1918

WASSERMANN LABORATORY

The Wassermann Laboratory has been unusually active during the past year. Conditions of the war have caused an increased demand upon its facilities and have imposed upon it unusual difficulty in the way of retaining personnel.

It has been hard to retain technicians and stenographers who have had training in laboratory work because of the establishment of so many military laboratories where much larger salaries are paid. In this way we have lost two technicians and one stenographer. The organization of the laboratory has been defective since its beginning in that there has been but one person trained to make the various diagnostic examinations. This difficulty will be largely overcome by the appointment of Dr. Nishan M. Hampson as assistant bacteriologist who will spend the major portion of his time on work in connection with the gonococcus fixation test, but who will in addition have time to make animal inoculations and perform more highly technical manipulations carried on in this laboratory.

The routine activities of the laboratory have suffered very little variation in the past year. The following tables give a list of the tests performed during the current year together with the tests performed by the laboratory since its establishment. An analysis of these tables gives two noteworthy facts; (1) That the number of tests for physicians has increased as well as the number of physicians submitting specimens. This can in part be explained by the increasing usefullness of the Wassermann test for physicians and to some extent by the fact that the disease has been made reportable, thus necessitating positive evidence in the diagnosis of syphilis. (2) That the number of specimens from institutions is perhaps a stationary one and indicates that the test was made the fullest use of by them almost from the beginning.

TABLE I

INSTITUTIONS AND PHYSICIANS SERVED AND THE NUMBER OF SPECIMENS FOR WASSERMANN TEST FROM THESE SOURCES.

	Number of Institutions and Physicians served.				Number of Specimens			
	1914-15 (6 mos)	1915-16 (12 mos)	1916-17 (12 mos)	1917-18 (12 mos)	1914-15 (6 mos)	1915-16 (12 mos)	1916-17 (12 mos)	1917-18 (12 mos)
Institutions	42	74	89	91	5,350	25,101	24,736	(28,008
Physicians	110	514	764	385	142	2,396	3,789	4,526
					Total 6,492	25,497	28,524	27,534

TABLE II

DIAGNOSTIC EXAMINATIONS FOR THE DEPARTMENT OF ANIMAL INDUSTRY.

	1915-16 (8 mos)	1916-17 (12 mos)	1917-18 (12 mos)
Complement Fixation tests for Glanders	985	1,330	646
Agglutination Tests for Glanders		423	215
Diagnostic Examinations for Rabies	47	67	61
Miscellaneous, Pathologic & Bacteriologic Examinations.	10	8	45
Total	1,042	1,828	967

WORK FOR MILITARY ORGANIZATIONS.

During the past year 3406 aviators were sent for Wassermann test from the Naval Aviation Detachment at the Massachusetts Institute of Technology. These men came in groups of from 60 to 225 at a time. Although the obtaining of specimens from such a large number was attended with considerable difficulty, it is gratifying to say that this work did not interfere with the routine work of the laboratory. In addition to making Wassermann examinations for this group, the test was performed for 10 military posts and hospitals. During the Spring there were many cases of glanders at Camp Devens. The Department made 211 glanders complement fixation tests on specimens submitted by the Camp, thus aiding them in promptly stamping out what threatened to be an epidemic of this disease.

From Annual Report of the Wassermann Lab. for 1918

WASSERMANN STANDARDIZATION.

During the month of March representatives from the leading hospitals, boards of health, and institutions of the State met in the Commissioner's office to discuss and settle upon a uniform method of performing the Wassermann test. The representatives came from the following organizations: Massachusetts General Hospital, Boston; Peter Bent Brigham Hospital, Boston; Massachusetts Homeopathic Hospital, Boston; State Hospital, Westboro; Boston Dispensary; Board of Health, Boston; Board of Health, Worcester; Board of Health, Brockton; Sias Laboratory, Boston; the Boston Laboratories, Boston; the private laboratory of Dr. Booth, Lowell, the Army being represented by a commissioned officer from the Base Hospital at Camp Devens. In the discussion of the problem it was quickly found out that the majority of those present were using the same system of testing that is employed in the Wassermann Laboratory (in some instances the quantities were different and the technique differed in minor details). Chiefly for this reason, it was decided to employ the method used by the Department of Health. Accordingly a brief description was written of the method of preparing and standardizing the reagents and performing the test itself. At a second meeting in the Wassermann Laboratory this description was given to the representatives of the laboratories mentioned above, together with the most important of the reagents, the antigen. At this time there was opportunity to observe the methods employed in the State Laboratory. In most instances the technicians of these laboratories ~~actually performing the test~~ were sent by their superiors to the Dept laboratory where they spent from one day to a week in observing and in some instances carrying out the technique employed in the Department's laboratory. Thus technical difficulties which are the chief source of discrepancy in the various laboratories, are now largely overcome by the close cooperation of the State Laboratory with those laboratories above mentioned. As a

