

II.

SYPHILIS IN RELATION TO PUBLIC HEALTH

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One of the most outstanding dangers to public health, family, and physical health of this modern day is the prevalence of syphilis. The combat of preventing the progress and continued spreading of this communicable disease, stands out as one of the big problems that we in public health work must attempt to solve.

The prevention of venereal disease has long been a fight carried on in the name of law, personal rights and religion. The difficulties arising in this particular type of disease seem often unsurmountable, however with and intelligent and persistent campaign the end will be successful.

From a public health point of view we know that syphilis outranks practically every other of the more dangerous preventable diseases, so it is with it that we will be concerned. Owing to the fact that the prevention and control cannot go faster than the formation of public opinion as to its seriousness and consequence, it is necessary to make the laity completely familiar with them.

History Of Syphilis.

The history of syphilis is extremely interesting and spectacular in its development and progress through the centuries and consequently is of value to those concerned in stamping out this preventable menace.

We find mention of what no doubt was syphilis, as

early as 1493, when a Spanish physician, de Isla, treated several members of Columbus's crew, upon their return from the West Indies, for what was termed a "new" disease. This strange malady spread rapidly over Spain and France, making no allowances for sex, age or class. At the end of the fifteenth century the attention of all Europe was focused upon this new epidemic, when Emperor Maximilian I, presented his edict on the "evil pox". The disease had by this time spread over all of Europe and as a result its development can be easily traced.

In 1530 Fracastor, physician, astronomer and poet, wrote his celebrated poem which deals with the punishment by the gods of a certain shepherd named Syphilis, for his blasphemy. The name "syphilis" dates from the time of this poem. The etymology of the word syphilis is uncertain, but probably comes from crippled or maimed.

Syphilitic bones from pre-Columbian graves give evidence that syphilis was present among the aborigines before the Spaniards came to America. On the other hand, syphilitic lesions in European and Oriental bones of pre-Columbian days could not be found. It is said that the Chinese, more than two thousand years B.C. had knowledge of syphilis and suffered from it.

It is of value to know that no similar record exists of the sudden establishment of any other great disease among the earth's inhabitants.

Great strides were made during the next two centuries in the knowledge of syphilis. It was no longer associated with superstition and its tendency to attack the heart and blood vessels was recognized.

During the latter part of the eighteenth century, there was considerable doubt and confusion, due to the experiments of John Hunter, as to the relationship of syphilis to gonorrhea. Hunter, an outstanding English surgeon, interested in syphilis inoculated himself with some infected material, taken from one of his patients, who supposedly had "gonorrhea", with the result that Dr. Hunter developed syphilis from which he later died. This experiment made investigators deduct that gonorrhea and syphilis were variations of the same disease. It is obvious, however in the light of our present day knowledge, that Hunter mistook the discharge from a chancre of syphilis, for that of gonorrhea. This confused state of experimental results was cleared some fifty years later when Ricord, a French surgeon, inoculated over five hundred men with gonorrhea, and none of this group developed syphilis. The final conviction was the discovery by Alber Neisser, of the specific organism causing gonorrhea.

In 1903 Metchnikoff, a Russian biologist and Roux, a French bacteriologist, transmitted the disease to lower animals, and also demonstrated the prophylactic worth of calomel. A wide field for animal experimentation was opened at this time. The credit for making diagnosis certain goes to Schaudinn and Hoffmann, German bacteriologists, who discovered the cause of syphilis, *Spirochaeta pallida* or *Treponema pallidum*.

Next to follow in the advancement of scientific knowledge concerning syphilis was the indirect method of diagnosis by serum reaction, discovered by August Paul von Wassermann. Two years later in 1910, Paul Ehrlich, a German scientist produced salvarsan a specific treatment for syphilis.

In recent years there has been considerable modifications in both the treatment and laboratory tests of syphilis. We find that arsphenamine has been replaced to a great extent by the drugs neoarsphenamine and mapharsen, while the Kolmer, Kahn, Kline and Hinton tests are frequently replacing the Wassermann tests.

The organism causing syphilis is a spiral corkscrew-shaped germ, called the *Spirochaeta pallida* or *Treponema pallida*. It is microscopic in size, and its length varies from less than one, to two or three times the diameter of a red blood cell. The number of coils also vary and as many as twenty have been observed in one organism. The *spirochaeta pallida* has unusual peculiarities that are important to the course and diagnosis of the disease and also its treatment. This germ stains with great difficulty and during the process loses its characteristic shape to the extent of making it very difficult to differentiate from other germs found about the genitalia and the mouth. It is really necessary to see this germ in the living form. The "dark-field" examination, a special method of seeing the *spirochaeta pallida* in its living form has been devised and is used today by many physicians, for it offers an opportunity of early recognition of the infectious case enabling the establishment of prompt treatment and the resulting arrestment of the disease.

The *spirochaeta pallida* is a rather feeble germ outside the body, being easily destroyed by the mildest of antiseptics and by drying. In the human body it is a very different story, for it adapts itself readily there, attacking any tissue, altho it is definitely very selective in any given case. This knowledge makes one realize that the free dry

skin of the body of an infected individual is non-infectious. The tissues of the individual after being infected by the spirochaeta undergoes only a few rapid reactions, thereby often leading the individual to imagine himself well, while in reality the germ is slowly gaining a foot hold in his tissues.

Early Syphilis.

As soon as this organism enters the tissues of the individual it begins to multiply. It follows the lymphatic channels and after a short time enters the blood stream, then goes to every part of the body. It must be remembered that a visible opening in the skin is not necessary for this germ to enter the human body, for it can penetrate any mucous membrane and the break in the skin through which it can pass need only be microscopic in size. Though this rapid reaction is going on, the infected individual more often than not shows no sign of his infection. The formation of an open sore at the point where the germ entered the body is the first outward sign of the germs reaction. This sore is called a chancre. The period of time, after the initial infection for the development of this sore varies in all cases, however in the typical one it is generally a period of from ten days to seven or eight weeks. This sore is rarely larger than one-half to three-fourths inch across, and frequently almost invisible. This lesion is generally painless, and almost always hidden, which accounts for the number of infected individuals when diagnosed long after the initial infection, never recall having had a chancre. The disease in this stage of its progress is called primary syphilis.

