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ON
SYPHILIS.

DELIVERED AT GUY'S HOSPITAL,

JANUARY 11, 1867.

BY

SAMUEL WILKS, M.D.,

PHYSICIAN TO, AND LECTURER ON MEDICINE AT, THE HOSPITAL.

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A LECTURE
ON SYPHILIS.

GENTLEMEN,—In drawing your attention to the subject of syphilis, I allude of course only to the constitutional affection, and which is, strictly speaking, a “medical” disease. It is of the utmost importance that you should regard it in this light; for the neglect of so doing has been the main cause, in my opinion, of the obscurity which has so long surrounded it. Although for centuries syphilis has received attention at the hands of the most eminent of our profession in all countries, yet, from having been too exclusively regarded from one point of view, it has been associated and confounded with numerous other complaints with which it has no necessary connexion. This error has arisen from the fact of its more usual commencement by a local sore on the genital organs, and from its having being obtained by sexual intercourse. These two facts have ever been the uppermost points in the minds of medical men; and thus syphilis has been styled a venereal or sexual disease, and from the fact of there being generally a primary local lesion it has been regarded as a surgical disease. Now, these two conditions—its venereal nature and its local origin in the sexual organs, the two main features in its history as formerly considered—are not necessary or essential to its existence at all. The virus of the disease may be introduced into the system without any affection of the genital organs, and without sexual intercourse,

and, indeed, without any primary lesion whatever. I believe that any obscurity which has hung over the disease has been due to this erroneous way of regarding it, and which still seems to veil the truth from many. We shall see that syphilis, being a constitutional disease, is introduced into the system by a virus; but this by no means need be gathered from sexual intercourse: it need not be introduced through the genital organs, nor by any sore at all. At the same time it must be remembered that there are probably many local affections accompanied by irritating discharges which are highly contagious, and yet do not contain any virus which is capable of contaminating the whole system. I have seen an impetiginous sore on one person produce a similar sore on another; but how absurd would it be to confound this with a constitutional affection, and style both by the same name.

I say for a long period all contagious sores found on the genital organs were styled venereal; but it is evident that many of them were simply local in their character, whilst one alone contained a poison which was eminently virulent. Syphilis is a disease *sui generis*; it is just as peculiar in its symptoms and results as is scarlatina or small-pox. It has like them its incubation, its febrile disturbance, its eruptions, and sequelæ. In reading the history of syphilis, you will find it generally stated that it was first noticed at the siege of Naples at the end of the fifteenth century; and you will also find there are those who oppose this view, and declare that the disease has always been recognised. There can be no doubt that Celsus and others speak of contagious sexual disorders; but it may be questioned whether they allude to a constitutional affection. I do not take much interest in the discussion, and merely allude to it to show how in the minds of late writers much confusion has existed as to what is meant by syphilis, and thus, to prove the existence of a constitutional disorder, they point to facts merely indicating a local one. There are some who have maintained that the disease can originate *de novo* from excessive and promiscuous intercourse, but of which there is no proof; and if I say that syphilis is not essentially a venereal disease, there is not much meaning in the assertion. The term syphilis is therefore applicable only to the constitutional affection; whilst venereal disease is a wide expression, and may be used for all sexual sores. Mr. Acton quotes from Mason Good, and says that some have derived the term from *σιφλος*, maimed; and others, *συς*

φιλειν; but that "it was probably invented by Fracastorio about the close of the fifteenth century from *συν φιλεω* importing mutual love, for such is the title by which he has designated his celebrated and very elegant poem upon this very inelegant subject."

There can be no doubt that some of the acutest observers of bygone times did perceive a difference between a local disease and one that affected the whole system; but I will only allude to those of the past generations whose writings are more precise on the point. Thus Abernethy:—"Celsus describes eight species of sores with which the genital organs were affected in consequence of sexual intercourse; and as this was long before syphilis was known, it follows that there must have been some other cause producing them. Some of the sores described by Celsus are met with at the present day, and are not syphilitic. . . . I merely mention these circumstances to show that it is possible for ulcers to form which may not be syphilitic, yet the discharge from them may prove morbid and produce them in others." Carmichael was obliged to make the following strong statement:—"The syphilitic disorder, which was imported at the end of the fifteenth century, was confounded with all kinds of venereal diseases, and, to the disgrace of our profession (with two or three splendid exceptions), have continued from that day to the present—more than three centuries—to be confounded with it by the general body of practitioners." Hunter, one of the profoundest thinkers that our profession has produced, clearly saw that syphilis, being a constitutional disease, had no necessary connexion with the genital organs, and that it was merely from the fact of particular parts coming more frequently in contact that the virus was introduced through those channels. He says—"Every infectious disease has its peculiar method of being caught; and among mankind there is generally something peculiar in the way of life, or some attending circumstance, which exposes them at one time or other to contract such diseases, and which, if avoided, would prevent their propagation. The itch, for instance, is generally caught by a species of civility—the shaking of hands; therefore the hand is the part most commonly affected. And as the venereal affection is generally caught by connexion between the sexes, the parts of generation generally suffer first. From this circumstance people do not suspect the disease when the symptoms are anywhere else, whilst they always suspect it in every complaint of those parts. In the

lower class of people one as naturally thinks of the itch when there is an eruption between the fingers, as in young men of the venereal disease whose genitals are affected; but as every secreting surface, whether cuticle or non-cuticle, is liable to be infected by the venereal poison when it is applied to it, it is possible for many other parts besides the genitals to receive this disease. . . . It is generally caught on the parts of generation in consequence of a connexion between the sexes; but any part of the body may be affected by the application of venereal matter, especially if the cuticle is thin. . . . It is more liable to affect the penis from the configuration of the parts, and thus a favorite seat is between the angle and glans, near the frænum—not from any peculiar tendency in those parts to catch the disease, but from allowing venereal matter to lie undisturbed in the chinks, by which it has time to irritate and inflame the parts; but as venereal matter is more easily rubbed off from prominent parts by everything that touches it, it is a reason why they so often escape.” There can be no doubt that formerly a number of local diseases were confounded with syphilis, and more especially one, which, although considered by some a modification of the true syphilitic sore, is at the present time, for all practical purposes of treatment, regarded as a local affection. This is generally a soft, spreading, destroying ulcer, with accompanying suppuration of the neighbouring lymphatic glands, and followed by no further disturbance of the system; whilst the syphilitic virus may enter the body without the medium of a sore, or if by a wound this may heal, and in the mean time the poison which has entered is working in the blood until the whole body is contaminated.

