A SURVEY OF SYPHILIS

XIII.

Dorothy J. Dodds

A Curriculum Study in Social Hygiene for Nurses--Mae McConkle, R. N.

Economic Cost of Syphilis --Dr. Thomas Parran

Social Hygiene and the Nurse --Edna L. Moore, R. N

SOURCES OF INFORMATION

Dr. J. Guy Strohm

Medical School Clinic

Oregon Social Hygiene Society

Oregon State Board of Health

BOOKS:

Syphilis of the Innocent-------	Dr. Harry C. Solomon
Syphilis as a Modern Problem---	Dr. Allen Pusey
History of Syphilis----------	Dr. Allen Pusey
Syphiliology----------	Dr. John Stokes
Syphiliology for Nurses--------	Dr. John Stokes
Report of Scientific Research in Venereal Disease--	American Social Hygiene Association

The following books by Gladys Crain, R. N.:

Public Health Nursing and Medical Aspects of Social Hygiene

Syphilis---What Public Health Nurses Should Know About the Disease and Patient

Familial Syphilis

Facts Regarding Diagnosis and Treatment

INDEX

Syphilis has a wide variety of interests. It is strictly a disease of man and it is one of the most important diseases that afflict him. It has the tragic human interest of being heriditary, as no other important disease has. Its manifestations are so varied and its study is one of the interests in every branch of medicine. It is surely the most difficult of diseases from the point of view of sociology.

The history of syphilis is unique among the records of great diseases. For, unlike most diseases, it does not gradually emerge into the historical records of medicine as its characters become recognized, but appears on the stages of history with a dramatic suddeness in keeping with the tragic reputation it has made as a great plague sweeping within a few years over the human world.

Local genital diseases have been recognized from ancient times. It is, however, a very striking fact that in all medical and ancient literature there is no reference to a disease of the genitals which is followed by constitutional symptoms. Prior to the last years of the fifteenth century no description of the syphilitic syndrome existed.

In the autumn of 1494, Charles VIII of France, with an army composed of merceraries from all

parts of western Europe, invaded Italy for the conquest of Naples. Italy, which at this time had reached the height of effeminate luxury and was weakened by the rivalries of her numerous states, was able to make no effective resistance to the well organized forces of Charles. Charles was able to make good his claims to the throne of Naples.

In a short time dissipation and disease did what the Italians could not; a plague attacked his troops. Ultimately the various disorganized troops scattered over Europe and returned to their countries, carrying with them the new disease which thirty-five years later became known as syphilis.

The spread of syphilis from Italy can be traced step by step with the dispersal of Charles' army. It appeared in France, Germany, and Switzerland in 1495, in Holland and Greece in 1496. It spread to England and Scotland in 1497, to Hungary and Russia in 1499.

Another evidence of the newness of syphilis was its severity. The disease compelled attention by the severity of its manisfestations. When an infectious disease first appears among people and finds lodgment in a virgin soil, it wages with unwonted severity, and this was characteristic of the great epidemic of syphilis at the end of the fifteenth century.

In contrast with the mild characteristics

of early manifestations of syphilis as ordinarily seen in people among whom it has long been present, the cases ran an acute febrile course accompanied by symptoms of such severity as are now only seen in very unusual cases. High fever, intense headache and bone and joint pains; early skin symptoms so severe that they simulated smallpox; great prostration, and very frequently, a fatal ending early in the disease. This epidemic had all the characteristics of a virulent plague. With the loose morals of the time, however, syphilization of the world was rapid. In fifty years severity of symptoms had diminished.

Syphilis is one of the diseases which leaves evidence in bones that is at times so characteristic that it must be accepted. Collections of pre-Columbian European bones have been studied again and again and no authentic syphilitic bones of pre-Columbian date have been found in Europe. Collections of American Indian bones and teeth show overwhelming evidence of syphilis of pre-Columbian date. These collections were obtained from New Mexico, Mexico, the southern states, Peru and Argentina.

The facts that syphilis appeared in Europe inthe years immediately following the return of Columbus from his voyage to America, according to many early Spanish writers: Its spread from Italy with the dispersal

of Charles' army; it was recognized as a new disease and no name existed for it. The preponderance of evidence for the American origin of syphilis is overwhelming. However, the problem of the antiquity of syphilis cannot be definitely settled.

Ivan Bloch gives many contemporaneous references in his collection of known facts concerning the early history of syphilis, testifying to the interest excited by the new disease and to the importance attached to it.

The end of the fifteenth century was the beginning of modern science. It was at the beginning of this great period that syphilis spread over Europe and it furnished a new stimulus to activity of medical thought, one of the few things that can be reckoned to the credit of syphilis is that it was an ideal means of stimulating men's minds to the objective study of disease. Studies of syphilis recorded state syphilis as the first illustration of the modern objective study of disease, by which method modern science has been enabled to make great progress.

The literature of syphilis in the sixteenth century and the knowledge of the disease which it shows is of suprising extent.

As early as 1568 mercury was introduced as

a treatment for syphilis by Parcelsus, who also suggested heredity of syphilis. Frocastor in his poem "Syphilis and Sine Morbus Gallius" published in Venus in 1530 immortalized himself by inventing the name of syphilis. The name Syphilis was derived from the words meaning sever lover. Syphilis was the hero in the poem.