The syphilitic chancre, or first lesion of syphilis is quite variable in appearance. Generally it is a round ulcer

with and eroded appearance, the margin of which feels "rubbery" to the touch. The lymph glands near the inflamed area generally enlarge or swell, however frequently this may not be noticed, due to the hidden location of the chancre. These enlarged glands are called satellite buboes. The chancre and swollen glands may be present for several days or weeks but they will eventually heal, leaving little or no visible scar. It is important to keep in mind the fact that many early cases of syphilis are passed by unnoticed, due to many physicians depending on finding a chancre before suspecting syphilis. It is during this period of the infection that the dark-field examination is of infinite value, for the material from the early chancre is virtually alive with the spirochaetes, while the blood Wassermann is usually negative. The finding of the specific organism causing the disease in the first days of the infection, or seronegative stage, affords not only a definite means of diagnosis, but an opportunity for early treatment. This particular period in acquired syphilis, from the point of cure is as one can readily understand the most advantageous time to find the germ and start treatment.

The next manifestations that syphilis makes is some four to eight weeks after the appearance of the chancre, in the development of the so called secondary rash. This skin eruption may be quite severe and cover almost the entire body, or it may be so mild that it is never detected by the patient himself. The rash rarely itches, however wherever the skin is moist and warm, the rash may be open and dangerous to touch. The characteristic mucous patches are found at this time, if the rash is severe. The patient may at this time have a sore throat, fever and general aching in his bones, this however is not always the case for it is said that fifty per cent of

the persons with syphilis the persons with syphilis may go through this period feeling perfectly well.

The secondary rash and its accompanying manifestations may persist for several weeks and then disappear. There may or may not be a recurrence of the lesions at intervals, for as long as two or three years. Each new recurrence causes the lesions to become deeper and more destructive. It is during this stage that we obtain positive blood Wassermann tests, giving us what is called the seropositive stage. The disease if discovered at this time responds well to treatment.

During this early stage of the infection the fact that the spirochaeta is not yet so firmly entrenched in the tissues of the infected individual and has not yet had an opportunity to do its destructive work, brings to light the definite responsibility of those individuals concerned with the control of epidemic and communicable disease. If more individuals having the infection were diagnosed at this stage and adequate treatment given them, a marked decrease in the spread of this disease would be seen. In fact it has been proven that the prospect of cure for the individual beginning intensive modern treatment in the first week or ten days of the chancre, is thirty-five percent better than that of the individual who has already had the secondary rash. The infected individual at this early period if diagnosed and put under treatment becomes far less a source of spreading the disease, for the spirochaeta is held in control.

This infection with all of its deceptive peculiarities must be continually and tactfully presented to the laity, so that the ordinary individual will recognize this responsibility to himself as well as his family and community. We should

consider that with all of the valuable information that medical science has provided on the knowledge of syphilis our responsibilities. Advantage must be taken, by the public health workers, of the many opportunities afforded them in making every man and woman conscious of syphilis.

The treatment of early syphilis in modern medical opinion has been reasonably standardized, so that a more or less established formula may be followed. There is considerable differences in opinion as to the over-standardizing of any treatment scheme to the point of its failing to take into account certain individual needs. There should be however more uniformity in this type of work, than now exists.

The fact that standardization of routine has been felt by many as a means of taking away the right for future improvement brings to light a dislike to change a habit, rather than the feeling that the method in use has any peculiar merit.

During the conference held in Washington D.C. December 28th to 30th, 1936 on Venereal Disease Control Work the following reasons were stressed as to the standardization of treatment in early syphilis:

"The aims of treatment in early syphilis are first, the prevention of transmission of the disease by treatment, and second, the cure of the individual patient. There are compelling reasons for the adoption of a standard method of treatment by clinics and practitioners throughout the country, which may be distinctly summarized as follows:

1. The average patient with early syphilis is a healthy young adult, free from complicating diseases.
2. The manifestations of the diseases and the extent of involvement of important body structures are surprisingly uniform.
3. The response of patients to treatment is equally surprisingly uniform.
4. The evaluation of the worth of any treatment method requires years of study by experts, and is beyond the capabilities of the average physician.

5. An evaluation of treatment methods by two independent agencies, the cooperative clinical group in cooperation with the United States Public Health Service, and the League of Nations health inquiry, has definitely established the worth of certain broad principles, deviation from which (until better methods are developed) constitutes a confession of ignorance or incompetence.

These principles are:

- a) Treatment must be continuous. No rest period of any kind until treatment is finished.
- b) Treatment must be prolonged to a minimum of fifteen to eighteen months, regardless of seronegativity or seropositivity at the time treatment is begun, and regardless of serologic progress during treatment.
- c) For the control of infectious relapse, a minimum of twenty injections (each) of an arsenamine and a heavy metal are essential.
- d) For the accomplishment of individual cure, a minimum of thirty injections of an arsenamine and forty of a heavy metal are desirable.
- e) Lifelong post-treatment observation with periodic reexamination is essential to determine the fact of cure."

Late Syphilis.

The treponema pallidum after having established itself in the infected individual's body, and going through the primary and secondary stages, where it is frequently never recognized or discovered, localizes in various parts of the human system. All signs and symptoms of the disease disappear and the individual knows nothing more about his illness for an unknown period, possibly many years. This time between the disappearance of the skin eruptions and the symptoms of late involvement maybe from five to twenty or thirty years. This period of the disease is known as "late" syphilis.