I trust that you will not consider me as hinting in the slightest degree at anything derogatory to the surgical part of our profession when I say that the nature of the disease remained in obscurity because treated too exclusively as a local affection. I intend merely to say that syphilis, having generally a primary local lesion, was regarded too frequently as a simple external disease. I am aware that so-called secondary symptoms were observed, but this was not sufficient to compel practitioners to separate syphilis from simple sexual affections. Indeed, when the matter was considered at all, it was declared that the secretions and blood of the syphilitic patient were not contagious. Be careful, then, not to be led into the error of treating syphilis from a purely surgical point of view, as is sometimes heard in the question as to the best

applications to the sore, as if the sole object was to heal it up, without any regard to the virus which is being absorbed. To consider the one without the other may be as absurd as the consideration of the best method of healing a bite given by a dog which is affected with rabies. With syphilis, how to treat the chancre has been a subject by far too long exclusively considered.*

Now, in speaking of other specific diseases, you may remember that there were certain leading features in them which engaged our attention. By "specific" diseases I intend those which in no way depend upon the slow changes in the tissues brought about by long-continued causes, and which constitute the great bulk of all maladies which come before us, but I allude to morbid conditions of an altogether different kind, and set up in the most healthy person through the introduction into his blood of a virus taken from another who is suffering from the disease. A process is supposed to be set up in the blood, which has been regarded as fermentative, and thus called zymotic; that a definite period is required for the change; that certain phenomena ensue, and the process then ceases (some think by the elimination of the poison), leaving the subject as well as before. After the poison enters the system, a certain period elapses, in which no outward sign of its presence is seen; this is called by the nurses the "breeding time;" by us the "hatching time," or the incubation; then the febrile symptoms appear, attended by a disturbance of the skin and mucous membranes, and it is especially by the altered appearance of the former that the differences of the specific diseases are characterised.

As regards the disease now under consideration, the first thing to inquire is as to the mode of introduction of the syphilitic virus into the system, the changes which then occur, and the incubation. Of course the poisonous matter from a so-called primary sore can be conveyed to another person; but one question which was asked by the Venereal Committee (of which I was a member) of the witnesses was, whether an excoriation was necessary for its introduction. There were those who thought this was necessary, and that in all probability a breach of surface took place on the mucous

* I need make no apology for these remarks, for if not true we should not have required the philosophic writings of Lee, Hutchinson, and some other surgeons.

membrane, through which the virus was taken up. Other witnesses said that, there being an absence of all proof of this, they had no reason to believe otherwise than that the virus might enter the follicles, and be absorbed by lymphatics or veins. It seemed, however, to be believed by a third and large party that both doctrines were admissible—that although a raw surface would allow more readily of absorption, yet that the application of an irritant virus to the sound skin or mucous membrane would in time so alter the epithelial surface that absorption would then readily take place. This conviction was founded upon what is observed when various medicaments, such as aconite or belladonna, are applied to the skin; besides, there were the positive experiments of Ricord, who showed that although a long time might elapse, yet that the virus would act eventually on a healthy skin, after having, of course, completely sodden the epithelial covering. If experiments be made with the virus, what mostly happens is the following: that, as in vaccination, the puncture heals, but soon a papule appears, which is surrounded by a hardening, producing a lump or button, which is almost characteristic of the disease. This process generally takes three or four weeks or more; the average time is a month. When, therefore, the patient first perceives a sore which has been obtained in the more ordinary way he has most likely had the poison within him for nearly a month. You may remark that the longer a specific disease is developing, the longer is its whole duration, as well as the various stages of it, including the onset of the fever and that of the rash. A disorder like scarlatina, which runs a very rapid course, has a short incubation and a rapid fever stage, the rash appearing after twenty-four hours' illness. In small-pox the fever stage before the rash is longer, so also in typhus; whilst in typhoid, a disease of longer duration, the pre-exanthematous stage is more protracted. In syphilis, a disease which continues over a long period of time, the incubation is slow, as well as the stage preceding the efflorescence. Dr. Marston, of the Artillery, has stated that the soldiers very generally said that a month had elapsed since intercourse before they observed the sore; in one case he had known fifty-six days to elapse.

The mode of introduction of the virus and the effects produced are of the highest importance and of great interest, both practically and pathologically. The true or characteristic chancre is that where an induration occurs around

the chancre, and the neighbouring glands are involved; but we know that this is by no means necessarily the case; that soldiers and sailors (and this is the experience of all medical men) will occasionally draw attention to secondary symptoms who exhibit no evidence of a local sore, or, perhaps, merely a cicatrix or a papule, but attended generally with indurated inguinal glands. Such cases do occur, I say, but they are exceptional.

In corroboration of some of these views, not drawn from books, but from the mouths of living witnesses, it was said by Dr. Beith that the virus might enter through the cuticle without abrasion; Dr. Blenkins, of the Guards, believed the virus might be absorbed by the follicles. Dr. Frazer, who had had a very large experience in India, had seen sores heal at once; or, perhaps, there was a mere scratch, which healed immediately, but was followed by the usual secondaries. In cases which followed supposed gonorrhœa, he believed there was a crack or sore which had been healed. It was for this reason that he relied more on the induration of the glands as a diagnostic mark than upon the character of the chancre. Mr. Samuel Lane, also, had seen the constitutional affection where the only local sign of disease was a little excoriation, and which, healing up in a few days, left no sore and no induration. This would be somewhat analogous to the case of hydrophobia succeeding to the bite of a dog which was little more than a scratch, and which had soon healed.