Jean Fernet, 1506-88, made the important discovery that the syphilitic virus would not pass through normal skin. He traced the course of the infection and showed that the chancre was the first lesion of the disease and that general infection followed this.

By the latter half of the eighteenth century there had been accumulated a great fund of knowledge about syphilis. Symptoms had been described. There was a distinction between syphilis, gonorrhea, and chancroid. The enormously important sugject of syphilis of internal structures had been well worked out by many investigators. Congenital syphilis was well known and its important facts described. Dangers and importance were recognized of extra genital infections and of mediate transmissions of the disease.

At this point, John Hunter enters the field, and his work on the venereal diseases mark an epoch in their history; not because of the additions to knowledge which he made, but because of the confusion into which, through his great authority, the subject was

thrown by his false views. He refused to distinguish between the venereal diseases.

The history of syphilis from Hunter's time, 1767 to 1837, was one first of confusion, and then gradual groping into light. The modern knowledge of syphilis dates from Philippe Ricord, whose work between 1831 and 1860 established the fundamental part, and the large part, of our present clinical knowledge of syphilis. Ricord's greatest work was his conclusive demonstration of the specific character of syphilis into the three stages--primary, secondary, and tertiary.

During the last quarter of the nineteenth century the clinical distinctions between the venereal diseases, determined by Ricord, had been scientifically established.

By the end of the nineteenth century, syphilology had achieved all that could be achieved by clinical methods through the most painstaking study.

The situation at the beginning of the twentieth century proved ripe for a great advance in our knowledge of syphilis. One important discovery in syphilogy followed another. The most important of thses discoveries was that of Metchinikoff and Roux in 1903, that syphilis could be inoculated into apes. It was an essential fact; for without the ability to produce a

disease at will in lower animals, it is impossible to make a thorough study of the disease. After a long line of attempts to produce syphilis in animals of course the ape would be the most likely animal for this experiment.

The discovery of the spirochaeta pallida, the specific organism, in 1905 by Schanderin and Hoffman reveals the fundamental fact of the disease. This discovery was the successful end of one of the most zealous searches in the history of medicine.

In 1906-07 Wassermann, Neisser and Bruck developed the practical test for syphilis. The Wassermann test is the application to syphilis of a general reaction. The syphilitic blood contains some substance which even in very small amount causes that blood, under the conditions of the Wassermann test, to act on sheep's blood corpuscles in a way quite different from that which non-syphilitic blood acts on the same corpuscles.

Ehrlich's development of specific arsenotherapy by the introduction of "606" or salearson and its derivitives was the most important application of a new principle in therapeutics. It has proved a remedy of very great value in the treatment of syphilis.

Some of the most important chapters in the history of syphilis have been written. One of the most important chapters yet to be completed is the public health aspects of the disease.

PART II

Syphilis is a common constitutional disease, an infection with a spiral or corkscrew shaped germ, the spirochaeta pallida. The germ has a number of peculiarities important to the course and diagnosis of the disease and to its treatments. It is stained with great difficulty, hence the name "pallida", and in the process of staining, it loses its characteristic shape to an extent that makes it difficult to differentiate from other germs, so that it is really necessary to see it in living form to positively identify it. Darkfield examination, the method used for seeing the germ in the living form is a difficult one for the average doctor. This difficulty interferes materially with the earliest recognition of the infectious case, and with prompt treatment and cure.

The spirochaeta pallida, while a feeble germ, and easily destroyed by drying, disinfectants, and even soap and water, is extraordinarily well adapted to the life in the human body. It cannot, however, live in the presence of oxygen, and this makes the free dry skin of the body of the patient with syphilis non-infectious.

The course of syphilis falls naturally into several stages. The first event in the course of syphilis is the inoculations of spirochaetae pallida into the skin. For this to occur there must be a

break in the epidermis. Unfortunately, however, the favorite site for the growth of the spirochaeta pallida is very superficial in the skin, so that the minute breaks in the skin which are easily overlooked furnish the readiest means of inoculation. After inoculation no evidence of the disease appears for approximately four weeks.

The first evidence of infection with syphilis is the appearance of the chancre. The chancre is usually a single, indolent, small round superficial ulcer or excoriation. It has a button-like undercooted base.

The chief features of the initial lesion are its apparently harmless character and its persistence. It is practically painless, is associated with no systemic disturbance and gives no imitation in itself of the serious nature of the infection which it represents. The only indications of its importance lie in its induration and its indolence; it neither gets better, nor worse, but persists for two, three, or four weeks before it shows any tendency to heal.

Although at the time of the development of the chancre there is a considerable dissemination of the spirochaetes, yet as is indicated by the Wassermann reaction, the disease does not as a rule become systemic in the early days of the chancre. More than a week

usually passes after the appearance of the chancre before the Wassermann reaction becomes positive. During this time the spirochaeta pallida can be demonstrated in the chancre, so that a conclusive diagnosis of syphilis can be made.

This period after the appearance of the chancre and before the disease has become systemic as shown by the Wassermann reaction, has assumed a place of very great practical importance: for clinical experience has shown that, during this short time before the appearance of a positive Wassermann, there is a fair chance of aborting the disease by vigorous treatment begun at this time. After this short period has passes, the chance of aborting the disdase, no matter how thorough the treatment, decreases with great rapidity.

The appearance of the eruption is the final evidence that syphilis has become established as a systemic disease. This eruption, which appears on the mucous membranes of the mouth and genitals as well as on the skin, is of the symmetrical distribution and varies in extent and intensity between the widest limits.

