to send the patient from home for treatment when they can afford to go, provided their means are sufficient to supply as good or better accommodations and they can obtain the necessary care and attention.

4. Satisfactory results can only be expected if the time is spent as it should be under competent supervision.

5. There can be no compromise, make-shift nor subterfuge with the disease once it has asserted itself until arrested or cured.

6. We should not be content to let the patient simply loaf while taking the cure, but should employ other agents as well that are known to assist and improve metabolism.

BIBLIOGRAPHY

1. Osler's Modern Medicine, I, 487.
2. Fishberg, Pulmonary Tuberculosis.
3. Elsner, Monographic Medicine.

THE WASSERMANN REACTION*

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While the Wassermann reaction is accepted by the great majority of the medical profession as a valuable auxiliary in the diagnosis of syphilis, and a smaller percentage apply the test as a check on the efficacy of therapeutic measures employed, the accuracy of the reaction is to a more or less extent viewed through pessimistic eyes owing largely to a certain amount of misunderstanding existing between the serologist and those coming in direct contact with the diagnosis and treatment of syphilis.

It is claimed by some laboratory workers that for a reliable interpretation of the reaction the serologist should be furnished with a history of the case, not for the purpose of assisting him in rendering a report that will check up with the clinical features of the case, but for the purpose of allowing him properly to interpret what we might term border-line reactions. The great objection to the serologist's being furnished with this information is that by receiving it he is in danger of having it considered that his reports are more or

less influenced by clinical histories. It is admitted that this is not as it should be, but nevertheless is a feature that has to be taken into consideration, more especially where the clinician and the serologist are not personally known to each other. For the present, therefore, in the interest of having this valuable test fully relied upon and accepted by the profession I consider it wise for the serologist to abstain from going into the clinical features of cases upon which he is requested to conduct Wassermann tests. He will appreciate that under these circumstances it will frequently be necessary for him to go into more details in rendering his reports than if he were conversant with the clinical aspect of the case. It should, of course, be appreciated by the clinician that in strongly positive reactions or in completely negative ones no data is necessary for the serologist, the reaction in such instances being able to stand purely on its merits. It is necessary, however, to accept negative reactions with a certain amount of reserve under conditions to be discussed later. It is in the border-line reactions that the clinical history is an aid in making a definite, clear-cut report without the supplementary remarks that should accompany reports on such reactions where the clinical features of the case are unknown to the laboratory worker.

In illustration, what interpretation should be placed upon a weak two-plus or a one-plus positive reaction, or what we might properly term border-line reactions? It should be borne in mind that the equations used in reporting Wassermann reactions are more or less arbitrary, a one-plus positive representing 25 % deviation of complement, each succeeding figure used standing for a 25 % additional deviation. A two-plus may, therefore, represent any amount of deviation from, we will say, 35 to 50 %, the former termed a weak, the latter a strong two-plus. In the absence of clinical symptoms or of a suspicious history, a weak two-plus representing 35 % deviation of complement should not be made the basis of a diagnosis of syphilis. On the other hand, in the event that there has been a suspicious initial lesion a few weeks prior to conducting the blood test, such a report should be viewed with

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grave suspicion even if not made the basis of a definite diagnosis. Again in a subject of known syphilitic infection who has received treatment, such a reaction indicates that the infection has not been totally eradicated and that, regardless of the clinical aspect of the case, treatment should be persisted in. It is not an uncommon occurrence to get such reactions in cases having received intensive treatment which have previously given one, two, or even more completely negative reactions. This phase of the Wassermann test will be dwelt upon later in discussing the significance of negative reactions.

Entirely apart from the known facts in certain diseases such as malaria, yaws and other acute infections, and that in acute alcoholism we may get border-line reactions, I do not consider it a safe procedure to report these border-line reactions without supplementary comment, more especially to men who are liable to accept a positive Wassermann of any degree as proof positive that his patient is suffering with syphilis. Bearing in mind that a negative reaction in no instance, under any conditions, completely bars a diagnosis of lues, and that a decided positive Wassermann reaction must be accepted as proof positive of infection, does it not seem a wiser plan in all border-line reactions to give the patient the benefit of the doubt, consider them negative, but advise a continued careful observation of the suspected individual? While I, therefore, advise the serologist, or reserve him the right, either to report these border-line reactions as negative or else to supplement such reports with comments bearing upon their significance as outlined in the preceding remarks, he need have no hesitation in making unequivocally negative reports on serums in which he secures 100 % or complete hemolysis. But in receiving these reports the tables are turned and the clinician in interpreting them must be governed by certain clinical features and the history of the case before he absolutely bars the diagnosis of syphilis, or in the event that the serum is from a treated case accepts it as final proof of a permanent cure. The chief points for the clinician to consider in interpreting negative reports on the serums of his patients are the duration of the suspected infection, and in

known cases the length of treatment and the form resorted to.

The Wassermann reaction being dependent upon the presence of antibodies in the circulation of the patient, it is evident that if the disease has not been of sufficient duration to create these antibodies the reaction must be a negative one. It is, therefore, the rule for cases of syphilis during the primary lesion to return negative reactions. It is the writer's belief that the rapidity of the formation of antibodies is largely dependent upon the virulence of the infection,—and possibly effected by the general resistance of the individual. It is probably unusual to get a positive reaction in much less than four weeks from the time of the appearance of the initial lesion, and many cases of undoubted lues will give a negative reaction as late as the sixth week. It will, therefore, be readily seen that a negative reaction in the first few weeks of a syphilitic infection is meaningless, and that in suspected cases with atypical lesions negative reactions should not be allowed to bar the diagnosis of syphilis.