Now, I have first mentioned these facts to show that the virus of syphilis may be introduced into the system through the most trifling abrasion, and leaving at the spot no trace behind.* Such cases, however, are exceptional, since the induration is generally observed at the point of introduction of the virus, and which condition is intimately related to the further development of the disease. The great peculiarity of the syphilitic process is seen in this disposition to the production of lymph or fibro-plastic material, which may, in extreme cases of disease, as we shall presently see, find a nidus wherever connective tissue naturally exists—that is, in every part of the body. The first indication of this is seen in the

* When at one time syphilis prevailed in certain religious houses, and it was accounted for by propagation through the air, the statement was received with deserved ridicule; but it should be remembered that there is no *à priori* absurdity in the assertion. I have never seen typhoid fever taken by contagion; but I do not deny the possibility, especially when attempted to be proved by facts.

chancre itself. There can be no doubt, although authorities differ as to its absolute necessary presence, that induration is the great characteristic mark of the true syphilitic or Hunterian chancre. It may be admitted that it is sometimes wanting; but the well-marked mass of indurated tissue which is sometimes seen on the prepuce, much like an everted eyelid, is too striking a fact to be overlooked. Herein, indeed, lies the first evidence of the true nature of the disease; but mark the fact, that although this is called a chancre, thus implying the existence of a sore, yet no ulcer need exist. The surface merely secretes an ichor; but there is no pus, nor, in fact, is the mucous membrane over it absolutely destroyed. If a sore does exist, it is generally an after occurrence; it is no necessary part of the syphilitic process. Babington, the commentator of Hunter, says the character of the primitive venereal affection is essentially an induration passing afterwards into ulceration. Well, then, this indurating process goes on for three or four weeks after the introduction of the virus, subsequently an induration of the glands in the groin ensues, and then follow the constitutional or secondary symptoms.

Before, however, proceeding further, and leaving the subject of primary sore and contagion, I had better here allude to another probable mode of contracting the disease—that is, from a person in whom the affection is already developed, or who has the secondary symptoms, the primary having long disappeared. The prevailing opinion has been, that contagion could only occur from the primary sore—that is, for the first three or four weeks of syphilis; and that when this had healed contagion was no longer to be feared. There is, however, at the present day, a large mass of evidence to show that the constitutional disease is contagious. For instance, there are a great many prostitutes plying their trade in whom there is no existence of a sore, and yet these women are largely propagating the disease. Theoretically, you would suppose that although the primary sore had healed, yet, as the poison was still working its effects on the constitution, that it could be communicable to others; Hunter thought so, but failed to prove it. Experiments have been made which prove positively that the blood and some of the secretions are poisonous in the secondary or constitutional disease. Diday speaks of the frightful ravages of syphilis in a country village, introduced by a syphilitic infant, and propagated by the nurse; but I think I cannot do better than again quote

the opinions of witnesses from whom I have heard the facts orally. First, there was a surgeon who accidentally cut his finger whilst operating on a man suffering from secondary symptoms, and who himself, in consequence, took the disease. This surgeon gave it as his opinion that women go on infecting men long after the primary sore has healed. Dr. Marston believed, also, that the discharges of syphilitic women were contagious. Of the same opinion were Mr. Erichsen and Mr. Samuel Lane, Mr. James Lane and Mr. Gascoyen, of the Lock Hospital. Mr. Langston Parker had no doubt that the discharges of women produced the disease in the other sex; but he stated, still more, his belief that they would produce sores of an indurated kind. He had seen constitutional symptoms thus conveyed, just as from men to women by means of the seminal fluid. Mr. Lee described some time ago, in 'The Lancet,' how a gentleman came to him with a chancre, saying it was impossible he could have syphilis, as he only knew one woman, who was free from disease. She underwent an examination, and the mucous membrane was found healthy, although she had a discharge. On examining the chest a syphilitic rash was seen. Mr. Lee opined that from long intercourse this gentleman had not been infected, until, from some local irritation on the parts of generation, a secretion was formed which was inoculable. In the same journal there was circumstantially related the case of a man labouring under secondary syphilis, and, having a sore on his lip, biting another man, and conveying to him the disease. So much for the secretions; but the blood itself is poisonous, or it may be that herein lies the virus.

In a work lately published by Lancereaux there is a narrative of a case of inoculation by the blood on a medical man who voluntarily submitted to the experiment. The champion (to adopt the author's expression) was an Italian physician, Dr. Bargioni. The patient who afforded the material for experiment was a woman, aged twenty-five, the subject of well-marked constitutional syphilis. Her arm was washed clean, and no eruption existed on that part. The cephalic vein was opened, and some blood drawn; lint was dipped in it, and applied to the arm of M. Bargioni, in which three incisions had been made just below the insertion of the deltoid. In twenty-four hours the lint was removed. In four days all trace of the inoculation was gone. After a few days he noticed an itching, and on looking at the arm there was observed a round papule of a red colour, but no indura-

tion around it. The papule gradually increased, and in eight days was of some size, and covered with a silvery scale. Eleven days after its first appearance two glands in the axilla became enlarged. On the sixteenth day these glands were larger; and on removing the scab from the papule a small quantity of serosity was found beneath, but no induration around it. On the eighteenth day there was an ulcerated surface with a crust on it, and a certain amount of hardness at its borders. On the twenty-third it was larger and harder, as were also the glands. A month after the first appearance of the papule he had nocturnal pains in the head, and observed some enlargement of the cervical glands. A week after this a roseolous rash appeared on the body, and spread all over him, leaving no doubt as to its nature. In another week the sore was not yet disposed to heal, and the glands were larger. The rash then became copper-coloured. Mercury was given, and the sore began to heal.

There can be no doubt, then, of the fact of the blood of a syphilitic patient being poisonous, and capable of conveying the disease to another person. The experiment has now been more than once unfortunately and unwittingly tried in the case of transmission of syphilis during the operation of vaccination. I am not aware of any experiments having been made with the blood of a patient who had only the so-called primary disease. Knowing the fact, all we want to ascertain now is the frequency of the propagation of the disease by means of the blood of certain secretions, so as to speak with certainty as to the propriety of including women suffering from secondary symptoms amongst those who are now arrested under the recent Act of Parliament.

Supposing, then, that the virus from a depraved secretion or blood of a person suffering from secondaries has entered a particular part of the body, what change is there locally produced? Now, I am sorry to say our facts are scanty as regards this matter, and few of our witnesses at the Commission could give me much information. In the case of the Italian physician just mentioned you see there was no marked indurated sore, and thus it is possible that the virus from the two different stages of the complaint may produce different local effects. Diday maintains that syphilis may be propagated either from primary or secondary, and that the latter contains a less virulent poison. It is syphilis in a milder form; but we have heard Mr. Langston Parker declare that he has seen an indurated primary chancre arise

from a secondary source. There cannot, however, be left out of the question the seat of the primary lesion, which appears to have somewhat to do with its character, seeing that indurated chancre is comparatively uncommon in women.

