DR. M. L. RAVITCH, Louisville, Ky.: If I understand correctly, Captain Nichols criticizes the older writers for their stand that the chancre should be enucleated, preventing thereby the secondary stage with its concomitant eruption. To my mind, the theory of the older writers is very plausible. No doubt the chancre is the initial trouble and it was wisely called the initial sore. Going into the detail of etiology of syphilis, we may sum up the process in this way: The patient was exposed to syphilis. The spirochetes were lodged, let us say, on the highly sensitized skin of a certain organ. The spirochetes constituting a foreign protein and an irritant to the skin, Nature tries her best to throw them off by means of serums and other fluids. Sometimes the battle is successful; the doors are successfully barred against the entrance of the spirochetes into the general circulation. Sometimes Nature fails to kill the spirochetes in the chancre with the aid of protective fluids. Then, the spirochetes go deeper, are absorbed by the lymphatics and blood-vessels, and a general infection is the result. Nature then makes her second effort and sends out more protective fluids; we have then the secondary or eruptive stage. Nature fails; the system becomes sensitized. Nature not being able to help the patient, the latter comes to the medical man. Chemical means are applied. Mercury and arsenic are used, the latter in the new form of salvarsan. But salvarsan is not really a new remedy. Arsenic was used by the same old writers who advocated enucleation of the chancre. No doubt both mercury and salvarsan are good remedies. The first is undoubtedly a specific if used rightly. The latter is a good adjunct and can be used in obscure cases, particularly when mercury cannot reach the latent spirochetes. Sometimes neither remedy completely eradicates the disease. Like the gonococci in gonorrhea, the spirochetes in syphilis may also assume a latent form, and when the body becomes weakened, they may revive and become active again, causing a new eruption. Some writers may assert that the patient has become reinfected; but this is not so. The point I want to make is that the old writers were fully justified in advocating enucleation of the chancre and that salvarsan or arsenic is not a new remedy. Nothing is new in this world.

DR. HIDEYO NOGUCHI, New York: I forgot to express my views about the cycle in the life of the spirochete. It is first bred very near home; and it will go around in the spiral form near home as long as the condition of the environment remains unfavorable, but not dying out. Then, when the condition of the environment improves, the spiral forms sprout and form these granules, which afterward grow into normal-sized spirochetes. That is the time of life and the stage in which one finds the spirochetes in the primary stage of the disease. This stage may last a year or longer. The immunity reaction of the body then becomes so marked as to restrain the growth of the spirochetes. The unfavorable condition persists, and it may force the spirochetes into the sporulation form. Of course, this is all only speculation, based on the findings in the pure cultures. All the forms of which I have spoken can be demonstrated, however; yet, to be sure, we have to have clinical conditions also bearing on this point. The study of latent syphilis is interesting in connection with the various forms of spirochetes found.

DR. HOMER F. SWIFT, New York: A case of optic atrophy which began about ten months after an intramuscular injection of an oily suspension of the drug caused us to abandon the intramuscular use of salvarsan. The atrophy was arrested immediately on removal of the necrotic area at the site of the injection. Investigation of the rate of absorption of arsenic from the site of intramuscular injections in rabbits showed that the absorption was so slow that ten weeks after the injection between 5 and 20 per cent. of the arsenic still remained in the muscle. There was extensive necrosis at the site of all the injections. With neosalvarsan there is a necrosis having a similar gross appearance. Until we know that the rate of absorption from intramuscular injections is quite rapid we should probably continue the intravenous injections of neosalvarsan.

DR. JOHN A. FORDYCE, New York: I have had more or less to do with the treatment of syphilis during the past thirty

years. I can truthfully say that in the last two years I have seen more patients restored to health by salvarsan alone or combined with mercury than in all of my previous experience. The drug is unquestionably a specific spirochetal poison and when administered early in the disease in doses sufficiently large it will abort a certain percentage of cases of syphilis. If it does not destroy all of the spirochetes it is because they are not reached by it. In such cases an intermittent form of treatment with a combination of salvarsan and mercury is necessary to eradicate the infection. The drug materially shortens the period of treatment of the disease and heals the contagious lesions within forty-eight hours to a week. In the City Hospital with which I am connected such patients were formerly treated for months in many cases with persistence of the contagious lesions. They would frequently leave the hospital with contagious sores and become a menace to those around them. If the drug does nothing more than limit the infectiousness of these individuals it is an exceedingly important addition to therapeutics. In regard to the danger of intravenous treatment I have given over 1,000 such injections and have never seen any serious symptoms except in one case. Since the improvement in the technique by the use of fresh distilled water the intravenous injection of salvarsan is practically as safe as an intramuscular injection of mercury.

