that it was a most uneconomical form of transportation, in time and medical officers, but it was easily the most comfortable method of traveling. In England cases are distributed in a much more specialized way. Nervous and mental cases go to one particular hospital; some hospitals take only surgical cases of one sort and another.

This sketch represents the usual system. In the event of a big action, the method is usually modified by all sorts of special circumstances. If the action can be anticipated, every nearby hospital is emptied preparatory to the reception of new cases. The base hospitals, which in times of quiet only reluctantly send cases to England, send all their patients to England. During and immediately after a big action, the base hospitals, 35 to 50 miles in the rear, merely act as casualty clearing stations and may keep their cases only a few hours. A soldier has been in bed in a London Hospital within a few hours of being wounded in France.

One always gets general impressions which are often hard to prove statistically. The first impression was that the particular system now used by the British Expeditionary Forces in France for the care and transportation of the wounded was merely the development of the experience of the British Royal Army Medical Corps in handling sick and wounded for many years. In every unit one saw at least one, usually several officers or non-commissioned officers with service ribbons. The evidence of previous experience could be seen in many small ways. Another very distinct impression was that the whole system was splendidly organized. While there were delays and bothersome petty difficulties, yet all the essentials were always present. Nothing was left to chance, but everything seemed carefully planned. The strongest impressions, probably the result of the two previous impressions, was that the British soldier when sick or wounded received admirable and abundant medical and surgical care, and everything possible was done for his comfort in transportation.

## THE OCCURRENCE OF THE WASSERMANN REACTION AMONG HOSPITAL PATIENTS.

WASSERMANN REACTION AS A ROUTINE TEST AMONG PATIENTS ADMITTED TO THE FOURTH MEDICAL SERVICE OF THE BOSTON CITY HOSPITAL.\*

BY ALBERT A. HORNOR, M.D., BOSTON.

CASES admitted to this service are unselected medical cases, and are practically one-fourth of the cases admitted to the medical wards of the Boston City Hospital. Originally, it was suggested by Dr. Sears that we do a Wassermann test upon all cases admitted to his service. This was at all times our intention, but at times more urgent work interfered so that many of the cases, particularly those remaining in the Hospital only a few days, failed to have blood taken for the test. The analysis herewith presented is of the first five hundred of these cases having a Wassermann test, irrespective of the diagnosis. Eighty-seven of the five hundred, that is to say, more than one of every six, had a positive test, either with the old Wassermann reaction or the test modified by the use of cholesterinized antigen. In only eighteen of these cases was a probable diagnosis of syphilis made before the Wassermann report was received. This means that sixty-nine out of five hundred, or 13.8%, of the cases not showing obvious signs of syphilis showed a positive test. Many of these cases after the Wassermann reaction had been reported positive, upon a more thorough physical and x-ray examination, were found to have signs consistent with syphilis. The following is a table showing the diagnoses made irrespective of the syphilitic condition.

	Positive.	Negative.	Total.
All cases	87	413	500
Pneumonia	10	40	50
Emphysema	2	6	8
Pulmonary tuberculosis	4	36	40
Hemoptysis	1	0	1
Cardiac			
Auricular fibrillation	2	0	2
Aortic disease	1	5	6
Aortic and mitral disease	1	5	6
Mitral disease	5	51	56
Cardiorenal	5	5	10
Renal	4	21	25
Diabetes Mellitus	2	6	8
Erysipelas	7	13	20
Rheumatic fever	2	16	18
Other Arthritis	2	9	11
Typhoid	5	14	19
Influenza	1	4	5
Scarlet fever	1	2	3
Malaria	1	3	4
Sinusitis	1	1	2
Stomatitis	1	1	2
Brain tumor	1	2	3
Cirrhosis of liver	2	6	8
Anemia, primary	1	1	2
Cardiospasm	1	0	1
Peptic ulcer	1	2	3
Cancer (stomach)	1	16	17

\* Read before the Suffolk District Medical Society, November 17, 1916.