Now, in reference to the nature or signification of the induration of the chancre and the period of incubation of syphilis, you must first of all observe that, although there is a tendency to the formation of lymph in all parts as soon as the disease has thoroughly developed itself, yet it is not true that every cut surface on the body would put on induration. This peculiar condition, therefore, does seem intimately connected with the primary introduction of the poison into a healthy (virgin) subject. Indeed, you know, according to Hunter's experiment, that the secretion from a chancre is not auto-inoculable. Although, therefore, the virus may be introduced without any immediate local effects, yet generally a peculiar and characteristic process does ensue which appears to be intimately connected with the incubation which is taking place, and with this a corresponding change in the associated lymphatic glands. Herein lies a question of the greatest practical and scientific interest, for it appears to be the rule that an indurating process at the site of the primary lesion is necessarily associated with further changes, and yet at the same time it is not always observed. One surmise is that the virus may have a different source in the two cases; in the one, that, being obtained from a corresponding sore on another person, a change, or kind of churning process, must first go on; whilst in the case where no induration occurs the process has been already undergone. Diday might say the poison was milder. I shall presently tell you that the induration is a proof that the poison is working in the system, and with many authorities is an indication that an effect is already produced.

Let us see how the question stands with reference to other diseases. In the case of vaccination or cow-pox a pustule is produced at the point of inoculation; whilst this is forming, a change is taking place throughout the whole system, but no new pustules are formed. On the other hand, there is the case of small-pox arising from the inhalation of the poisonous vapours from one already affected; a change there also takes place in the system, accompanied by a crop of pustules over the whole body. In the one case the characteristic pustule is produced only at the point of inoculation,



and during its formation the constitutional change occurs ; whilst in the other case the characteristic pustules appear to follow, or at least to be intimately associated with, this change in the system itself. But, thirdly, in the inoculation by small-pox the procedure is still different, and has its close analogies with the subject we are discussing in relation to syphilis. If a healthy person be inoculated with the small-pox virus, as was constantly done in years gone by, a papule appears which gradually grows into a pustule, becoming larger and larger until the eighth day, when all at once violent constitutional symptoms appear, accompanied by the breaking out of the small-pox eruption all over the body. Sometimes, as is known, the disease was severe enough to be fatal. Now, observe, in an ordinary case of small-pox the pustulation on the skin is an evidence of the thorough contamination of the system, the poison having been introduced in all probability through the lungs ; but in the case of inoculation by small-pox the pustule is fully developed before the manifest changes appear on the surface of the body. In the one case the pustulation is the effect, and in the other the formation of the pustule appears necessary to the infection of the system, or at all events it is anterior to it. So in syphilis the poison may be introduced at once into the blood, and then in course of time characteristic effects are seen ; but let the virus be inoculated in any part, then the same characteristic appearance at once appears at this spot, and before the evolution of the constitutional symptoms. I think, by a little consideration, these two apparently opposite facts may be reconciled ; but at all events the difficulties do not apply to syphilis alone. As regards small-pox, the poison may be introduced into the system without any primary lesion, and in all probability occasionally through the skin without any local manifestation ; but as a rule, when inoculated, characteristic changes are seen, and the same changes as under ordinary circumstances of contagion would be a *result* of a previous contamination of the system. Similar modes of contagion, with analogous effects, obtain in syphilis.

In the case of small-pox the maturation of the pustule occupies eight days ; and a question therefore arises whether, if this were destroyed at any period of its course, the progress of the disease might be arrested. To use the technical expression, might it be rendered abortive ? I am not aware whether any such "rubbing-out" process has ever

been attempted, but in the case of syphilis it involves a question of the utmost practical importance. Inasmuch as the constitutional symptoms do not appear until the maturation of the chancre, is it possible, by removing it wholly or arresting its growth, to mitigate in any way the severity of the after-symptoms? In order to answer the question we must appeal to practical results; and I cannot do better than state what our informants told us at the sittings of the Commission, as their opinions, no doubt, correspond to those of the profession generally. All agreed that when an indurated chancre was well formed its removal was useless, as the secondaries still appeared, one good reason for this result being that the adjacent glands were at this time involved. At the *Dreadnought* hospital ship there could be seen some time ago a jar full of chancres, collected by one of the surgeons, who wished to put the experiment to the proof, but which jar he afterwards exhibited as a witness to the fruitlessness of the attempt. The same experience, I believe, is related of Sigmund of Vienna. Also of Ricord, who says the induration is not to be regarded so much as the cause or origin of syphilis as a consequence of the constitutional affection. It is less a cause than an effect. The induration which subtends the base of a chancre is but a kind of local reaction of the general poisoning; it is, so to say, the first of the secondary symptoms; the chancre is but the prelude to a diathesis, and this is syphilis. The compiler of Ricord's lectures quotes a remarkable passage from Ambrose Paré, to the following effect:—"If there is an ulcer on the penis, and if the part is hardened, it will be an infallible sign that the patient is affected with syphilis."

It is therefore clear that when the induration is perfected the system is already affected. We might, however, inquire whether, if the process could be stayed, the constitutional effects would be mitigated; and therefore I was very anxious to ascertain this personally from gentlemen who were warranted in giving an opinion. Dr. Marston believed that, as a rule, the greater the induration, the more severe and prolonged the after-symptoms; and that the longer the chancre lasted, the more influence it had over the disease; therefore, although he did not think that mercury cured syphilis, yet he considered it modified and retarded the secondaries by arresting the growth of the chancre. Mr. Samuel Lane—than whom no one has had more experience—believed that a relation existed between the amount of the induration and

the secondaries ; and anything which would mitigate the former would tend to arrest the latter. I believe that Mr. Paget and Mr. Hutchinson were of the same opinion. Now, since mercury has a decided effect in removing the induration, it might be asked, what influence has this drug in retarding or mitigating the symptoms? There are few who regard mercury in the light of an antidote to the disease, but the gentlemen whom I have above mentioned stated their belief that it had a power of influencing the course of the disease. In remembering how the whole attention of the older surgeons was directed to the treatment of the sore, and then remarking the utter neglect of it by some in modern times, you might think that two such different methods were utterly opposed ; but the consideration we have now given the subject, and its comparison with small-pox, will show that this is not necessarily the case.