Another point I wish to protest against is the indiscriminate cutting down on the veins in order to administer the drug. In the great majority of cases this is absolutely unnecessary as the veins can usually be rendered visible or can be felt and the needle introduced with little trouble. In my experience during the past two years I have not in a single instance found it necessary to resort to this procedure. Frequently, after the veins have been cut down on, they are obliterated and it is exceedingly difficult to administer subsequent injections to these patients. Furthermore it marks the patient for life and indicates to the trained observer the nature of the treatment which the patient has received.

THE TEACHING OF SYPHILIS

THE ATTITUDE OF HOSPITAL BOARDS TO THIS DISEASE *

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In the evolution of the American medical college it has been necessary from time to time to call attention to the object for which the medical school exists. Primarily, in training men to supply the need of a rugged and rapidly increasing population, medical colleges sprang up until their number became excessive, and the quality of instruction furnished failed to keep pace with the demand. At that time, as in the beginning, those who desired to pursue advanced study were compelled to seek such training in the medical centers of Europe. With but few exceptions such was the condition previous to the beginning of the present decade.

The first change in the primitive régime was in the development of the laboratory. This involved an expenditure of money that wrought a double benefit, for it not only improved the curriculum but rendered medical schools unprofitable and consequently impossible as a private business enterprise.

With the medical school on a university basis, and with the necessary endowment, while no one would wish to belittle the importance of the laboratory, for it furnishes the very foundation to medical training, yet, the time has now arrived when careful attention should

* Read in the Section on Dermatology of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

likewise be given the clinical chairs. Heretofore, in many schools, this has been impossible on account of insufficient endowment, but in the future, clinical chairs must be placed on a teaching basis, with sufficient endowment to secure and encourage the best a competent teacher has to give.

The present need of medical education in this country is: (a) the training of men to become general practitioners of medicine, in other words, the making of competent family doctors; (b) the fitting of men for special fields of work.

The student primarily should be taught the essentials of medicine, and if at this stage he elect to take up a general practice he should also be taught the limitations to which he can safely go for the best interests of his patients and his own reputation. It is in this primary school of medicine, the output of which is the general practitioner, that much that is now taught should be eliminated from the primary grade, while other subjects, now neglected or inadequately taught, should be more thoroughly dwelt on.

The medical man may not at first be called on for any of the more difficult surgical procedures; even should opportunities for such work occur, good judgment would restrain him, for without special postgraduate training for this work his reputation as well as the life of his patients would suffer the utmost peril. He is, however, liable to encounter the initial lesion of syphilis. Here the merest tyro in medicine feels himself competent. Mistakes made, while not so immediately appalling, nor so apparent as in the former instance, are of the gravest moment, for on his knowledge depends the welfare, if not the life, of the patient as well as those with whom he may be associated by family or other ties. It is now conceded that during the first few months more can be done toward eradicating the disease than at any other period. The practitioner, therefore, should be competent to recognize the affection—should be fully cognizant of its gravity and the most approved methods of treatment of this very common and very important affection—important to the patient as well as to the community in which he lives.

During a long course as medical teacher I have repeatedly had occasion to note the lack of exact knowledge of syphilis possessed by candidates for graduation or hospital appointment. The cause may be traced primarily to the curriculum and the absence of correlation among teachers. Not only should the closest relation be encouraged between the laboratory and the clinic, but a more exact correlation should exist among the clinical teachers of a medical college. In no subject is this need more apparent than in the teaching of syphilis. Previous to the present decade there might have been some excuse for the random and inefficient manner in which this affection was taught in the medical schools of this country, but since Schaudinn and Hoffmann discovered the active agent of syphilis and its ease of demonstration, since Wassermann pointed out some of the possibilities of the serum test in determining the presence or absence of syphilis in a given case and since Ehrlich led the way to its more rapid extinction, there is need of more thoroughly trained teachers to instruct the student in this disease.

In 1889 the Western Reserve University established a chair of diseases of the skin and syphilis, and while systematic instruction was given in syphilis, it was nevertheless hampered by the haphazard distribution of clinical material.

In the distribution of cases in most hospitals and clinics syphilis is sent to one department or another, according as the most noticeable symptom is on the skin, in the brain, the eye or the internal viscera. Even the genito-urinary surgeon in some instances claims it as his own. This was the custom at Lakeside Hospital previous to the present year, with the result that patients were discharged "cured" after the special organ involved was restored to its normal condition. Again, students were confused on account of the multiplicity of teachers and obtained no thorough or systematic conception of the disease. Furthermore, the large percentage of recurrences for "relapse" demonstrated most forcibly the inadequacy of the system and the harm it was doing both to the patient and to the student.