It is seldom that late lesions appear before three to five years after the initial infection, however there is no definite rule for the development of late syphilis. Owing to the fact that the principles of treatment for late acquired syphilis differ from those of the early type, an arbitrary dividing line has been set at three years, before which the patient is treated as an early case and after which he is treated as a late case.

Syphilis is an extremely baffling disease, for it has the characteristic ability of imitating many other diseases, and it is in its latent manifestations that it takes on this confusing trait. This often causes much difficulty in differentiating syphilis from other diseases.

According to recent studies made by outstanding syphilologists it is felt that this disease may at this period take one of several courses. Bruusgaard of Oslo, Norway made a remarkable study of untreated syphilitics, and found that more than a quarter had recovered spontaneously. Bruusgaard's conclusions must not be given too much weight however, for his sample of three hundred four patients examined, is very small and of the entire selected group some had been infected rather recently, and the eventual outcome of their infection could not be predicted. The assumption that some of the infected will overcome the treponema and cure themselves is therefor definitely at present really unfounded. It is not possible to determine beforehand which infected individuals will recover spontaneously, nor safe to risk the exposure of others and consequent spread of the disease, while they are doing it.

The percentage of patients who live a natural span of years with the infection, without finding out they have been infected cannot be estimated. Numerous undiagnosed individuals may have contracted the infection and live for many years in apparently excellent health and die with some other type of disease, without knowing he has ever been infected with syphilis.

Strange as it may seem, in that group in which we find the most destructive damage later, there are some individuals

in which the disease may be dormant or latent for many months or even years. During this period of latency, even some of the most expert physicians maybe unable to detect the least sign of infection, other than a positive blood or spinal fluid test.

The treponeme during this latency establishes itself in any tissue of the body, though a definite tendency is shown for the blood vessels and nerve cells. The period of latency is variable in all cases, however sooner or later in the untreated individual devastating late symptoms make their appearance.

In some individuals with late syphilis, the infection manifests itself suddently. They may go to bed feeling perfectly well and awaken the next morning to find half of their body paralyzed, having no warning whatsoever of their approaching disaster.

The chronic inflammatory reaction, characteristic of late syphilis, maybe so slow in its process of tissue destruction and scar tissue formation, that clinical signs of the damage being done, maybe years in making its appearance.

In syphilis we find, as in other infectious processes such as tuberculosis, the living tissue is varied in its reaction to disease germs. Upon entry of the infectious organism, the reaction is slow and not severe, however after a certain period of time the tissue reaction changes. A subsuquent inoculation with the germs occurs, followed by a more intensive reaction. The tissue is then considered to be allergic to the germ. This development of allergy varies in different individuals causing the late lesions of syphilis to differ in their severity. If there is only a slight

degree of allergy the lesions are not very destructive, however if the individual is extremely sensitive to the germ, severe destruction takes place. The amount of destruction occurring depends on the part of the body involved.

Less serious damage results in the treponeme's attack on the skin, bones, joints and soft tissues, as compared to those most vital organs of the body such as the liver, heart and nervous system. The infected individual definitely suffers as to the organs involved and the location and kind of lesions.

Syphilis of the heart and blood vessels is known as cardiovascular syphilis. This is frequently the ultimate result of late syphilis. According to statistics, forty thousand deaths occur in the United States each year from this form of the infection.

Interesting and of definite value is a recent study made of persons with late syphilis, having had varying amounts of previous treatment, ten percent had obvious cardiovascular syphilis. Another group of individuals, having had adequate treatment for early syphilis were studied, and the outstanding fact was that not a single patient developed cardiovascular complications. This brings out clearly the importance and value of early diagnosis and adequate treatment for the infection.

The walls of the heart or the blood vessels are attacked and often the heart muscle itself and the coronary arteries supplying it are also involved. The first symptoms often is an excruciating pain, called angina, or occasionally complete heart failure. The aorta is also a frequent point of

attack, causing weakness and possible enlargement of this vessel, resulting in an aneurysm and sudden death. In some instances there is a history of a heart attack with some pain accompanied by difficulty in breathing, swelling of the legs and various other symptoms, which behooves the careful doctor to look for syphilis. This type of infection accounts for ten to twelve per cent of the total deaths caused by heart disease.

Syphilis of the brain and spinal cord is known as central nervous system syphilis, or neurosyphilis. There are several forms, the more common being paresis, or general paralysis of the insane (softening of the brain) and locomotor ataxia. This type of infection may be acute or the treponeme after its entrance into the nervous system, may produce no symptoms for a long time. In this stage it is called asymptomatic neurosyphilis.

Paresis, is a slow degeneration of the brain, resulting in mental deterioration. It is estimated that up to twenty-five percent of the patients in asylums for the insane have syphilitic degeneration of the brain. The individual with this type of infection is addicted to periods of exaltation or depression, associated with conduct disorders of various kinds. There will be periods when the individual may become almost normal for a time. Of vital importance in the diagnosis of this type, is the possibility of detecting its beginnings early, long before clinical signs of the damage done become recognizable. This forewarning of neurosyphilis involvement is accomplished by examination of the spinal fluid of the individual. This should be examined in every patient at the end of about the first six months of treatment. It is also

recommended that a spinal examination should be made:

1. If the blood Wassermann relapses to positive after or during treatment.
2. After a patient has lapsed in treatment for a few months.
3. If there are symptoms of headache, dizziness, nausea and eye disturbances.
4. Before starting treatment on any latent or late case.
5. If an earlier spinal fluid test had been positive, then several tests are needed as a guide for treatment.

The incidence of paresis is higher among men than women, and also occurs more frequently in the white than colored race. The tragedy of the whole thing from the standpoint of modern treatment and of public health, is its comparative needlessness. These facts are consequences, and result from failure to diagnose early and to treat effectively every case of syphilis that develops.