Of even greater moment to the clinician than the application of the Wassermann test as a diagnostic auxiliary, is the use of the reaction to determine the effect of the treatment a known case has undergone. With the more modern methods of administering mercury and especially since the introduction of Salvarsan, the clinical improvement in known cases of syphilis is often little short of marvelous. This does not mean, however, that the patient has made a permanent recovery, although he may remain free from any clinical manifestations in some instances for many years. While there is little doubt that there are some cases of luetic infection which will fail to respond permanently to any and all kinds of therapeutic measures, there is little question that a great many cases of syphilis of the central nervous system occurring past middle life are the result of imperfect treatment of infections contracted in young adult life. The clinician is unable to judge from the symptoms of his patient when it is safe to discontinue treatment, the Wassermann test is, however, an absolute check on the efficacy of treatment and unerringly records when it is safe for a patient finally to be

discharged. Here again, however, the first negative report must be regarded reservedly, for it is not uncommon for a treated case to give a negative reaction only to return to a positive one a few months later.

CONCLUSIONS

The subject is an almost inexhaustible one and a discussion of it could be carried on almost indefinitely. In closing I wish to emphasize the following points:

1. It is advisable for the serologist to abstain from going into the clinical features of a case.

2. He should be guarded in submitting border-line reactions without commenting upon the significance of such reactions.

3. Border-line reactions should not be accepted by the clinician as diagnostic of syphilitic infection unless supported by clinical symptoms.

4. A single negative reaction should never be allowed to exclude a diagnosis of luetic infection.

5. The Wassermann test should be applied from time to time during the course of the disease to note the effect of therapeutic measures employed; and

6. A case of syphilis should not be finally discharged until several negative reactions have been obtained, the last one to be at least eighteen months and preferably two years after treatment has been discontinued.

AUTHORS' ABSTRACTS

Medicine

A. Method of Controlling Hyperthyroidism.

Leigh F. Watson, Chicago, Ill. *Endocrinology*, Vol. I, No. 2, April, 1917, p. 178.

A study of cases covering the last four years, in which quinin and urea injections into the thyroid have been used as the treatment of choice, permits the following conclusions: The use of the injection has been without mortality and if used in a hospital by one experienced in thyroid surgery, it should not be dangerous. The patients must be carefully selected, as the method is not a cure all and will not displace surgery in certain cases.

In this group of one hundred cases treated, the quinin and urea injections were used with the following results: The symptoms were relieved in 85 % of the exophthalmic and in 84 % of the toxic non-exophthalmic patients. Fifteen per cent. of the exophthalmic patients were improved and 10 % of the non-exophthalmics were benefited. In 80 % of the exophthalmic patients the goitre entirely disappeared within an average pe-

riod of five months; in 15 % the tumor was reduced in size and in 5 % there was no change. The tumor disappeared in 75 % of the non-exophthalmic patients; it was reduced in 12 %; and in 13 % there was no change. Four exophthalmic patients were pregnant two to four months. Relief from hyperthyroidism followed injection and they went to term without recurrence and had normal deliveries. The treatment of the exophthalmic type in young adults is most difficult, and should be attempted only under the most favorable circumstances. If the best results are to be secured, hyperthyroid patients must have at least a year of mental and physical rest after treatment.

Industrial Versus Private Medical Practice.

Guy L. Howe, Rochester, N. Y. *New York State Journal of Medicine*, Vol. XVII, No. 2, February, 1917, p. 84.

Industrial medical practice is a definite form of public health work and as such its principal aim is the practice of preventive medicine. In industry, sick and injured employees are more apt to consult the company physician without delay in cases of minor illness and accident than if such services were not provided. This aids materially in the prevention of wound infection and in the detection of disease before it has a chance to make much progress.

The relationship existing between the industrial worker and the company physician is an unusually straightforward one and is entirely uninfluenced by the element of money. As a result of this, conditions are ideal for rendering the best possible service to the employee because attention may be focused on the medical aspects of the case without a thought being given to the financial responsibility of the patient or the prospective fee.

The physician in industry is in a position to prescribe drugs only when actually needed. In other words, he never finds it necessary to dispense a placebo in order to hold the patient. The attitude of the patient who pays no fee seems to preclude the necessity of always giving medicine. If it is advice alone that is needed, he will go away contented with such advice, whereas, if he pays a physician a fee he will often be inclined to expect something tangible for his money.

Patients in industrial practice may be seen as often as necessary or desirable without opposition on their part—no matter how often seen the physician can not be accused of "running up a bill." The number and variety of cases seen in industrial practice is great, thus providing wide experience for the physician engaged in this work. Physicians connected with the larger industries have the use of unlimited equipment and in this respect possess an advantage over the average man in private medical practice.

Industrial medical practice provides a stimulus for high-grade work for the reason that it requires ability, good judgment and personality to please thousands of employees. Industrial medical practice is definitely established on a firm foundation and its field is being rapidly extended.