This rash varies in character from a spotted eruption to papular and even ulcerative types.

About eighty-five percent of the secondary eruptions are comparitively mild in character, and are often so inconspicuous that the patient himself often fails to notice it entirely. Coincidentally with the appearance of the rash on the body the hair may fall out in small moth-eaten patches, in a very characteristic fashion, and the patient may develop a sore throat, and a peculiar type of moist eroded lesion in the mouth, throat and about the genitalia called mucous patches.

The constitutional symptoms of the secondary stage vary from slight indisposition to severe illness, with the loss of weight, fever, headaches, and bone pains, anemia and other complications. Women are more likely to develop constitutional symptoms than men, and less likely to have visible eruptions, but in neither sex are the symptoms usually striking. They frequently give little or no warning of the serious complications which are to develop in later years.

The secondary stage of syphilis has no sharply defined duration. It may be measured by a few months, or extend over two or three years. In treated cases it may never develop, or its symptoms may last for only a few days or a few weeks. After the first year any symptoms of secondary syphilis that recur are sporadic.

The progress of the untreated syphilitic infections from the stage of secondary eruption is one of partial spontaneous recovery, followed by a long period of latency or concealment, punctuated with relapses and ending in the late manifestations of the disease. The mistaken motive is so general that syphilis is a skin disease. Syphilis of the skin early or late is a triviality.

All of the symptoms of teritary syphilis are due to the activity of localized spirochaetes.

As the secondary eruption begins to disappear, the germs of the disease in the body of the untreated are killed off in vast numbers by the development of the patients own resistance. Changes in the patients' internal chemistry take place which may protect him for years from outspoken evidence of the disease. This is the period of latency and it may last uninterrupted from a few months to as long as sixty years. During this time the patient may marry, a family of infected or uninfected children may be brought into the world, and slow changes take place in the patients' blood vessels, heart muscles, and his brain and spinal cord which with little or no warning, may bring him to dust in the very prime of life. An absolutely uninterrupted latency is not, however, the rule. Slight outcroppings, and the appearance and disappearance of crops of mucous

patches in the mouth, and of condylomnas about the genitals and anus, make him periodically infectious, to others without realizing the fact.

Gradually these infectious lesions cease to appear, and are replaced by gummas or teritiary lesions, deeper, more destructive and disfiguring, but of little importance for the life of the patient as compared with the concealed diseases of arteries, heart, and nervous system, and are much more easily controlled by treatment.

A large part of fatal syphilis is the outcome of attacks upon the heart, the aorta, and smaller blood vessels. Under thousands of non-committal labels such as apoplexy, heart disease, angina pectoris and paralysis, syphilis acts. Nothing more than guess work as to extent of its ravages is available at the present time, but so great is the power of this single disease in the course of destruction that a revision of mortality statistics in the light of what is known about syphilis places it among the first of the causes of death in all mankind. A very large part of its tolls is taken in disease of the cardiovascular system. Syphilis of the heart and arteries strikes suddenly from concealment or under false names. Syphilis of the nervous system is better understood by the public at large, and locomotor ataxis and general paralysis of the insane are so

terrifying in the popular mind and so synonymous with the worst that the common man conceives of what syphilis can do to his.

Syphilis of the central nervous system is of frequent occurrence. Locomotor ataxia affects perhaps three percent of persons who acquire syphilis, and general paralysis four and a half to five percent. About thirteen percent of the insanity in mental disease hospitals is due to syphilis.

Tabes Dorsalis is a degenerative disease of the sensory nerve roots and the spinal cord, actually due to the presence of spirochaeta pallida in the tissues. The earliest symptoms may be seen to come to the base of the brain--disturbance of vision, fixation of pupil of the eye, paralysis of eye muscles causing the patient to see double. Presently signs of injury to the cord appear--pain, sharp and shooting in character, especially in the legs due to involvement of the sensory nerve roots; loss of the sense of motion and position, causing the patient to stagger and lose his footing after dark, and later to have the same trouble in exaggerated form in daylight. Tabes Dorsalis may be confined with the mental degeneration of general paralysis, forming the picture known as tabo-paresis.

General paralysis of the insane begins in periods of exaltation or depression, associated with conduct disorders of various kind. General paresis is

subject to periods of remission.

The vitally important fact that recent years have brought to light about neuro-syphilis is the possibility of detecting its beginnings early in the course of the disease and long before the clinical signs of the damage done become recognizable. This forewarning of neuro-syphilis involvement is accomplished by examination of the spinal fluid of the patient within the first year of his infection.

In cardiovascular syphilis there are as yet no reliable early evidences of involvement which anticipate the appearance of actual damage.

With the increasing effectiveness of modern treatment, the time which it is possible to gain by an early diagnosis of neuro-syphilis, and the increased accuracy with which we can determine the type of involvement and the appropriate treatment, the bad outlook for recovery which had become traditional, has been changed. It is now possible to arrest and perhaps cure eighty percent of neuro-syphilis if it is recognized by examination of the spinal fluid in the early months of the disease. It is, moreover, possible to predict, to some extent in advance, which cases will tend toward general paresis and to apply special treatment in their cases before symptoms and signs of deterioration appear. A properly performed spinal

test, therefore, becomes one of the most important diagnostic procedure in modern syphilology.