Until the past several years there was no known hope of cure for individuals suffering from paresis. The discovery in 1917 by Wagner-Jauregg, of the improvement of paretic patients after having malaria, was a definite step forward in the treatment of these infected individuals. The patient is deliberately injected with the malaria parasite, and after several weeks of chills and fever, quinine is given to control the malaria with the result that frequently the paresis is also cleared up. About forty percent of the paretics having the malaria treatment, recover sufficiently to lead normal lives, while some recover completely.

Other methods of administering artificial fever in the treatment of neurosyphilis have been studied and tried.

There are various fever machines which are capable of raising the patient's temperature to the desired height giving results comparable to those secured in the use of the malaria treatment. This method of treating neurosyphilis is ver encouraging.

Prenatal Syphilis.

Syphilis in pregnant women is a common and serious complication, and can be controlled effectively in the light of our present day knowledge. Much has been done in this particular field by medical science, and it does seem almost unbelievable that anyone living in this present generation should be suffering from the effects of congenital syphilis.

According to statistics, one-half of the cases of syphilis occur in the age group from twenty to thirty years. As a result among this group is found many of our prospective young mothers. This information is of untold value to those individuals interested in public health and the welfare of their community, for it points to the fact that more thoroughness in changing the attitude of the laity towards syphilis, and informing them of the seriousness of this contagious disease is necessary for a successful campaign.

It has been discovered that an untreated pregnant syphilitic woman will give birth to diseased children, four time out of five, and it is for this reason every well organized obstetric clinic should make a Wassermann test of every mother during pregnancy. It has been suggested by outstanding authorities on syphilis, that two blood tests during each pregnancy is necessary in detecting syphilis in the woman. The first, to be taken by the third month, so in case the treponema is discovered, the anti-syphilitic treatment can be started. It is vitally important if the mother is infected that she be

under treatment before the fifth month of pregnancy to insure the delivery of a healthy syphilitic free baby. The second test should be taken at the eighth month, thereby determining if syphilis has been transmitted during this pregnancy by the promiscuous husband.

A woman suffering from syphilis can transmit this infection to her unborn child. Syphilis can and frequently does cause the death of the fetus, abortion or premature labor and the consequent delivery of a syphilitic child. The baby can however be born at full term, with or without any signs of the infection, but the disease will eventually show its manifestations later in the life of the child.

We have an outstanding and stimulating challenge in the results being obtained in the Scandinavian countries during the past ten years in the control of prenatal syphilis. An outstanding example is that one seen at the large University Hospital at Copenhagen, where an average of about 1,800 babies are delivered every year. Of this group more than one-half of the mothers are unmarried, being sent to the hospital from all parts of the country. In 1933 only thirty-five cases of congenital syphilis in pregnancy were found, and at present the total cases of congenital syphilis in the hospital run three a year or less. In 1936 there were only nine cases of congenital syphilis in all Copenhagen, which makes one realize the results that can be obtained from early and thorough treatment.

From extensive studies it has been discovered that the syphilitic infected mother, as her infection grows older shows a tendency to not miscarry or to have a still-born as readily as she did in the earlier stage of her infection. This pecul-

ilarity is explained by the fact that the fetal blood does not mix with the maternal blood in utero, so a spirochete from the mother's blood stream must become implanted in the placenta. The older the mother's infection, the fewer organisms she has present in her blood stream, their being more firmly established in her own tissues as time goes on. We find as a result less opportunity for the unborn child to become infected at this stage of his mother's infection.

The syphilitic infected mother frequently during pregnancy shows no signs of her infection either to clinical examination or blood test. Pregnancy has a protective effect on the infected mother and the disease, always milder in women than in men, loses still more of it's virulence during this period. This fact is frequently misleading, and must be constantly considered. If syphilis however is discovered by the fourth month or not later than the fifth month in pregnancy and the mother given a minimum of twenty weeks of continuous treatment, it is probable that the fetus will escape infection entirely.

The results obtained in the field of preventing prenatal syphilis lag far behind theoretical possibilities according to the report given at the Conference On Venereal Disease Control Work, held in Washington D.C. during December 1936. The members at this meeting felt definitely that this disgraceful and appalling condition prevailed in the United States because of inadequate prenatal care, and a lack of medical cooperation. It was decided that four steps were essential to overcome this, through combined efforts of public health authority, the social and medical organizations

devoted to maternal and child welfare, and the medical profession as a whole. These are:

1. "The adoption of a routine serologic test for syphilis in every pregnant woman by every prenatal and obstetric clinic, every physician and every midwife in the country.

2. Systematic education of women to report to physicians or prenatal clinics for prenatal care earlier in pregnancy than is now the average case. This is necessary that treatment of the pregnant syphilitic mother may be started early enough to insure a healthy baby.

3. Elimination of the delay of many days or weeks which now often occurs between the diagnosis of syphilis and the institution of treatment in pregnant syphilitic women.

4. Better application by the physician of the several methods of recognizing the presence or absence of congenital syphilis in the infant, cord Wassermann, x-ray, pediatric, and serologic follow-up, especially intensive in the first few months of life. This is necessary that when treatment of the mother has failed to protect the child through failure of diagnosis, delay in starting or neglect of treatment, the syphilitic baby shall be given the excellent chance of cure which early adequate treatment provides."

Too much emphasis cannot be placed upon carrying out of these suggested measures. There should be no inhibitions on the part of any individual or organization interested and doing public health work, in stimulating public interest and informing those citizens of the various aspects and actions necessary for the successful control of prenatal syphilis.

The prevention of prenatal syphilis in a child depends directly upon the proper prevention of the mother from infection and her proper treatment if she is infected, before the birth of the child. Prenatal syphilis in an individual is much more difficult to control by treatment than acquired syphilis. A longer period of time is necessary as well as more extensive treatment to obtain satisfying results in the congenitally syphilitic infected individual. This type is more stubborn and does not respond to treatment as readily nor with as satisfying results as that of acquired syphilis.