Since the beginning of the present year the following rule has been adopted at the out-patient department of Lakeside Hospital: On entering, or as soon thereafter as the disease is recognized as syphilis, the case is sent to the department of skin diseases and syphilis. In case particular organs, as the eye, require more specialized treatment the case is referred to the eye department, which in turn returns it after completing such special treatment to the regular department for further systematic treatment or discharge. The results thus far have shown a marked improvement in the treatment and teaching of this disease.

In place of the lack of interest in transitory patients who came only sufficiently long to be temporarily relieved, a high percentage of patients now remain until discharged, and many return when requested, for further observation. The difficulty heretofore, as at present, is that many of the departments are manned by men in general practice, who give this time in exchange for such experience or patients as they may be able to acquire. Since the appointment of an executive officer who is a medical man and who superintends the distribution of clinical material, the out-patient service has been more and more satisfactory and better results are obtained to both patient and student than was previously found possible.

HOSPITAL PROVISION FOR SYPHILIS

Most hospitals not only make no provision for syphilis but refuse patients who seek admission for this disease. In the City of Cleveland only one hospital receives syphilitics, the City or Municipal Hospital; at the same time, in all hospitals there is a very high percentage of syphilitics admitted, because the disease is not recognized and because the patients, admitted for other affections, are found to be also syphilitic. This applies to all departments with about equal frequency. Even orderlies and nurses employed by the hospital have been found to be in the most active stage of the affliction. More danger is encountered in these random, unknown cases than when special wards are provided and proper precautions are observed in their management. Moreover, it demonstrates the utter futility of attempting their complete exclusion. Formerly the need was less urgent for such accommodation than at present. With the treatment by salvarsan it is indispensable to have such patients admitted to the hospital for short periods. Prompt measures at the onset will prevent the danger that always exists to others, and affords the most favorable opportunity of eradicating the disease from the patient's system. In all hospitals, therefore, a male and a female ward should be established for syphilis. In this regard, boards of management and superintendents should be better informed concerning the frequency and

the gravity of syphilis and the relation which the disease bears to the general community.

The mistake has arisen in looking on syphilis as a disease confined to the low and vile, while in reality it is encountered in all grades of the moral and social scale; furthermore, the number of blameless persons afflicted with this affection is remarkably high. If special provision were made, there would be far less likelihood of such cases being scattered promiscuously through the various services of a hospital as now occurs under the rule of exclusion, which is wholly theoretic, for in actual practice it does not exclude. Nor should these cases be excluded.

CONCLUSIONS

From the foregoing it seems evident that syphilis should be taught by the creation of a special department; that so far as possible all phases and forms of the affection should be taught in, or at least be under, the supervision of this department; that laboratory facilities should be furnished and manned by a competently trained staff, and that hospital provision is imperative both in better treating the disease and guarding the safety to others in the institution. The good such an arrangement would do would redound to the credit of the hospital and tend to safeguard the community in which the hospital is situated.

If it is inexpedient to establish a special chair or department of syphilis the disease should be grouped with diseases of the skin, because most commonly the lesions of syphilis are found on the skin and an interpretation of these lesions is best entrusted to the trained eye of the dermatologist. In conclusion, he is best equipped to treat skin lesions who, in addition to being trained in the field of general medicine, becomes skilled in observation with the ability to interpret. With the rapid development of serology and other laboratory departments, to be skilled in a given field one must, after the general foundation has been securely established, specialize in order to attain that proficiency which concentration alone can give.

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ABSTRACT OF DISCUSSION

DR. ANNER POST, Boston: The idea that the teacher of syphilis has done his duty when he treats syphilis as a neural disease is passing away. Syphilis is recognized as a constitutional disease which involves the whole body. To teach syphilis properly the teacher must have aid from his colleagues. Dr. Corlett's suggestions as to the way in which such cooperation should be brought about deserve serious attention.

It is a serious question how much a teacher of syphilis should be expected to teach his students. He does not need to make syphilographers of them but he should be able to impress on them the general attributes of the disease, so that, whether they practice on the eye or the ear or the internal organs they may recognize obvious symptoms outside of their own branch. We are most of us obliged to depend on ambulatory service and it ought to be possible by some cooperation to connect the cases in the wards with the ambulants.