A large part of the scientific and practical interest attaching to syphilis, you will see then, depends on the mode of introduction of the virus into the system, and the subsequent process of breeding or incubation. I fear that the term "incubation" is used in different senses by different writers. In other maladies we have applied the term to the process which intervenes between the moment of contagion and the first of the symptoms. The period of incubation in a case of typhus or small-pox is that which elapses between the occasion on which the patient is said to have "caught" the disease and the first moment when he is perceived to be ill. From the very moment of contagion it is evident that the poison has entered the system, but from the fact that no effects are immediately evident it is clear that some process is being undergone. In the case of inoculation of small-pox, seeing that the patient has no febrile disturbance for several days, we might reckon the time of the maturation of the pustule as the period of incubation. In syphilis a corresponding time would be the maturation or growth of the chancre, the period elapsing between the moment of contagion and the first of the constitutional symptoms ; the term, however, has been constantly used in reference to the period which intervenes between contact and the *first* appearance of the sore or primary lesion ; this is a misuse of the term, if we are to be guided by analogies. Such, however, has been a very general use of the word as applied to syphilis, and thus a second period is spoken of corresponding to the time between the appearance of the primary sore and

the onset of the constitutional symptoms. This term varies from three to seven weeks; the average is six weeks. Bärensprung says he has never seen the secondaries before the sixth week or the beginning of the seventh; Sigmund says they appear six weeks after the beginning of the induration of the chancre; Diday gives as average time forty-seven days. Bärensprung considers that these periods are necessary for the development of the disease—that is, three or four weeks for the primary, and six weeks for the secondary incubation; so that, when a syphilitic roseola is seen, ten weeks must have elapsed since the patient was infected. The practical bearing of such a statement would be, that where a child had an eruption six weeks after birth the disease must be hereditary; at a later period, not necessarily so. Judging from my own experience, I am sure that the length of time here given is by no means necessary. Dr. Marston told us that from the first appearance of the local lesion to the occurrence of secondaries from forty to sixty days elapsed, seldom longer, and the chancre was generally first seen about a month after exposure. Dr. Beith said, from his large experience, the secondaries appeared from six to eight weeks after the sore was observed, and rarely as early as three weeks.

Leaving, then, the question of incubation, we suppose that in about four weeks after contagion the sore or pimple is perceived and induration proceeds. At this time the inguinal glands are enlarged and indurated. A mass of them can be felt rolling under the finger. The patient has no knowledge of their existence, or denies that he has a bubo—meaning by the term a suppurating gland. And here I may remark how popular opinion has kept hand in hand with scientific observation. The patient is pleased to see the bubo suppurate; for by its doing so he believes he gets rid of the poison. The surgeon, too, knows that the peculiarity of the syphilitic bubo is not to suppurate, but that the abscess in the groin is the consequence of a simple sore. One witness informed us that he had only observed a suppurating bubo in one case amongst six or seven of true syphilis.

We suppose, then, that several weeks are passed—the two periods of incubation, as some would make them; and it then becomes clear that the system is affected, and the so-called secondary symptoms appear. There may be febrile disturbance, just as in other specific diseases; and at the same time a manifest alteration in the skin externally, and

the mucous membrane internally. Other lymphatic glands become affected, and the most superficial of the bones. The patient, I say, is now ill: he feels indisposed; he looks pale and out of health; he is anæmic; and it is said that the blood is in the same condition as in chlorosis. The fever is sometimes so marked when the exanthem appears that an acute febrile disorder has been occasionally anticipated. The rashes which appear at this period have sometimes been called dry, to distinguish them from the moist, which are mostly seen at a later period of the affection. They are generally roseola, lichen, or lepra (psoriasis). At the same time rheumatic pains are felt in the limbs, and the tibia and other bones may show a periostitis. An examination of the throat may show the whole palate inflamed and swollen, with superficial patches of exfoliated epithelium on the tonsils and uvula, as well as on the tongue. In some cases a derangement of the stomach and bowels would show that the mucous membranes had not escaped the general disturbance, or, rather, that this surface, with the skin, were expressive of the change which the whole body was undergoing. In some cases a laryngeal and bronchial inflammation may be present (Walshe). At this time the glands in the neck are usually swollen and hardened, like those in the groin. Why these glands should be especially affected is not quite evident. It has been supposed by some that they merely follow the cutaneous eruption in the neighbourhood; but this is not always present. Others have considered that they are consequent upon inflamed throat; but there is no proof of this. So it may be nothing more than their exposed situation which subjects them to a greater liability to infection, which is the only cause suggested why the os frontis, clavicle, and tibia should be the bones more especially affected by periosteal inflammation. The peculiarities of the rashes I need not mention; but refer merely to the coppery colour which they assume, indicating the disposition to the formation of pigment, just as is seen in the brown staining at the site of the primary chancre. I might also mention that the induration of the glands in the neck and groin continues during the whole duration of the syphilitic process, and often remains longer, as an indication of a disease whose virulence has passed away. I believe it is Bazin who speaks of the lymphatic *vessels* as being sometimes enlarged and hardened. The eye also may become affected, as shown by the iritis or retinitis. At this time, also, condylomata may appear, and

these form a kind of link between the earlier and later stages of the syphilitic disease.

Now, after all these symptoms have existed for some weeks, they may disappear and the patient do well—may, in fact, become absolutely well. He is liable to have a relapse for some time afterwards, and similar symptoms may return; but should this not occur within a given period (perhaps a few months), he may be considered well—the disease has terminated. This question of relapse does not seem to have been sufficiently studied; for it is one thing for a patient who has had merely the symptoms above named to have them repeated, and another thing for a patient who has been the victim of syphilis for many years to have occasional inter-current attacks of certain maladies. It has not been shown that a patient of the latter class is ever again attacked with the series of earlier symptoms such as I have described.

Like other specific diseases, it is rare for syphilis to occur a second time in the same individual. It is remarkable that this fact is one of comparatively recent observation; for when, only a few years ago, this statement was made it was received with ridicule, but not disproved by men of experience, save in exceptional instances. As bearing upon this subject is the question why some persons may have the disease more mildly than others, and whether this may not be due to the system being already tainted from birth. Mr. Hutchinson has, I think, shown some good reason for this supposition, and has pointed out how virgin races of mankind, those in whom the disease has never in any form appeared, suffer immeasurably more than those with whom it is an established disease. The same has been observed of small-pox.