Prenatal syphilis may be of two different types, either early or late, depending on whether the mother has had the disease for a short time or a long time. The child born with early prenatal syphilis may appear perfectly normal at birth or he may on the other hand have infectious lesions on his body. These apparently normal appearing children as a rule become ill before the fourth month of postnatal life. Such symptoms as, failure to gain weight, increased nasal discharges, bringing about the characteristic snuffles, throaty cry and frequently a skin rash appear. The majority of these children die, although some of them recover under treatment.

In the child having late prenatal syphilis, we find that the disease may manifest itself at varying periods, even delaying as long as thirty years in some cases. The spirochete causes certain changes in the body of the prenatally infected individual, the most characteristic of these are:

Interstitial keratitis, an inflammation of the cornea of the eye, often causing partial or total blindness of the individual.

Hutchinsonian teeth, a maldevelopment of the permanent teeth.

Partial or complete deafness, due to the involvement of the eighth cranial nerve by the spirochete, this is also said to be due to gummatous sclerosis of the internal ear.

Involvement of the nervous system in the form of juvenile paresis, or so called softening of the brain, which runs a course similar to adult general paresis, but is not as responsive to treatment.

Any serious involvement of the circulatory system rarely occurs in prenataally infected children, but occasionally maybe found.

When viewing the disastrous results of congenital syphilis and taking into consideration the fact that it could absolutely be eradicated through good prenatal care, it causes those individuals interested in public health to definitely set as a goal the stamping out of this form as well as all types of this contagious disease.

Dr. Thomas Parran suggests as the first thing to do in the ideal syphilis control program, "the wiping out of congenital syphilis." This is one form of syphilis that we know with good treatment, started before the fifth month of pregnancy, can almost always be prevented. Treatment of the infected mother should not cease at the termination of pregnancy but should be carried out for as long a time as the syphilologist deems advisable. The child also, should be kept under careful observation and frequent check made to determine it's absolute freedom from the disease.

The public as a whole are becoming more conscious of the effects of prenatal syphilis through the numerous articles and books written during the past three years on the control of syphilis. In one of Paul DeKruif's recent articles he dramatically describes prenatal syphilis in this manner:

"With such powerful weapons in their hands, what have our doctors, healthmen, been doing all these years?...yet, our rank-and-file doctors were ready enough to report a case of smallpox and they might be getting keener to notify authorities of the danger of a patient with open tuberculosis. But, human, our doctors not only hesitated to put the stigma of the moral leprosy of syphilis upon their patients. No, they even refused to suspect their sick ones of the disgrace of being tainted by it.

How, then, could the bulk of our physicians develop the skill to use these tests to spot the terrible spirochete? Or learn to use the powerful chemicals that could stop a woman from passing her doom to a man, or a husband from infecting his wife, or a mother from endangering the babe developing within her? How, when doctors refused even to suspect that their patients might be suffering, not from a mere disease but from an untouchable power of darkness....

With no chance to know or to forfend it, mothers pass spirochetes through their blood to their unborn children, so that these babies are born dead before their time. Or a mother maybe so happy to give the world what seems a healthy baby, who within a month begins to sicken, only to die before it speaks its first baby talk. Worst of all, so damnably patient is the syphilis spirochete, a boy or girl may grow to high school age, husky and brilliant in studies, with never a sign or outward hint of syphilitic sickness. Then such a boy, pride of his mother, or girl apple of her father's eye, may sicken go insane with the terrible dementia called juvenile paresis..

Or in others, the promise of fine careers may be blasted by a cloudiness, a curious veil that forms slowly over the adolescent's eyes. For ten, to twenty years after a child is born from its unsuspecting mother, the evil spirochete will wait to strike him down with serious damage to visions, or even blindness.

Such are the perils of syphilis to the innocent".

Distribution According To Race.

The United States Public Health Service study of the trend of syphilis in the United States indicates that syphilis is almost three times as prevalent in the colored as in the white population. The supposition that this estimate is correct depends upon what proportion of the infections in the two races reach medical attention, for this estimate counts only those cases which have been recognized medically.

As the result of a study made by Carley and Wenger, it was found that seventeen percent of seven thousand rural Mississippi Negroes had positive blood tests. One of the most interesting and informative studies carried on, in the form of a demonstration of treatment, among the negroes of several counties in various southern states, was sponsored by the Rosenwald Fund of Chicago in 1929. This organization wishing to improve the health status for the colored race,

joined with the United States Public Health Service and the state and local departments of health in carrying out their desired program. A group of questions to be solved by the studies carried on during this project were:

1. What is the incidence of syphilis as shown by the Wassermann tests among the rural negro population of all ages?
2. Can rural Negroes be induced to accept Wassermann tests and those with syphilis induced to take an amount of treatment sufficient to render them noninfectious?
3. Can satisfactory treatment of syphilis be given under field conditions?
4. Can these special activities for syphilis control be integrated with the general health program of the community?
5. At what cost can the case-finding and treatment methods be carried out?
6. To what extent can funds be secured from state and local tax sources to bear the cost of this project?
7. What are the direct and indirect effects of syphilis upon these Negro populations in terms of sickness and death?
8. Can syphilis be controlled by these intensive medical methods and if so, how soon and at what rate can its prevalence be reduced?

Considerable thought was given to the type of methods to be used in conducting the study and demonstrations. It was at last decided that the most ideal starting point was the making of routine Wassermann tests on whole population groups in one community after another.

The organization realized the problem they faced for it was a big one. Just how were they going to get all of

(20)

these colored people to submit to a Wassermann test was a serious question. Many of them had never been to a doctor and how to persuade them if they were not ill to take the long continued rather uncomfortable treatments, was another phase that demanded intensive thought and study.