further step towards standardization the immune serum of the rabbit (amboceptor) is also to be supplied by the State Laboratory. Thus the two most important reagents used will be distributed to all of the above mentioned laboratories which constitute the so-called State Approved Wassermann Laboratories. As evidence of the value of the activities for standardization of the Wassermann Test, it can be said that a prominent physician of Worcester submits specimens ~~obtained from his patients~~ to five different laboratories, four of which perform the test in the State approved manner. The other laboratory is following a technique of its own. The results in the four laboratories are identical. On the other hand the single laboratory which is not performing the test in the State approved manner reports Wassermann results at variance with the other four laboratories. An analysis of the cases in question shows that this laboratory's results show a larger margin of error than those performed in the State approved manner, both with regard to the diagnosis of syphilis and the value of the test in the treatment of the disease,

~~It must be said that~~ the fine spirit shown by these serologists in adopting a uniform method of performing the Wassermann test speaks highly for those engaged in the work in Massachusetts. Similar efforts made in all sections of the country, notably New York, have in most instances met with failure. The process of standardization of the Wassermann test in Massachusetts has had more than local interest. Boards of Health, hospitals, and private laboratories have requested of us a description of the State approved method. For this reason we have printed in the bulletin a description of the test in order that those interested may have easy access to it.

Health Department's

VENEREAL DISEASE PROGRAM.

The Wassermann laboratory was able to cooperate with the Commissioner

of Health, the Subdivision of Venereal Diseases and the Food and Drug Division by supplying directions for the use of arsphenamine in the treatment of syphilis as based upon the statistical data possessed by the laboratory. It also furnished highly specialized information necessary to the completion of the general venereal disease program.

GONOCOCCUS FIXATION TEST.

The war has drawn attention to the great prevalence of venereal disease in the community and its menace particularly to the military group. Gonorrhea is one of the most common of the infectious diseases and its perpetuation is largely through venery. The prostitute class are infected all most without exception and most of these individuals are infectious throughout a long period of their lives. The present laboratory method of examining smears from the glands, cervix and urethra of women is notoriously inefficient in chronic and treated cases of gonorrhea which are still infectious. For the above reason it was decided to do some experimental work on the gonococcus fixation test. Mr. Field who was temporarily employed as assistant bacteriologist made a careful study of the methods employed in this test and secured through the kindness of the New York State Board of Health, ten dry strains of gonococci. Inasmuch as there is extraordinary difficulty in growing the organisms and in making the media for their growth, considerable time was spent in evolving a method of cultivating the organisms which would be simple and at the same time yield a potent reagent. After considerable experimental study in selected cases, an antigen was prepared which was 90% efficient; thus exceeding in its liability the Wassermann test now so generally utilized. The standardization of this antigen required the greater part of two months and it is to be regretted that the epidemic of influenza came at that time when the reaction had just been established. The work of the test had to be given up temporarily in order to aid in the

production, distribution and statistical investigation of the use of influenza vaccine as a prophylactic agent in influenza. At the present time the work is again being resumed and it is hoped that in a comparatively short time the ~~reaction~~ will again be available to physicians and institutions throughout the Commonwealth.

INFLUENZA EPIDEMIC.

The influenza epidemic struck Boston during the early part of September and almost reached its crest during the first week of October. On October 2nd the Commissioner of Health directed that the Division of Biologic Laboratories cooperate with the Department of Pathology at Tufts Medical College in the production of influenza vaccine for prophylactic purposes. The problem of productionsadequate to the demands of the State resolved itself into the cooperation of a number of laboratories; those thus cooperating were Department of Biology and Public Health, Massachusetts Institute of Technology, Department of Bacteriology, Harvard Medical School, Department of Preventive Medicine and Hygiene, and the laboratories of the Division of Biologic Laboratories ~~of the Health Department~~ together with the Bacteriological Laboratory of the Health Department. On October 13 a letter was sent announcing the availability of vaccine to each of the local boards of health who would act as distributing agents and a description of its ~~usage~~. On Oct. 14, vaccine was available for all boards of health and institutions within the Commonwealth. Inasmuch as the use of influenza vaccine as a preventive measure was an experiment to be conducted on a large scale, a plan of studying its usefulness was made involving the vaccination of patients and employees of all ofthe state institutions, ~~chiefly~~ especially those under the supervision of the Department of Mental Diseases. The Monson State Hospital for epileptics at Palmer was found to be the only uninfected institution under the supervision of the Department of Mental Diseases. For this reason it was an ideal group to study.