Now, instead of the disease thus terminating with the appearance of the phenomena just named, it may still proceed in its course; and the same process which has been described as occurring in the chancre, in the glands, and in the bones, may continue on until nearly every part of the body is affected. Why in one case the virus should work itself out of the system with the previously mentioned symptoms, and why in another case it should not be eliminated for years, but, continually progressing, attack nearly every structure of the body, is not ascertained—whether, indeed, the difference is due to the individual or to the nature of the disease, whether there be a mild form of syphilis and a severe form, or whether the disease is prolonged simply from the constitution of the patient or from want of appropriate treatment. I

may remark that the same question is open with regard to scarlatina and small pox. In both of these diseases it is clear that sometimes a mild, and at other times a severe epidemic prevails; and yet it is also found that under the same circumstances, as in the same family, and arising from the same source of contagion, one person will have the disease slightly and another in the most malignant form. So in syphilis, we must at present be content with the fact that practically we must regard it as a comparatively mild and, at the same time, a most severe disease.

There is, therefore, no absolute line to be drawn between the affection before spoken of and that which is protracted over many years, to the destruction, perhaps, of many parts of the body, although writers generally have been content to designate the former secondary, and the latter the tertiary. In the one the more superficial parts of the body are affected, and in the latter the deeper. I have already said that the peculiarities of the chancre itself point to the fact of the constitution being infected; and, therefore, as regards the pathology of syphilis, the terms primary, secondary, and tertiary have not much meaning; the same distinctive process is in operation in all stages. Of course, the longer the disease lasts the more probable is it that a greater number of tissues will be involved; but the changes in these parts are of the same nature as are observed in the periosteum or on the iris. Besides, there is no proof that some of these deeper-seated changes do not occur during the so-called secondary stage; for it is only because the patient rapidly recovers that it is supposed the disease has been superficial, whereas when a person has died after having suffered for many years with syphilis, and the internal organs are found involved, it is assumed that the changes therein have been of recent date, though there is no proof that they have not been of long standing. Although, therefore, it is reasonable to suppose that in the severer and more protracted forms of the disease more extensive lesions may occur, yet there is no reason why a line should be drawn between certain changes already noticed and these, seeing that there is no pathological difference between them. Moreover, I know for certain that in more than one case an internal syphilitic deposit has occurred at a very early period of the complaint. In a female patient a nodule on the larynx compelled tracheotomy in the earliest stage of the disorder.

One principal objection I have against the term tertiary is,

that in those cases which are usually designated by this name, and which come to the post-mortem table, other and still further changes have occurred. Generally speaking, the organs have undergone a complete metamorphosis or degeneration of the lardaceous or amyloid kind. This is not peculiar to syphilis, but occurs under several conditions of cachexia. In the midst of these lardaceous organs it is not uncommon to find the true syphilitic deposits of a former period ; so that it would be more correct, in judging of these organs, to decide that the deposits occurred during the active syphilitic period, and the lardaceous in the latter stages. If these, then, are to be styled tertiary, the former would be secondary. My own belief is that, so long as there is a disposition to the formation of these new products, the patient is affected by syphilis, admitting that there may be a mild and severe form of the constitutional affection. When the process is over, and if the patient's constitution has suffered much, the final lardaceous degenerative changes begin. These, however, are the sequelæ. If this last stage is to be styled tertiary, then the severer form of the true syphilitic stage cannot have this name ; or if the latter be so designated, then the final one spoken of must be quaternary ; but these results had better be spoken of as the sequelæ.

In the mild secondary form of disease already mentioned a limited number of organs are affected. But I have now to refer to deeper and more important changes. The peculiarity of the syphilitic virus is shown in its so affecting the system that there is a constant disposition to the formation of a new fibro-plastic material in various parts of the body. The adventitious matter, having a predilection for the fibrous tissues, seeks its congeners in all directions ; and, as areolar structure is a universal element, so there is not an organ of the body which can escape the action of the syphilitic virus. The microscope shows the new material to be composed of fibres and cells, but having no peculiarities that I can with certainty rely on in order to distinguish it from the products of other diseases. I have sometimes thought that I had been able to discover differences, but I am now of opinion that the diagnosis must be left to the future. These depositions of new tissue take place slowly, painlessly, and probably without much constitutional disturbance, so that it is only when an organ has already been seriously involved that its disturbance becomes manifest.

This new material is thrown out in two different ways :

either in a concentrated or circumscribed form, whereby distinct round masses are produced, and which are technically styled *gummata*; or in a more diffused manner through the organs or tissues, and which may be styled *interstitial*. The former constitute the alterations which are the more marked or characteristic, although the latter form is equally important. Ordinary inflammatory changes do not result in distinct deposits of the kind mentioned, whilst they do present, as one of their phenomena, the simple fibroid diffusion. It is probable, therefore, from the latter form of syphilitic change being not so characteristic, it may often be confounded with other morbid conditions; for instance, a syphilitic lung, when disorganized, may be simply regarded as a case of phthisis, a syphilitic liver as one of alcoholic cirrhosis, or a syphilitic brain as one of ordinary tumour or ramollissement.

In referring to some of the organs affected I shall not enter into minute details, nor shall I follow any anatomical arrangement, but ask your attention to some of the most striking and more important changes in the body.