DR. JOHN A. FORDYCE, New York: There should be a department of syphilography in our medical schools which should teach in an intensive manner the general pathology and symptomatology of the disease, so that a student could obtain from one department a general knowledge of syphilis of the skin, viscera, blood-vessels and the nervous system. I do not intend to convey the idea that one man should cover the entire subject of syphilis. The finer points in the diagnosis of syphilis aside from the skin and mucous membrane lesions should be taught by the department of medicine, surgery, neurology and ophthalmology. The department of syphilis should have under

its control a Wassermann laboratory, as at the present time it is impossible to diagnose and treat many of the manifestations of the disease without a proper serologic control. The diagnosis of syphilis should be made as early as possible and when there is any question of doubt the dark field should be employed to clear up the diagnosis. It is only by an early recognition of the infection that the abortive treatment by modern methods can be successfully carried out.

DR. WILLIAM A. PUSEY, Chicago: About two years ago I served as chairman of a subcommittee which was appointed for the purpose of suggesting a practical working plan for the teaching of dermatology in the medical schools and the time that should be given to it in the curriculum. I was put in the unpleasant position of objecting to the number of hours that almost every other department declared it required. When it came to the department of dermatology, I expected the same objection from others, and very much to my surprise I found an opposite attitude; they agreed that dermatology and syphilis were entitled to liberal consideration. This experience has led me to believe that if we work in reasonable concert along the lines Dr. Corlett has suggested, we might be able to obtain very practical results in a few years.

DR. HENRY C. BAUM, Syracuse: To every one who teaches this subject, there can be but one opinion in regard to the advisability of carrying out the suggestions made by Dr. Corlett, and in order that something definite may be accomplished, I would suggest that Dr. White appoint a committee to draft regulations which may be submitted to the institution in which syphilis is taught, and which would give to them the weight of the opinion of this Section on this subject, the committee to report at the next annual meeting of this Section.

DR. GEORGE H. FOX, New York: We must approach the study of syphilis from various points of view, and the man who teaches syphilis should not only understand the cutaneous lesions of the disease, but also syphilis of the eye, throat, nervous system, etc. Most of those teaching this subject are compelled to limit instruction to the cutaneous symptoms, and I believe that one of the best ways to simplify it for students is to use the same terms in describing the skin lesions. As it is now, we employ terms carelessly in referring to the cutaneous manifestations of syphilis. Two weeks ago, at a meeting of the American Dermatological Association in St. Louis, I read a paper calling attention to this fact, and suggested a scheme for simplifying the nomenclature of cutaneous syphilis to take the place of the confusing and often inaccurate classification that is found in many of our text-books.

DR. ISADORE DYER, New Orleans: I think the idea of relegating the teaching of syphilis in our medical schools to any one man is not practicable at this time. There are comparatively few men who possess such a special knowledge of the subject as to be able to cover the dermatologic, ophthalmologic, rhinologic, neurologic and other phases of the subject. There are comparatively few men who occupy chairs in dermatology who are properly qualified to teach syphilis as it should be taught. Under our present system of teaching syphilis, the students receive a certain amount of instruction regarding it from the various chairs of medicine, surgery and the specialties, but the information is not at all crystallized. At the Tulane University we have tried to cooperate in this respect, so that when the professor of medicine reaches a certain point in the teaching of syphilis, he calls in the various specialists to give a course of lectures on the subject in their special branches. As it is, the students obtain their knowledge of the subject from too many different sources, and what is needed is further cooperation. Syphilis should be given as much prominence as any other subject in the teaching curriculum.

DR. JAMES M. WINFIELD, Brooklyn: At the Long Island College Hospital we have been trying an experiment somewhat similar to that outlined by Dr. Dyer. We found that students were receiving a great deal of instruction in regard to syphilis in a rather haphazard way, so the professor on genito-urinary diseases agreed to join with me in an effort to supervise the teaching of syphilis. He limits himself to the etiology, pathology and the primary lesion, and then I follow with a course of lectures on the cutaneous manifestations of the disease. Then the internist, the neurologist, and the various

other specialists take up the subject, limiting themselves to their particular branch, one immediately following the other. Thus far the plan has worked wonderfully well.

Dr. W. T. CORLETT, Cleveland: I believe syphilis will be better taught in the future than in the past, and while individual opinions may differ as to the best way to attain this end, yet correlation and concentration, which will confine as much as possible the fundamentals to an individual department, will do much to disseminate a better and more definite understanding of the affection among medical men.

THE INTENSIVE TREATMENT OF SYPHILIS *

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AND

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The numerous contributions to the study of syphilis in recent years have confirmed in many points the previous observations of a purely clinical nature; along other lines they have settled mooted questions, but they have caused the previous views in regard to treatment to be largely revised.