It was decided that among the many practical things to do, the employment of as many negroes as possible in the professional and personnel was exxential and vital to the success of the demonstration. The general plan in each community, though some differed in detail, was the establishment of a syphilis control unit, working with the local health department under state supervision. Each of these units consisted of a physician, a nurse and a clerk.

As to the particular counties in which the demonstration was to be carried on, it was felt to get the most advantageous material on this subject the selection of the sections would have to vary widely. With this important factor in mind the following counties were decided upon as centers for this study:

1. Scott, Mississippi, on the plantation of the Pine Land Company.

2. Albermarle County, Virginia, a community of fairly well educated individuals and where the inhabitants had been fortunate in having good medical care available to them.

3. Macon County, Alabama, a very primitive community, and most poverty stricken.

4. Brunswick, Georgia, and the turpentine forests back of it.

5. Tipton County, Tennessee, above the average

in economic status.

6. Pitt County, North Carolina, a tobacco growing section.

In order that this demonstration be successful it was vitally necessary to obtain the cooperation and interest of the state and local health boards and officers. Another important factor was selling the idea of testing and treating to the negroes themselves.

Fortunately it was found, in the true South, the Negro as a rule trusts the white man's judgement. He generally has, thanks to the fine character of many of the rural southern physicians, the most profound respect and trust in a doctor. Another assisting tool was the belief and trust the majority of colored people have in anything pertaining to the Government, so consequently the "government health doctor's" word carried weight, where possibly many other individuals would be ignored.

Numerous talks and lectures were given on the subject of syphilis in conjunction with churches and schools and various gatherings. Frequently many members of the audience did not know what the word syphilis meant, however they were familiar with the "bad blood" disease, so consequently they were extremely interested. It was at these gatherings at the completion of the talk, that the request for everyone to take a blood test was made. Often the entire group responded and a test taken on everyone attending. A later date was then set at which all the members of the tested individual's family were asked to come in for their blood test. This method worked out very well, and it was surprising how

the groups responded.

Public Health has done some very impressive work in the South in relation to the reduction of typhoid fever, malaria and pellegra. This was cited in some cases as an example of the improved labor efficiency, that results from healthy negroes. It is true that this is a factor in many cases and was used as a means of argument in obtaining the approval of blood testing with many of the plantation owners. The majority of owners would give their consent and would do something about the condition themselves, if it could be proven to them, that it would be more profitable to have a healthy negro working for them, rather than a sick one.

Various methods were employed in working out a system of treatment, especially for the late cases of syphilis, which were treated with mercury rubs. For the early cases the usual treatment of arsphenamines was employed.

As to the amount of syphilis found through the employment of the Wassermann dragnet method of case finding, a very interesting picture was seen. The prevalence of syphilis in the various counties selected was much in proportion to their respective economic status and as to the previous medical care available.

It was found that the incidence of syphilis among the colored residents of Albemarle County, was 8.9 percent, which is less than what has been found among white groups. This unusually low percentage of syphilis is directly traceable to the excellent medical care that had been furnished the negroes of this district by the University Hospital, situated there. On the whole too, the general economic

condition of this group was much better than that found in the average Southern community.

Just the opposite condition was found in Macon County. The rate of syphilis was 39.8 percent in all age groups. With the high rate of syphilis in the community, one definitely realizes that almost every individual must have at some time or another been infected with this contagious disease. The members of this county were extremely poor, having as a result inadequate housing conditions and improper diet. The medical care afforded this area had been extremely limited, all of this resulted in a very high incidence of syphilis.

Among the 1,400 cases of syphilis treated in Macon County, it was noted that only thirty-three had ever before had treatment and these had only received an average of 4.3 doses of neoarsephenamine.

Through this demonstration 33,234 persons were tested and of this group 6,800 or 20.5 percent were found to be positive. In this positive group 14.4 percent had congenital syphilis. This fact brought out definitely the lack of diagnosis and adequate treatment in cases of acquired syphilis, for if this important control work had been conducted, the cases of congenital syphilis would have been greatly reduced. According to the Public Health Service census taken at this time, only 7.2 per one thousand cases of syphilis among the Negroes were under treatment.

There is much that needs to be accomplished in controlling syphilis among the colored race. The results obtained from various demonstrations, such as the one sponsored by the Rosenwald Fund, give lasting and efficient

results and also stimulates those individuals interested, in the education of the laity in regard to syphilis as a real challenge.

A true step in the advancement of preventing and controlling syphilis among the Negroes has taken form under the name of the National Medical Association, composed of a group of Negro physicians. This organization pledged cooperation with the syphilis control campaign, now being carried on by the Public Health Service. They have appointed a Commission On The Eradication Of Syphilis, and have worked out a tentative program by which this work can be most effectively accomplished. With cooperation of the colored physicians in respect to the stamping out of this contagious disease, the outlook for the future appears much brighter for the colored individuals suffering from syphilis.

The Scandinavian Example.

One of the most outstanding examples of syphilis reduction and control is that found in the Scandinavian countries during the past ten years. This evidence of marked progress in the control of syphilis is indeed encouraging and stimulating to us in our present concentrated action in stamping out this communicable disease.

So thoroughly has the syphilis control program been carried out in Scandinavia, that at the present time difficulty is found in obtaining sufficient teaching material of this disease in it's early stages, for the students attending the various Scandinavian medical schools. This is of course, the result of the fine control plan that has been set up and followed out in these countries.

1207

Sweden, Norway and Denmark are all small countries. Sweden, the largest has a population of a little more than six million persons, while the largest city in the three countries, is Copenhagen, having a population of approximately 777,000. In the three countries the foreign population is extremely small, this fact is in itself an asset in the control of communicable disease.