In considering the syphilitic constitution, the *liver* must retain its pre-eminence, both as the organ most commonly affected and the one in which an alteration was first discovered in connexion with the disease. It may be remarked, too, that hepatic disturbance and jaundice have been noticed in the course of syphilis by many of the more ancient writers; There are *three* varieties of the syphilitic liver; the first, that in which the whole organ has become infiltrated by a new fibre-tissue, producing a uniform and general hardening; the second, in which the presence of the new material in the course of the portal vessels has produced a contraction like that of cirrhosis; and the third and most striking form, where the organ is pervaded by distinct nodules of the new formation. The *first* variety has mostly been observed in children who have died of hereditary syphilis, the organ being large and intensely hard, all natural structure having disappeared to the naked eye, and the microscope showing the organ pervaded throughout by the adventitious material. The *second* form is constantly seen in those bodies which are tainted by syphilis, and is often found associated with the lardaceous degeneration. Inasmuch as the patient may have been intemperate in drink, the change may have been wrongly attributable to alcohol. In many cases, however, judging from the history of the case, and the morbid appearances

found elsewhere, I have been pretty confident that syphilis was the origin of the disease. It may go on, like alcoholic cirrhosis, to produce dropsy, as was seen in a man lately in the hospital, and who required to be tapped several times before his death. The *third* form shows the most characteristic changes, and those which are generally pointed out as evidence of the presence of syphilis. Here are seen distinct nodules scattered through the substance of the organ, sometimes as small as peas, and at other times as large as walnuts. These after a time become dried up, and then form tolerably circumscribed masses; but the neighbouring tissue is often infiltrated, and then they send out long processes into the neighbouring hepatic tissue. When near the surface they shrink up the tissue, causing deep cicatrices, so that we may constantly meet with a liver much altered in shape, or apparently lobulated, from the effects of syphilis which had occurred several years previously.

The *brain* is an organ which is perhaps not quite so often affected as the liver; but owing to any disturbance within it at once becoming manifest and productive of symptoms, its alterations by syphilis are infinitely more important; some of the worst forms of epilepsy, and most fatal, being assignable to this cause. Observations have hitherto shown that the membranes and surface are more liable to disease than the substance, unless, indeed, various affections of the cerebral tissue, which have hitherto been ascribed to other causes, have their origin in venereal disease. As regards the membranes, the before-named syphilitic deposit may be found on the external surface of the dura mater in connexion with the bone, and at the same time on the internal surface in connexion with the convolutions. The latter may be altogether independent, as it is the more important. It is seen as a patch of indurated lymph on the inner surface of the dura mater, whereby the membranes and brain become closely adherent. The cineritious structure is involved, and perhaps a portion of the medullary. This is the most common and striking form of disease produced by syphilis, and the one which is generally found in connexion with epilepsy and some other well-marked cerebral affections. As regards the brain proper, I have only once or twice seen distinct deposits within its structure. These were small, and scattered through the cineritious portion. It is probable, however, that many of the so-called fibrous tumours may have been syphilitic, and also that some instances of softening may have been due

to the breaking up of similar deposits. Softening of the brain, however, may occur from syphilis in another way, simply from deranged nutrition, owing to disease in the blood-vessels. It has been shown that in several cases changes have occurred in the arteries by a fibroid thickening in their walls, exactly of the same nature as is observed in other structures of the body. The consequence is a ramollissement of the cerebral substance.

The *spinal cord and nerves* may be affected by syphilitic disease. The nerves may have syphilitic tumours upon them, producing the peculiar affections which the loss of function of those nerves would necessarily bring about. In one case a spinal nerve was affected, and productive for some time of neuralgia; but as the deposit increased, the cord became involved, and a fatal paraplegia ensued.

We next come to the *lungs*. It is possible, and indeed highly probable, that these organs are very often seriously affected by syphilis, and that much of the so-called phthisis which occurs in persons of intemperate and debauched habits has had its origin in syphilis. As in other organs, the syphilitic affection may occur under two forms, the nodular and the diffused. The former, constituting the gummata, is comparatively rare; but a specimen is to be seen on our museum shelves, and a drawing of the same in the 'Transactions of the Pathological Society.' The diffused or interstitial form is that where the fibrous tissue runs in all directions through the organs. This probably is far from uncommon, but fails to be recognised because presenting no sufficient peculiarities whereby to distinguish it. Fibroid disease of the lung, you must remember, is a frequent disease, or, as it perhaps may be sometimes called, chronic pneumonia—a disease in which a new fibre-tissue is formed in the parenchyma of the lung, and which either hardens or breaks up. In the latter case, the lung being disorganized, the disease is usually styled phthisis. Now, patients who have suffered from syphilis undoubtedly die of such disease as this; but since it presents no peculiarities, the proof of its nature is wanting, and, if attributable to causes induced by the patient himself, is considered to be owing to the debauched habits which indirectly have brought about tubercular disease. In several cases, however, where marked syphilitic disease has existed elsewhere in the body, the lungs have presented a fibroid change, indicating that it was induced by the same causes. In a case which occurred lately, where a man died

of syphilitic disease of the larynx, and who also had caries of the cranium, a marked fibroid change had occurred in the lungs; also in the man just now alluded to, who died of hepatic ascites, the upper lobe of one lung was found occupied by softening deposit, the nature of which was evident on making a section of the lower lobe. Here the tissue was full of streaks and patches of fibre-tissue, but no tubercle was present. In a very remarkable case of a woman who came in some time ago under Mr. Birkett's care, with a large ulcer on the thorax in connexion with disease of the ribs, there was found a quantity of tough fibre-tissue forming the floor and boundary of the ulcer, and this had penetrated and gradually involved the lung beneath. The latter was adherent to the chest, and thus the whole of its front aspect was converted into a tough fibrous substance. I believe, therefore, that future observations will show that phthisis is a very common consequence of syphilis, not by the production of tubercle, nor by the formation of distinct gummata, but by the interstitial fibroid change which may lead eventually to disorganization, and then the patient presents the ordinary physical signs of consumption.

Another organ very frequently affected is the *testis*, and in the two ways before mentioned. Distinct nodules may be found, as in several specimens in our museum, involving both the body of the testis and the epididymis; or a fibrous structure may be seen running through the parenchyma in connexion with the tunica albuginea. This adventitious material may involve the secreting structure until the whole organ is destroyed. The testis may therefore be found enlarged, in the first instance, by the more solid deposits, and subsequently become shrunken by the degeneration of these and the conversion of the organ into simple fibre-tissue. These changes in the testis evidently belong to the later stages of syphilis, and occur without pain, and often without the knowledge of the patient, for I have constantly met with them on the post-mortem table, when their presence had been quite unknown either to the doctor or the patient. In confirmation of this I have asked surgeons if they have regarded testitis as one of the effects of syphilis, and they have usually answered in the negative; they might have seen what could be styled a slight testitis, but seldom more. From this I judge that the deposit occurs slowly and painlessly at the later stages of the complaint, and when the patient has ceased to require local treatment.