The Wassermann reaction has been in use long enough to establish its place definitely as an indicator of efficient treatment. While a single negative reaction does not mean that the patient is cured, a positive reaction certainly indicates the presence of spirochetes in some part of the body. In a previous communication one of us¹ has called attention to the proportion of positive reactions in latent syphilis, and its relation to the intensity of treatment as carried out in this country. In cases of latent syphilis, within three years of the time of infection, 75 per cent. showed a positive reaction. In late latent cases with two years' treatment or less, 58 per cent. of the reactions were positive, while 40 per cent. of the patients who had taken from two and one-half to six years' treatment still gave a positive reaction. In Paris, Levaditi and Latapie² found 44 per cent. positive reactions in late cases which had received intensive mercurial treatment. Lesser³ concluded that four courses of mercury represent the maximum of efficiency, because in the late latent stage he obtained 51 per cent. negative reactions in patients who had undergone four courses, while only 53 per cent. of those patients who had taken six courses gave negative reactions. Jestonek and Meirowsky,⁴ however, found that although 41 per cent. of patients who had taken four or five courses of treatment gave positive reactions, the figures fell steadily to 31 per cent. for those who had undergone eight or more courses. With the rule for chronic intermittent treatment laid down by Neisser, namely, six courses of mercury in the first three years, the figures still show the presence of positive reactions in over one-third of all patients who had taken three or more years of treatment. In the above-mentioned figures, the conclusions are drawn from single tests and, considering the tendency of the reaction to relapse when treatment is discontinued, it is probably safe to conclude that 50 per cent. of all patients with syphilis were insufficiently treated. Autopsy⁵ findings on subjects, who had a history of

previous syphilis and on section showed some visceral lesion, confirm this view.

The advantages of an early diagnosis of syphilis can hardly be overestimated. From the standpoint of the protection of the community, the early diagnosis and hence early treatment decrease the danger of the spread of the disease. The secondary period with its mucous patches and moist condylomas is the most infectious, and the prevention of such lesions will, in a large part, prevent the spread of syphilis.

Of still more importance to the patient is the recognition of the life-history of syphilis. It starts as a local infection and, according to the degree of local reaction and activity of the virus, remains localized for a longer or shorter period. After the spirochetes have broken through the first line of defenses, there is a general invasion of the body. The dissemination of the spirochetes doubtless takes place largely through the bloodstream during the last half of the primary stage and in the early secondary period. During this time the blood is most often found to be infectious. With the blood from a patient at least three weeks before the outbreak of the secondaries, Hoffmann⁶ was able to induce a typical initial lesion in monkeys. Fruhwald,⁷ in an extensive review of the infectiousness of the blood, states that with one exception spirochetes have never been demonstrated in the blood, either by direct examination or by animal inoculation, later than the first six months of the disease.

ACTION OF THE SPIROCHETE

The knowledge of the early general distribution of the virus gives one an entirely new conception of the progress of the disease. It is probable that all of the tissues are inoculated early, and relapses are simply relapses *in situ*. The progression of the cutaneous manifestations supports this view. The lesions are at first almost universal and very superficial, but with each relapse they become more localized, and tend to group and involve deeper structures until the gummatous stage is reached. These very localized relapses probably are excited by spirochetes long present in the tissues, which the general defenses of the body or therapeutic measures have been unable to destroy and which the local reactions are endeavoring to conquer. It is well established, in both human and experimental syphilis, that spirochetes can lie dormant in tissues for long periods without giving rise to any inflammatory reaction. Spirochetes have been found in various tissues of the body which have never shown any evidence of the disease, and which at the time of examination showed no tissue reaction. The Herxheimer reactions, which occur shortly after treatment, are often noted in areas where no gross lesion could be demonstrated. If this reaction is considered as due to the liberation of toxin from spirochetes present at the site of the reaction, it indicates the probability of such a latent condition of the microorganisms.

The involvement of the central nervous system has always been one of the most important features of syphilis, but only lately are we beginning to realize how early this involvement occurs. With the spinal fluid of a patient in the very early secondary stage and without nervous symptoms, Hoffmann⁸ was able to produce syphilis in a monkey. Ravaut⁹ found an increase in cell-count in 67 per cent. of 116 patients with early secondary syphilis. In parts of the nervous system

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-Third Annual Session, held at Atlantic City, June, 1912.

¹ From the Hospital of the Rockefeller Institute for Medical Research, New York.

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