	Positive.	Negative.	Total.
Alcoholism	1	30	31
Heat exhaustion	1	1	2
Syphilis	18	2	20
Acute poisoning	1	12	13
Morphinism	1	0	1
Miscellaneous	0	94	94

In none of these diseases is there a sufficient frequency of positive tests to make one think that the positive test was due to the non-specific condition. It is of interest to note that in malaria, scarlet fever, cancer, alcoholism, and jaundice, all conditions, which in the early days of the Wassermann were supposed to invalidate the Wassermann reaction by giving false positives, in this series do not give a more frequent positive than negative. The rarity of a positive Wassermann reaction with alcoholism seems to bear out the statement of several later observers to the effect that alcohol will vitiate a positive reaction. It is interesting to note the frequency of a positive test among cardiac conditions of one sort or another—note especially the five cases of mitral diseases (stenosis and regurgitation), and the two cases of auricular fibrillation, who showed no other physical signs. In one of these cases of auricular fibrillation there was an indefinite history of syphilis. The cases of aortic disease showing the positive Wassermann reaction and no other evidence of specific disease, as can be seen from the table, are few. The fact that one out of three of the cases of erysipelas have positive Wassermann reaction is interesting, not all of the seven with positive tests showed unquestioned evidence of specific. The two cases where we diagnosed acute rheumatic fever in spite of a positive Wassermann test were cases which showed typical signs of an acute polyarthritis. The typhoid patients, of which about one in four have a positive Wassermann test, at first made us wonder whether typhoid itself would give a positive test. This was all the more striking in that the first three typhoids upon whom we did Wassermann tests reacted positively.

From a negative standpoint, it is interesting to note the fact that among 270 married men and women, in 29 families there were histories of miscarriages. Out of these 29, 8 had positive Wassermann reactions, 3 doubtful, and 18 negative.

From this brief study, it seems to the writer that one may not tell in many of the cases admitted to the medical wards in general hospitals whether or not the patient's condition may be complicated by syphilis. Surely if one medical admission out of every six has positive Wassermann reaction, the doing of this test as a routine is valuable.

## TREATMENT OF CENTRAL NERVOUS SYSTEM SYPHILIS.\*

By I. CHANDLER WALKER, M.D., BOSTON.

THIS paper is a summary of the treatment and its results in the first forty cases of central nervous system syphilis at the Peter Bent Brigham Hospital. These earliest cases are selected in order to rule out as well as possible remissions, relapses and temporary improvement. A period of one year in half the cases, and over a year in several others has elapsed since treatment was stopped. Cases of tabes, general paresis, cerebrospinal syphilis and syphilitic meningitis are considered; cases of purely cerebral syphilis are excluded.

This work extends over a period of two and one-half years; during the first year and a half the treatments were given by the writer, since this time and continuing through the present, by Dr. D. A. Haller. In the treatment of parasymphylis we have employed three methods,—one salvarsan alone, another the Swift-Ellis method, and a third salvarsanized serum alone intraspinally. We modified the original Swift-Ellis method as follows: maximum doses of salvarsan were given and the patient's blood was withdrawn one-half hour, rather than one hour, later; also for the intraspinal treatment, from 20 to 25 c.c. of whole serum, rather than a 40% or 50% dilution with saline was used. These modifications ought to increase the efficiency of the original technic, or should increase many times the amount of salvarsan or "whatnot" available in the serum for the intraspinal introduction in comparison to the original method. The time interval between treatments varied; usually patients were treated once a week; however, when a bad reaction followed treatment, the next week would be skipped. By occasional bad reaction is meant a severe aggravation of previous symptoms lasting more than twenty-four hours; usually there was some aggravation of previous symptoms, such as shooting pains coming on two to three hours after treatment and lasting for five or six hours; rarely any rise in temperature above 99°, rarely was morphia given. When the Swift-Ellis method was used, the patient usually spent two nights in the hospital, receiving salvarsan one day and the intraspinal serum the next. Many times, however, both salvarsan and intraspinal serum were given the same afternoon, the patient leaving the hospital next morning without any symptoms. Improvement was gauged by the patient's own feelings, by the spinal fluid cell count and by the Wassermann reaction. In the Wassermann reaction we used the cholesterinized heart extract and varying amounts of spinal fluid, different test tubes containing from 1 c.c. to 0.05 c.c. each; in this way it was easy to note resultant changes in the strength of the reaction. It might be stated that absolute reliance should not

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