The saddest aspect of syphilis is that it is transmitted to the second generation. The child of a syphilitic may be born into the world bearing the treporema pallidum in his body and thus be handicapped through life. Like the adult who acquired syphilis, he may suffer any of its results.

The infection may be carried through the placenta, or the organism may be directly bound to the germ cell. These two modes of infection have been called placental and germinal.

The effects of syphilis on childbearing are several and vary in severity. Sterility, abortions, miscarriages, stillbirths and syphilis living progeny result from parental syphilis.

The question of the transmission of syphilis from father to child without the acquisition of syphilis by the mother is a possibility but if it occurs at all, it occurs but rarely.

From the practical standpoint of handling the disease it is necessary to suspect syphilis in both parents of a congenital syphilis. The severity of parental syphilis has no relation to the severity of the congenital syphilitic.

Congenital syphilis may become active during the development of the fetus, or its first manisfestations may appear at varying times after birth. As a rule its severity varies inversely with the age of the patient. The earlier it attacks the fetus of the child, the graver its course.

Excepting the initial lesion, congenital syphilis may produce any manisfestations of the acquired disease. It has skin lesions, lesions of the mucous membranes, and lesions of the deeper structures analogous to those produced by acquired syphilis. The deeper structures of the body are much more extensively involved, and the disturbance of the general health of much graver character compared with the symptoms of acquired syphilis. Because of its attack during the development of the fetus some of its commons symptoms are lacking in acquired syphilis, and it produces deformities and dystrophies that are necessarily lacking from syphilis which invades the body after growth has been attained.

When the fetus is infected early in its development, or at any time before the third or fourth month, the death of the fetus from syphilis is very likely to occur, and a miscarriage to take place at from the third or fourth to the seventh or eighth month. Its results, therefore, that syphilis is one of the great causes of the miscarriages of dead fetuses.

If the attack is not so intense as to cause the death of the child, it may be born with syphilis active at the time of birth. Much more frequently the child is born apparently healthy and the disease appears three or four weeks after birth. It rarely appears later than six months. In a few rare cases, however, the intensity of the infection is so great, that its manisfestations only appear several years after birth.

In the cases of children born with the active disease the manisfestations are usually of extreme type. The skin and mucous membranes are extensively involved in the syphilitic eruption. Severe rhinitis and laryngitis occur. The child has a purulent nasal discharge; it snuffles, and on account of the nasal obstruction, breathes and nurses with difficulty. On account of the laryngitis it has a characteristic high-pitched harsh cry. The spleen is usually, and the liver often, enlarged and there is evidence of grave systemic disturbances. The skin is sallow and falls in wrinkles over the thin limbs and body, and the face has a pathetic anxious old man appearance. The gravity of systemic symptoms rapidly increases, and the cases usually terminate fatally within a few days to a few weeks.

If the child is born infected, but without active evidence of the disease, it is usually to all

appearances healthy and normal, and nothing ominous develops immediately. In the course of from two to six weeks, rarely longer, the disease appears. The first indication of the disease may by the appearance of snuffles and the development of a characteristic harsh cry. The symptoms are similar to those previously outlined. The fatality among these cases is still very high, but if they are vigorously treated, and otherwise well cared for, a good many of them survive.

The affections of bones are among the most frequent manisfestations of congenital syphilis and among the earliest to appear. They may be due either to developmental defects of the bones, or to the actual presence of syphilitic lesions.

The manisfestations of congenital syphilis of the vascular system are not the frequent complications that they are in acquired syphilis.

Eye and ear affections in congenital syphilis form one of the most important groups of complications of the disease, both medically and socially. Inflammatory changes in the optic nerve occur in a high percentage of cases, but only a small percentage develop grave symptoms or lose their sight entirely from this cause.

A second common and serious manisfestation

of syphilis in the eye and one which is to a high degree characteristic of the congenital form of the disease, is an inflammation of the cornea known as interstitial keratitis. Derby has estimated that about one in every one hundred and eighty eye cases in a large dispensary is a case of interstitial keratitis. The condition is rebellious to treatment and especially so under the unfavorably conditions of home management. The gradual coulding of the cornea effects a most serious impairment of vision in neglected cases, and may easily result in complete loss of vision. Relapses are prone to occur, and the complication is one that tends to develop late, usually from the fifth to the tenth year. It may not appear however until from the eighteenth to the twenty-fifth year.

The principal form of ear disease attributable to congenital syphilis is internal ear deafness, due to obscure changes in the auditory nerve.

Syphilitic processes in the brain and spinal cord and their membranes occur in a considerable proportion of cases, and leave serious permanent damage to the nervous system. Among these results of syphilis must be included some of the cases of hydrocephalus and epilepsy, and some of the paralysis occuring in infancy and childhood.

The worst result of congenital syphilis of the nervous system is idiocy, which is sometimes one of its manisfestations. Syphilis is one of the very common accidents among the mentally weak and defective, who are likely, quite independent of the transmission of syphilis to their offspring, to transmit to them psychopathic tendencies which result in a considerable number of idiots.

In a certain proportion of children born with congenital syphilis, either on account of their natural resistance to the disease or for some other reason, its presence is entirely masked during early childhood, and they develop to to eighth, tenth, or even fifteenth year before the disease makes its initial appearance.