The marked decline in syphilis in the Scandinavian countries was first noticed after an "epedemic" of syphilis, which reached its peak in 1919. Many other countries had a similar increase in venereal diseases which coincided with the end of the World War. The Scandinavian people and health authorities realizing that something could and must be done about this appalling situation, set to work with the following results. By 1933 the reported rate for syphilis had fallen in Denmark from 119 per 100,000 population to twenty. The rate for Copenhagen, fell during the same period from 527 to twenty eight and for the remainder of Denmark, from 57 to 16 per 100,000 population. During 1935 there were less than 1600 cases of syphilis in all of Scandinavia.

As a matter of comparison, we find that the attack rate for syphilis (fresh infections) in the United States is at least 400 per 100,000 population, according to the United States Public Health Service estimate of cases which reach medical attention. The actual attack rate is really unknown however and must be much higher, as so many fresh infections do not reach medical attention. This matter of comparison definitely brings to light the ineffectual manner in which this disease is being handled in the United States at the

present time.

It has been said by some outstanding authorities in public health that due to the high rate of syphilis in the United States, there is the possibility of it becoming known as the "great American disease". This opinion is due no doubt to the unfavorable comparison of our efforts to control syphilis to that of the Scandinavian and British results, and also because of the low percentage of cases that are diagnosed and treated in the early stages of the disease. According to statistics, one-half of the cases are not recognized for more than a year and a half after the initial infection and of this group eighty-four percent lapse before their course of treatment is completed.

The method of treatment used in the Scandinavian countries is the same as that method employed in the United States. It even appears that the American plan of continuous treatment is superior to the Scandinavian plan of interrupted treatment. The outstanding principle in the Scandinavian program of syphilis control, is that "all persons infected with syphilis have a right to demand free treatment, but equally are obliged to submit to the treatment". If the infected individual neglects treatment and his physician is unable to secure his return, his name and address is reported to the health department, replacing the number he had previously been listed under. These individuals are then followed-up by the health department. Police powers are very seldom used to persuade the patients to return for treatment.

From the social point of view Scandinavia has several

factors beneficial to their control program which the United States definitely lacks. In the first place, the Scandinavian people are not afraid to talk about syphilis. Their attitude towards the disease is the same as that toward any other communicable disease. The laity themselves understand syphilis and realize the necessity of early treatment as well as the check up on all contacts and their subsequent treatment if they are infected. In accordance with this point of view there is much publicity as to the hours, dates and places that treatment is available.

There are many factors which go towards influencing the successful results being obtained in Scandinavia. In a report given by the New York City Commission, some of the most important reasons brought out for the marked progress in the control of syphilis in Scandinavia were these: "The cooperation between the highly trained medical profession and the government, through the health department: the homogeneous, well educated population which has a respect for law and constituted authority: the almost complete absence of quacks and cultists, and the reduction of drug store diagnosis and treatment to a minimum".

Suggested Program.

The control of syphilis in the United States at the present time is one of the most insistent of all challenges to the public health worker. We know that this disease can be effectively controlled by simple and direct epidemiological methods, however up to the present time very little has been accomplished in this field. The cause of this decided lag in the carrying out of a successful control program of syphilis in the United States has been due to the

fact that this disease has not been fought in the manner in which many of the other now controlled communicable diseases have been.

It has been found through experience that the control of syphilis is a problem, not only of diagnosis and treatment but also in discovering how to persuade people to suspect infection, seek a diagnosis and take treatment. Much time and consideration must be given to working out a program and fitting it to our human nature, human weaknesses, misunderstandings and difficulties which in this particular disease are frequently closely allied with the moral code.

Syphilis has long been a "tabooed" subject for discussion among the American laity, consequently there was little or no discussion of syphilis, as being a public health menace. This attitude however, during the last two years is steadily being broken down. The appropriation of funds through the Social Security Act for the control of genito-infectious diseases and Surgeon General Parran's determination in developing a broadened point of view, and educating the laity, as to syphilis is showing definite results. The public will no doubt in time be willing to discuss syphilis the same as they now do any other highly communicable disease.

In order to carry out a well-rounded successful syphilis control program, there are certain requirements that must be taken into consideration. We find case finding is of utmost importance. It has been suggested by John Stokes of the University of Pennsylvania, that the "index of suspicion" needs to be raised on the part of the physician. Case finding may be accomplished in three principal ways. The

first is the making of early diagnosis in those individuals who have any signs or symptoms of the infection, and the careful check-up of those persons who may have been exposed. The second method is epidemiologic investigation, with a known case as the starting point. The third method, is that of routine blood testing on accessible groups of people. This group should include all those seeking medical attention, whether in hospitals, clinics, private practice or employe groups. A suitable educational campaign is also necessary to support these methods.

If the first method is to be successful, the exposed individual must be persuaded to obtain medical care at once and remain under treatment as long as his physician advises. It is in this particular place that the public health worker can be of invaluable help, be recognizing any signs or symptoms which might suggest disease in their patients, and by influencing them to seek medical observation. The physicians too, must be persuaded to look for syphilis, regardless of the social and economic status of his patients.

As to the success of the second method, that of epidemiology, it is necessary that the investigation of the infected individual and his contacts be accomplished as rapidly as possible. The possibility that the actual source of the infection may still be spreading disease is a matter to be considered. The physician in order to find success in this method must gain the confidence of his patient for this cooperation is necessary. Here again the public health nurse can frequently assist the physician in follow-up work on the contacts.

The third method of routinely blood testing all individuals seeking medical care will be found to contribute

much to the health and economic welfare of any community as a whole. There is definitely a need for the wider application of this method, when one considers how few hospitals and physicians routinely run blood Wassermanns on all patients.

Case control is an important factor that must be taken into consideration in successfully carrying out any syphilis control program. This should begin with the patient's first visit to the doctor's office or clinic. It succeeds only when it is founded upon intelligent cooperation between the patient and the treating agency.