In this institution with a total population of 979 patients, vaccination of 461 patients was begun on Oct. 6, and was completed on Oct. 8. One hundred and sixty-frou of the vaccinated patients developed influenza and 178 of the unvaccinated were afflicted with this disease. Of the vaccinated patients 28 died and of the unvaccinated 24 died. Thus it will be evident that the vaccine did not have the power to decrease the incidence of the disease nor to render it less fatal in the infected cases. In course of the investigation many interesting facts were observed all of which will be submitted in a separate detailed report to the Commissioner.

RECOMMENDATIONS: During the three and one-half years of its existence, the Wassermann laboratory has accumulated valuable data in connection with syphilis. These data are not available to the Department because they have not been recorded and filed. Inasmuch as the war is over it seems desirable that a competent stenographer be employed to record and catalogue our data for statistical investigation.

Respectfully submitted,

Preliminary Report of the Wassermann Laboratory. 1918

The Wassermann Laboratory has been unusually active during the past year. Wassermann tests are being done at the rate of 29,000 per year. Cooperating with the Department of Animal Industry, 622 complement fixation tests for glanders have been performed and 120 agglutination tests for this disease have been made. In addition to this work for the Department of Animal Industry 56 specimens chiefly from dogs have been examined for rabies and miscellaneous pathologic and bacteriologic examinations to the number of 25 have been made.

The above activities have concerned themselves largely with the civilian population. In addition to this 2,732 naval aviators, detailed to the Wassermann Laboratory for this test and over 1,200 have been subjected to the complement fixation test for gonococcus infection. Two hundred and twelve complement fixation tests for glanders and 97 agglutination tests for glanders have been performed at the request of the Army at Camp Devens.

The personnel of the laboratory has been increased by the appointment of Dr. Hishan Hampson as assistant bacteriologist. Mr. Henry F. Field, who was appointed temporarily as assistant bacterilogist during the vacations, succeeded in obtaining an antigen for the gonococcus fixation test of unusual specificity and potency. The success of the test has been most encouraging although the difficulties of maintaining a proper antigen are great.

In addition to the work of the gonococcus fixation test, the work of the tuberculosis fixation is being continued. As yet, however, the test is not available to institutions or physicians.

The most important activities of the Wassermann Laboratory have been in connection with the standardization of the Wassermann technique. Representatives from eleven of the largest laboratories in the State met and adopted the technique as prepared and described by the State Wassermann Laboratory. In this way Wassermann technique and principles have been unified. The Wassermann Laboratory has also been able to aid in the State Venereal Program by supplying directions for the use of arsphenamine and in aiding in the drafting of medical regulations governing the distribution of this product.

The standardization of Wassermann technique has had more than local interests and requests have been made from numerous laboratories throughout the country for a description of the technique as accepted by the laboratories in Massachusetts.

To Dr. M. J. Rosenau, Director
Division of Biologic Laboratories,

Respectfully submitted,

WASSERMANN LABORATORY.
State Department of Health.

The Wassermann Laboratory was established June 1, 1915 with a personnel of four workers; it now employs nine workers.

From June 1, 1915 to August 1, 1919 it has tested 103,798 specimens by the Wassermann reaction and has grown from the rate of 12,000 specimens per year during the first six months, to over 30,000 specimens per year at present.

The following table shows the growth of this service:

	1915-15 (6 mos)	1915-16 (12 mos)	1916-17 (12 mos)	1917-18 (12 mos)
Institutions:	6,350	25,101	24,735	25,008
Physicians	142	2,396	3,789	4,526
Total	6,492	25,497	28,524	27,534

During the first year its activities were confined to Wassermann tests only. In May, 1916 it took over the diagnostic work for the Department of Animal Industry and has tested 4,057 specimens. These tests consist chiefly of the examination for rabies and glanders. However, a very important part of the work for the department consists in bacteriologic and pathologic examinations of obscure and epidemic diseases amongst domestic animals in the Commonwealth.

In addition to these activities the laboratory has spent considerable time on an experimental study of the complement fixation test for tuberculosis. It has also made an experimental study of the gonococcus test and has added this test to its list of routine examinations.

Apart from the actual work which it has performed, the most important activity of the laboratory has been in its accomplishment of a standardized method of performing the Wassermann reaction. Most of the large laboratories throughout the State are using the method employed in this laboratory.

During the war the laboratory placed its facilities at the disposal of the government. In consequence of which 3,627 specimens were tested for the various military organizations. These included Wassermann tests and complement fixation tests for glanders. It was also a place for the instruction of a number of military men who were to undertake Wassermann and other serologic tests in their government work.