This form of syphilis manisfests itself chiefly in the eye, teeth, joints, and nervous system. In the eyes it causes a chronic inflammation of the cornea, and in the teeth it produces a peculiar development of the incisors.

The first teeth of congenital syphilitics sometimes show defects of developments, but this is by no means common, and the characteristic development in the teeth, known as Hutchinson's teeth, occurs in the permanent teeth. It is most marked in the central upper incisors. The teeth stand apart, are peg-shaped,

smaller than normal, with a crescent notch in the cutting edge which extends on to the surface of the tooth.

In spite of the fact that a proportion of congenital syphilitics live to escape the ravages of the disease and that in some its symptoms are so mild as to leave no evident traces, congenital syphilis is one of the gravest of diseases. A mortality of seventy-five percent during the first year among syphilitic infants is a common estimate.

The failure of congenital syphilis to be transmitted to the third generation indicates that having had congenital syphilis is not in itself a bar to marriage. Patients who have distinct stigmata of congenital syphilis often belong to the class of the physically unfit, and as such, from the standpoint of society are not suitable persons to bear children, but this is on account of their general physical defectiveness, and not because they are likely to transmit syphilis.

PART III

One of the erroneous popular impressions in regard to syphilis, is that it is incurable and difficult to treat. Nothing could be in many ways farther from truth. While the disease has a tremendous persistence and relapse is part of its make-up, yet there is no one of the great constitutional diseases

that responds symptomatically more promptly and completely than does syphilis in a high proportion of cases. So easy is to make even the most obvious and deforming lesions heal that the patient has little to keep him at his treatment for the months and years that we know are needed to produce results. Ten percent of patients apparently recover under the most insignificant medications--mercurial pills and potassium iodide by mouth. The proportion of patients who recover under the more vigorous modern methods cannot as yet be accurately estimated, but it seems probably that it is not less than seventy-five percent, and may be higher, depending on the stage of the disease at which treatment is begun.

There are five important principles which must be constantly kept in mind in dealing with syphilis as a medical and public health problem:

1. The patient whose intensive modern treatment is begun in the first week or ten days of the chancre or primary stage, while his Wassermann is negative, has the ideal prospect of cure. This means that diagnosis must have been made by darkfield, not by the blood test.

2. The treatment given must include arsphenamine "606" and "914" and mercury or bismuth and must have been carried on, without interruption, for not less than eighteen months.

3. Periodic observation must be continued throughout life. As in tuberculosis, it is wisest from the standpoint of ultimate good, to speak of "arrest" rather than "cure".

4. The condition of the nervous system must be checked by the performance of a spinal fluid examination within the first year, and if the nervous system is involved, special methods must be applied.

5. The condition of the heart and aorta must be especially watched over a period of years, for lesions develop here which are not detected by ordinary blood tests.

From the time of its first recognition in Europe, the treatment of syphilis has been carried on with mercury in various forms and combinations. Innumerable other drugs have been proposed during the four centuries preceding the discovery of "606", arsphenamine itself, but neoarsphenamine or "914", and other compounds. Not only has cure been made possible in a large proportion of cases, but what is almost as important from the public health standpoint, the temporary sterilization of infectious lesions can be brought about by the use of this drug within a few hours after the first injection. It is thus possible, by its intelligent use, to stop the transmission of the disease in a way hitherto impossible, and to strike directly at

the root of all its public health problems. The arsphenamines have made possible the extinction of syphilis as a disease.

The arsphenamines are yellow dyes, in powder form, soluble in water and containing a high proportion of arsenic, in fact, many times the fatal dose if arsenic were taken alone. It is the chemical combination in which the drug is held that makes it possible to give it with so little disturbance. The full dose of "606" contains 26 times the fatal dose in arsenic. The various arsphenamine compounds are given intravenously or intramuscularly.

So powerful a group of drugs as these cannot be given without the production of reactions in the patient's treatment with it. The nurse should always instantly report the following symptoms after administration of any of the arsphenamines: soreness of arm; any irregularity in pulse, or a temperature over 100F or under 97F; vomiting more than three times; more than three bowel movements if accompanied by prostration; or passing of black or bloody stools; any signs of skin eruptions; any sign of mental stupor; mumbling speech; any signs of bleeding from the gums or mouth; purpurpic spots on the skin; failure to pass urine within eight hours after injection; severe itching

of the skin even without eruption; any signs of jaundice.

Mercury still holds a place of great importance although it is gradually giving way to the lower toxicity and greater spirochaeta destroying power of bismuth. Three methods of giving mercury are in common use: by injection into the muscle; by rubbing into the skin; and by mouth administration.

In 1922 the French investigators, Sazerac and Levadite, who had been experimenting with the use of bismuth in the treatment of spirochetal infections in fowls, announced the applicability of this drug to the treatment of syphilis. It appears that is has qualities which place it midway between mercury, which has little influence on the germ, but teaches the body to fight the infection, and arsphenamines, which have little effect on the body, but are very destructive for the germ itself. This combination of qualities, together with increased knowledge of chemiotherapy in general and the lesser toxicity of bismuth as compared with mercury, has in seven years placed the new drugs in a position of superiority to mercury.

Tryparsanide, a synthetic arsenical drug developed by the Rockefeller Institure, is a drug with an enormous arsenical content, which, curiously enough, has very little effect on the spirochaeta pallida but a remarkable effect on syphilis of the nervous system,

and especially on general paralysis. Tryparsanide has a very low toxicity for the body as a whole, but its one most serious drawback is the possibility of injury to the optic nerve. The eye must therefore be checked after each injection and watched for certain warning symptoms.