More often than not the patient has very little knowledge of the true nature of his infection, its communicability, its cause or what treatment must accomplish before cure can be obtained. If good case control is to be had, and this is absolutely necessary to a successful program the patient will be given complete instructions upon all points of his infection.

In most cases the average patient is very bewildered by the serious problem that he has to solve. Good case control requires that he be given every opportunity to understand this problem so that he will as a result be willing to cooperate to the best of his ability. This of course calls for a well-equipped treating agency, trained in good case control, and capable of giving intelligent assistance to the infected individual.

As to treatment facilities in the control of syphilis, the public will have to assume the responsibility of providing treatment for those infected individuals who are unable financially to do this themselves. Syphilis is a communicable disease and care should be given to all of

those infected, regardless of their ability to pay or not. We have seen that at least a part of the success of the Scandinavian countries in their successful control of syphilis, has been due to the liberal provisions of medical care to all infected individuals.

One of the encouraging evidences in the United States that a definite effort is being made to provide medical care of some sort for those who have syphilis, is found in the rapid growth of clinic service. In many states at the present time drugs are furnished through the Department of Health for the treatment of infected individuals. The state of Georgia in conjunction with the United States Public Health Service, established in 1937, a traveling syphilis clinic service, to take care of the scarcely populated rural areas. This in itself is a step in the right direction. The health department should insist, that any clinic receiving assistance from public funds, adhere to health department standards of operation.

The health department can and does render three major services to private physicians and other medical agencies concerned with the control of syphilis. These services are: laboratory services, provision of therapeutic drugs and consultation services.

It is of the utmost importance that all laboratory tests employed in the diagnosis of syphilis be accurate. The state can and does set standards for the performance of these tests, and it is hoped that in time all unsatisfactory procedures will be discarded until a common standard of perfection is obtained by all laboratories.

The matter of free distribution of drugs must be con-

sidered in a successful syphilis control program. The treatment of syphilis is often a long and expensive one, and many individuals can not possibly carry the burden themselves. The state in most cases can purchase medications for a great deal less than the private physician or clinics can, and if these cannot be provided free of charge, it should be possible to use the state's purchasing power to provide them at cost.

There should be obtainable in the Departments of Health the services of an expert on venereal disease management. This individual in many cases would be the health officer. Frequently private physicians need advice on various questions pertaining to syphilis and often there is no informed physician that he can turn to for the information. The health officer in this particular situation should be the one to offer consultation.

Too much stress cannot be put upon the necessity of educating the patient infected with syphilis. This is another fundamental that must be considered if a successful program is to be attained.

In the first place the patient must be made to feel that he is wanted as a patient, that he is not a marked person because of his infection, but that he is suffering from a communicable disease.

The next step is in making the patient completely familiar with his infection and instilling in him the desire to have his infection treated. He should also be convinced that his infection is communicable(if it is) and be instructed as to how it is spread. The proper education of the patient is the function of the doctor as well as the members of the staff of the treating agency.

The health officer too must be completely familiar and acquainted with all of the peculiarities of syphilis and the problems it presents, for he is looked upon by the public as the source of authoritative information. The public have many false ideas concerning syphilis and the health officer must be so familiar with this subject that he can replace these notions with facts.

The public health nurse is one of the several health agencies working for the control of syphilis. Just what her particular contribution will be in any given community depends upon the program and policies of her organization. She can play a prominent part in assisting in the control of this communicable disease. Her teaching skills and case finding technics are essential to communicable disease control and are invaluable in the case of syphilis.

Syphilis is a constant danger to any community, and its control has become an integral part of public health nursing. The public health nurse in order to be an expert in case finding must be completely familiar with all of the accepted health norms. She must also have a knowledge of the early signs and symptoms of syphilis and be constantly on the outlook for it.

The public health nurse has an intimate knowledge of the families in the area which she covers, resulting in a friendly relationship with her patients. There is a definite confidence between patient and nurse which frequently in the case of syphilis, greatly assists epidemiological research.

A very definite advantage has been found in having the doctor's teaching repeated by the public health nurse, who

is usually known as a general family health worker. Frequently she can do much in clarifying the situation in which the patient with syphilis finds himself. She can also be of help in tracing sources of infection, for she does have the confidence of patients, because of her freindly service, and often information withheld from others is given to her freely. The public health nurs too, should be familiar with the various hospitals, and clinics where free or low cost treatment for syphilis can be obtained. She should always be equipped to assist the infected patient and his family in working out a plan by which effective treatment can be obtained. Her assistance in helping to carry out a good syphilitic control program paramount.

As we have seen in the past, in order to successfully control any communicable diseese, it is necessary to completely educate the public and make them familiar with the true picture. This has been one of the defects in former programs concerning syphilis in the United States. In order to secure success, the public must be informed of syphilis frankly and openly without leaving the feeling than an indelicate and embarrassing subject has been discussed.

The methods used in the education of the public concerning syphilis should be the same as those used in health education for many years. An excellent medium is found through attractive literature, newspaper and magazine articles as well as talks to public audiences and special groups. The radio too, at the present time offers a far reaching and valuable means of public information. This education cannot be accomplished over night and the health worker is facing a

long persistent task.

The problem that the United States is facing in the successful control of syphilis is an enormous one, and one that can only be accomplished through the understanding and cooperation of all the people. It therefor behooves those who are concerned with stamping out this disease to constantly keep in mind the means suggested by Dr. Parran of eradicating this disease.

"Find syphilis. Through blood tests"

"Treat syphilis promptly. A few days delay may mean failure of treatment"

"Examine for syphilis, the family and all other contacts of the syphilitic patient."

"Prevent the birth of syphilitic babies by requiring blood tests before marriage and early in each pregnancy."

"Teach syphilis. The facts about it must be known to all of the people".

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