Within the last several years the method of treating syphilis of the nervous system devised by Wagner von Fauregy of Vienna has come into prominence. This consists in the inoculation of the patient with tertian malaria. Blood from a patient with malaria is injected into the person to be inoculated, subuntaneously or intravenously. The patient develops a genuine malarial infection, with chills and fever. When he has had a number of chills varying from three to ten or even more, the malaria is cured by the administration of quinine, and the therapeutic effect of repeated louts of high fever becomes apparent. The results obtained with malaria can be to some extent duplicated with other fever-procuring agents with few complications but less striking response. This method, while undoubtedly one of the most effective now in existence for treating general pareses and obstinate complications like gastric crises, requires hospital care throughout the course, and has a rather high mortality. Convalescence may be slow. The question as to whether tryparsanide or malarial treatment is the better cannot be answered conclusively

as yet, for they both mean serious risks. The percentage of temporiarly good results seems to be about the same, but there is an impression that the effect of malaria is the more lasting.

PART IV

The economic and social cost of syphilis is stupendous. Millions are spent each year to care for the insane, crippled, and otherwise incapacitated. However, the loss to the community and family cannot be estimated.

Based on an estimated attack rate of 4.4 per 100,000 for up state New York and 7.8 for New York City, there would be 81,000 new infections per year. A moderate estimate of the cost per year of treating adequately a case of early syphilis is $200. Hence, adequate care for syphilis in New York state would cost around $16,000,000 a year.

Dr. Thomas Parran estimates that the cost of adequately treating syphilis as a public health problem would be 88 cents per capita annually. That the loss due to shortened span of life of patients with dementia paralytica represents a cost of $1.20 per capita and the loss due to death from other forms of syphilis represents more than $10 per capita for the population of this country.

If proper methods of control were in effect, this tremendous sum of money which is spent on care of syphilitics would be greatly lessened. People think in terms of money and figures on cost of syphilis to the community would be a good weapon to be used to obtain more adequate control.

The first concentrated effort in the control of syphilis in the United States occured during the World War. Syphilis, as a menace to the nation's health, was forced upon the attention of the public through the results of the physical examination of draftees when it was revealed that six out of every hundred men had a venereal infection detectable without the use of the routine serologic blood test.

Syphilis is a communicable disease which must be dealt with as effectively as other scourges of mankind which are being controlled, in some instances almost entirely eradicated. The methods for a successful attack are known and available. The need is to use the resource and apply the knowledge which we have at hand.

Every effort is made and rightly to control infantile paralysis, diptheria, smallpox and other diseases but because syphilis kills case by case with no epidemic flare up the importance of concerted

action toward its eradication has not been recognized.

What makes the problem more difficult is that the resevoir is not localized to an extent that simplifies the handling of the problem. It is concentrated to a considerable degree in urban districts but the entire population is exposed to it. It is not influenced by climate or other natural conditions but only by man himself.

When statistics are studied in terms of age groups, the situation becomes even more impressive as it is primarily a disease of youth. Prevelance of the disease is between ages seventeen to twenty-five years. Syphilis not only attacks youth but is a destroyer of life. The greatest number of deaths due to syphilis occur under one year of age and from twenty-five to sixty years of age.

The control of syphilis as a communicable disease should follow four main lines: 1. case findings and case holding; 2. conversion of contagious cases to non-contagious states; 3. law enforcement and notification; 4. education of the people.

Case-finding is very important if we are to find the scource of infection and follow up contacts. Routine serology should be a part of all physical examinations and given to every patient who seeks medical

advice for any reason. Many cases would be found if this were done. Routine serology should be a part of prenatal treatment for all mothers.

The conversion of contagious to non-contagious states would also play a big role in the control of syphilis. It would decrease the number of new infections tremendously and adequate treatment which would be given to keep a case non-contagious would decrease the disability rate of disease and also the death rate. Congenital syphilis would be a rare manisifestation.

There should be a law enforcement to compel infected persons to receive treatemtn. Treatment should therefore be given free for those who cannot afford or otherwise not receive treatment. State clinics are desirable as necessary equipment can be maintained. Specialists can administer treatment and with trained medical-social workers it is easier to hold cases by follow up. It seems this method would be very efficient. As it is now private physicians are npt public health minded as a rule and are lax in methods of cntrol.

Oregon furnishes free Wassermann tests and free treatment for those who are unable to pay. An effort is also made to enfore patients to continue treatment. Syphilis is one of the diseases to be reported to the State Board of Health but there is not

the cooperation with the medical profession that there should be.

There should be a rigid marriage law uniform throughout the country requiring medical examination which would include serological tests for all people before marriage license is issued.

It is a community responsibility to inform their people about syphilis. Correct knowledge of the disease free from moral issues would do away with social ostracism. The nature, causes, benefits of adequate treatment and to a perfect health viewpoint which would show its relation to economic and social cost for the individual family and community should be given to the public. A broader sex education program aimed at self direction of the sex instinct into healthy forms of expression which would lead to desirable character development.

The doctors of the community must be educated to realize that reporting a source of infection will not be an empty gesture of record making, but will initiate active investigation. There must be cooperation of the medical profession.

It is the opinion of many that the root of syphilis is in prostitution. Statistics reveal that only a small portion of the problem of syphilis belongs

to prostitution. Efforts should be placed on the methods of control of syphilis as a whole problem and in time education will take care of prostitution as a source of syphilis.

PART V

In whatever the field of nursing, syphilis is always an important part of the work. Because of the nature of a nurse's work, the history and tradition of her profession make her contact with the patient one of intimacy and confidence from the beginning. This unique place which a nurse has in dealing with people makes her better able to render a maximum professional service in combatting the disease.

There is a challenge to the nurses in the control and eradication of syphilis. The ability to assist in the combatting of syphilis requires a sound knowledge of the disease itself and an objective point of view. The nurse's approach should not be different from her attack on tuberculosis, typhoid, or other communicable diseases.

The public health nurse will make her work of lasting value by constructive teaching. She will give the patient a clear understanding of the nature of the disease, a practical program for carrying out treatment and protection of others and the courage to carry on. The influence on the mental attitude of

the patient is very important.

Case-finding and case-holding is one phase of the program in which the nurse is invaluable. In planning for case-finding program in a community one of the best ways to start is with emphasis on the prenatal patient and the eradication of congenital syphilis. If a pregnant woman is found to be syphilitic she may receive treatment and the chances for a syphilitic baby being born are lessened. Other members of the family may also be examined as a result of this program.

The nurse may also play an important role in education of her community. With her background of scientific knowledge, an ability to interpret and skill in presenting facts from the angle of the individual's interest and understanding and a desirable approach to all situations she is especially equipped to render a valuable service.

The nurse does not work alone in the program for combatting syphilis. Her success depends to a large extent on her ability to cooperate with professional and lay groups of her community.

Syphilis is an interesting disease and in order that more may become interested in the field of social hygiene of which syphilis is a part, material should be given in an integrated way in the course of

study for undergraduates.

There should be special instruction given for public health nurses who are going in to the field of syphilis. Syphilis is a vast subject and has many different phases. It requires special training and ability to deal with it adequately.

PART VI

CASE NO.I

This is a case of a man thirty-six years of age who entered the clinic on September 9th, 1935.

The patient had been perfectly well until about August 18th, 1935, when he developed a multiple blister. At the time of entrance to the clinic he had a large destructive purulent odor lesion on the penis with a large portion of the glans sloughed away. He had large tender inguinal glands. He gave a history of beginning as a single lesion three days after intercourse three weeks ago. The lesion had been tender from the beginning. Drugstore remedies had been used but the lesion continued to spread.

He was sent to the Multnomah hospital where he remained for five weeks. Local treatment consisted of bichloride of mercury packs continuously

on the penis. His Kolmer and Kahn on entrance was four plus, on December 21st, 1935 the test was negative, the result of vigorous systemic treatment.

During his hospitalization he developed only mild secondary lesions.

The last of December he was given permission to go back to work. He did not return for treatment and after considerable difficulty he was located in a logging camp in Columbia County. Every effort is being made by the State Board of Health to influence him to continue treatment.

This is an interesting case of a man who entered the clinic for medical treatment during the primary stage. Frequently the primary stage is not severe and therefore they do not seek medical treatment.

The drugstore remedy had been tried first by the man. This is very true in a great number of cases. It would be of great value to the individual and the community to prohibit the sale of such quack remedies.

This man needs a great deal of follow-up case work. It is evident he does not realize the nature of his disease and what treatment would mean to him.

CASE NO.II

The routine Wassermann test which is given all patients upon entering the clinic has been of great value. Many patients entering the clinic for other ailments have been found to be syphilitic. This was the case of a woman age fifty-four who entered in October because of rheumatism in the knees and shoulders for the past eight years.

Her history revealed the fact that she was probably innocently infected. Her husband had died three years previous with a stroke and records showed he had latent syphilis.

This patient could not understand why she should have syphilis. She however remembered that her husband was receiving arm treatments (intravenously) over a period of about a year, once each week. She did not know the reason for these injections other than it was for a blood condition.

She gave no history of primary sore, rash, or sore throat. This case shows how mild the symptoms in the initial stage may be.

Her obstetrical history reveals two miscarriages and three living and well children. There was no complication with the deliveries.

There is no record that these children have had Wassermann tests. This should be done as a

safeguard. All member in the family of a syphilitic patient should have serology done as syphilis is a disease of the family.

This patient had been receiving treatment regularly until last month and since then she has not returned. Several home calls have been made by the social service department urging her to continue treatment. She does not see any reason why she should as the disease is not bothering her. This is just one of the many cases that because there are not symptoms of the disease they will not continue treatment.

CASE NO.III

This is a case of a laborer, age fifty-five who entered clinic in February because of an abcess on the right third finger.

The routine serology revealed him to be syphilitic. There was no history of the disease, the duration was unknown and he had received no treatment up to the time of entrance into the clinic.

He was diagnosed tertiary syphilis with early aortitis with some hypertrophy.

There are no children and his wife age thirty-two is living and apparently well. His parents are living and five sisters.

He has been receiving regular treatment

since the condition was discovered. An effort is being made to have his family checked for the disease.

CASE NO. IV

This young man entered clinic because of a hernia on the left side. The date of entrance was September 12th, 1934.

From taking the history it was learned that he had a chancre on the penis April 1, 1934. This had been burned off in a Federal hospital.

He had a skin rash which was generalized and itched some and a sore in the mouth which left a scar. At this time he had six "arm shots" and six "hip shots" in six weeks. These made him sick at his stomach and as a result he did not continue treatment.

His Kolmer and Kahn was negative on entrance to the clinic but he has continued under regular treatment at the clinic.

History in this case was the means of picking up a case of syphilis as the serology test was negative but the little treatment which he had received at one time was not sufficient to protect him from later manifestations of the disease.

The source of infection had not been traced in this case. This should be done in all cases.

CASE NO. V

Melvin, age twenty-nine, entered the clinic January 15, 1935 with right eye trouble which was diagnosed as insterstitial keratitis.

Twenty-three years previous he had been treated for syphilis by an eye doctor. At the age of eleven he was treated for insterstitial keratitis by the same doctor.

One year ago he was treated again by a doctor at which time he received ten arm shots and fifteen hip shots and medication by mouth.

Routine serology revealed him to be four plus.

He has no relatives except his wife. He has been urged to bring her in for examination but he has been very incooperative.

He did not return for treatment until February 7th, 1936 after concentrated effort on the part of the social worker.

On March 25th, 1936 he was reported to the City Board of Health for failure to return to the clinic.

CASE NO. VI

This is a very interesting case in which all members of the family have been examined and those with positive serology are receiving regular

treatment.

This condition was discovered when the mother, 30, was hospitalized for miscarriage in February 1931. The routine serology test given at the Multnomah hospital again proved of great value.

The mother gave no history of primary sore, or secondary rash. Her obstetrical history is one which is rather indicative of her syphilitic condition.

In 1924 she had a home delivery at the end of a full term pregnancy. No complications and an apparently healthy baby.

In 1927, a still birth at the end of full term. This was also a home delivery and the cause of death is unknown.

In 1928, another full term baby which lived only four days. Cause unknown. This was also a home delivery.

In 1930, an apparently healthy baby delivered at full term at home.

In 1931, a miscarriage at the hospital at which time she was found to be syphilitic. Since this time she has received treatment of two weeks at the clinic.

In 1933 at the Multnomah hospital she had a four months abortion which was not induced.

In 1934 she had a normal delivery at the hospital.

In 1936 she delivered at the hospital having a normal baby.

In 1935 her blood was three plus and at the present time it is two plus.

One cannot help but realize what it might have meant to this family if this mother had been given prenatal care with her earlier pregnancies. This syphilitic condition would have been discovered probably eight years before.

The father, a farmer, age 32, was examined at request of clinic. He was found to be negative.

Charles, age 8, has also been negative three times.

Dorothy, 6 years of age, was found to be two plus in 1933, one plus 1934, and is now negative as a result of regular treatment. She had no history of snuffles, rash or other manifestations of the disease. She has had frequent colds, sore throats, and as a result has been hospitalized six different times at Doernbecher. There have been no evidences of syphilis except the positive serology.

Eugenia, one year of age, also has congenital syphilis but now has negative serology.

She also is receiving regular treatment at the clinic.

Rosetta, four months, had a negative Wassermann at birth but she has had snuffles since birth; but in view of the negative blood reaction and x-ray nothing will be done at the present. She is to return to the clinic again in two months for serology and x-ray of long bones.

The original case of syphilis in the mother was traced back to her father who was found to be syphilitic. He also is receiving treatment in another part of the state. It is probably that this case of syphilis was acquired from the father during his infectious stage.

CASE NO VII

This is a case of a laborer age 33 who gives an interesting history. About February 1935, about one month following intercourse, he noticed a lesion on the penis but he also had ulcers in the groins and patient thinks some were in the rectum, as Doctor -------- told him he would have to have an operation.

In April 1935 he was operated on at the Emanuel hospital. About two days after the operation the doctor informed him that he had syphilis for which he began treating him at once with "a Yellow" solution

intravenously. Since that time he has gone to the doctor once or twice a week. Most of the treatment has been intravenous, a few treatments in his hips. He remembers no rash or sore throat.

Later in the same month he began to have constant ache in both temporal regions and below the ears.

Ever since he was told what he had he has not been able to work. He says he does not feel right. Complains of "syphilis snakes" about his throat and because of this the patient has difficulty in swallowing. He stays home most of the time except for short walks and his trips to the doctor. The patient worries over his condition and has very morbid ideas. He is afraid he cannot be cured.

This patient is unmarried but last year lived on a homestead with a woman for over a year. He insists he did not get syphilis from her. She is now married.

His case was diagnosed as general paresis and he was hospitalized for four days at the Multnomah hospital. He was then committed to the State hospital.

The work at the Medical School clinic is significant in its control of syphilis. By routine

serology on all patients many cases of syphilis are found.

The treatment at the clinic is under the direction of specialists and is given free of charge. The best treatment is given by this set up and more patients are able to continue long periods of treatment who would not otherwise be able to because of cost.

The weak part of the program is in follow-up work. Follow-up begins when the patient enters the clinic by imparting knowledge of the disease to the patient and making the patient feel at ease. There is not enough health teaching given in the clinic. In many cases it is a matter of routine treatment and not an individual problem each time.

Because of inadequately staffed social case work department there is too large a case load to follow up adequately syphilitic cases. As a result statistics reveal that of 3000 patients treated at the clinic the average number only continue treatment for six months, and about three percent continue treatment for the desired length of time.