As regards other solid organs, I have met with deposits in the *spleen* and *kidney*, but they occur more rarely. Several cases have been recorded where the *ovaries* have been involved in an inflammatory process during the syphilitic condition of system, and where the product thrown out has been of a kind which could leave no doubt of its specific origin.

In the same manner the *mamma* may be affected. I have not much personal experience of this, but it seems that the female breast may be affected in three ways. One variety of the affection is that in which a mass of indurated tissue is associated with an ulceration of the integument; another in which distinct masses are found in the gland; and a third in which the new material is diffused through it, constituting a syphilitic mastitis. A case of the first kind I had an opportunity of seeing not long ago. A woman had a large ulcer on the breast, with raised edges and great hardness at the base. It was believed to be cancer, but in a stage beyond the reach of any operation. I saw, however, the condition of the neighbouring glands and the rash on the skin, and suspected syphilis. I therefore recommended the iodide with mercury, and the ulcer rapidly healed. Of the other forms I personally know nothing, but Lancereaux gives a few cases. He quotes an instance where Richet was about to remove a tumour from the mamma on the supposition that it was cancerous, when he discovered another one of the same kind. He then suspected syphilis, gave the appropriate remedies, and the tumours speedily disappeared. Velpeau quotes four cases from Maisonneuve, in one of which distinct tumours existed; in the other three there was concomitant ulceration of the integument.

The *muscular system* is a part of the body which has always been known to be affected by this disease, inasmuch as the tongue is a muscular organ, and nodules in its substance have been remarked by the earliest writers. The same may be observed of the muscles of the limbs, and thus hard lumps of fibroid tissue are not unfrequently met with in the forearms and legs. The adventitious material may form distinct nodules, which dry up or cretify, but it often infiltrates the muscles, so that when removed by appropriate remedies the original tissue is left in its integrity, or shows at most a cicatrix due to a withering of the fibrillæ. The *heart*, being a muscle, does not escape. I have seen two or three examples of the disease in this organ, and several undoubted cases have been reported of distinct nodules in the heart. A general

fibroid change in the muscular tissue is not unfrequently observed, but whether in some cases this may be syphilitic is problematical.

Besides the tumours which can be felt in the limbs and imbedded in the muscles, there may be others in the subcutaneous tissues and in the *skin* itself. Both the last-named structures may contain distinct nodules. As regards the skin, it must be observed that there is a disposition to the production of fibroid tissue in the formation of the tubercular eruptions, in the cicatrices of ulcers, and in the actual production of keloid tumours on the site of old sores. In the subcutaneous tissue the adventitious matter may be thrown out in the circumscribed variety, producing movable nodules, and also probably in the diffused form, constituting some of those remarkable cases of induration of the skin occasionally seen, which the French have styled "sclerema."

The *ligamentous structures* also suffer. In very protracted cases of syphilis a chronic and painful arthritis may be sometimes met with, as in a young man now under my care. In one or two cases which have been closely observed, the inflammatory material which has been found poured out in the ligamentous structures has evidently had a specific character.

The costal *cartilages* have often been observed to be subject to syphilitic inflammation.

The *alimentary canal* may also suffer from the effects of syphilis. There is first the well-known excavating ulcer on the tonsils, so well described by Hunter. The fibroid formation is well seen in cases where the whole palate has been destroyed, and which, on healing, has left a hard cicatricial surface; so that, as I have seen in one case, only the smallest opening was left through which the food could pass.

The syphilitic disease may not only affect the throat and pharynx, but occasionally the *œsophagus* also; in the latter, a stricture may result.

As regards the *intestines*, cases, I believe, have been observed where an ulceration has been regarded as specific.

In the *air-passages* the disease of the upper part of the larynx has long been known—an affection beginning within on the mucous membrane, often in connexion with that of the throat, and proceeding until the epiglottis is destroyed. If recovery now ensue, and the organ be at any future time examined, the syphilitic process is apparent by the cicatricial and hardened character of the healed surface. Besides this

form of disease there may be an independent affection of the cartilages of the larynx, leading to their destruction and exfoliation. The trachea and bronchi may also suffer. Portions of cartilage may become necrosed, and a cicatrix and contraction may follow. Of this you may find some specimens in our museum. There may also be a more active disease, whereby the fibrous tissues forming the trachea may be involved, and an ulceration of the mucous membrane ensue. The term "ulceration of the larynx" is so often spoken of that you might consider ulceration as one of the primary results of the syphilitic affection, instead of the fibroid deposition; and in corroboration I can show you a specimen of a larynx with a large nodule at its upper part, which, closing the orifice, necessitated tracheotomy.

The *bones* are constantly affected, as you know. In the first stage of syphilis we speak of periostitis affecting especially the tibia, forming a painful node, which is again absorbed by appropriate remedies, there being no disposition to the formation of pus. Remark that there is no great distinction between ostitis and periostitis. The vessels of the periosteum throw out lymph, and thus it may be found in abundance beneath this membrane; but it may also be found filling the canaliculi of the bone. If this be not absorbed, an induration or actual ossification takes place, and the bone becomes permanently enlarged. It is only under peculiar circumstances, from a low state of health, protracted use of mercury, or from an ulcer forming on the skin, that a softening process may take place, and caries result. On the flat bones, as the skull, a process goes on in the bone which much resembles what is seen on the soft tissues, as skin or mucous membrane; the carious surface or ulcer having raised edges, with a puckering of the tissue around. Virchow has made this a study, and has styled it dry caries, and of which you may see many specimens in our museum. There are star-like spots and linear cicatrices on the bone. Where a portion of superficial plate has been removed, a deposition of new bone has occurred around, so that the surface looks puckered and raised. It has a worm-eaten appearance, with dentated edges, and on the skull before me you see the star-shaped cicatrices.

How far in a pregnant woman the structures connected with the nourishment of the *fœtus* may suffer from the effects of syphilis has not yet been determined with scientific accuracy. The still-births and the abortions by women affected

by this disease are too common to require notice. But in these instances the cause is in the fœtus itself; it is diseased, dies in utero, and is thrown off. But miscarriages are by no means unfrequent in tainted women, even when the fœtus itself shows no signs of disease. In such cases it has been conjectured that the *placenta* has been specifically affected, and in illustration I can point to you specimens where this organ contained deposits of a supposed syphilitic nature. In corroboration of this, Dr. Barnes informed us at the Venereal Committee that syphilis produced a diseased condition of the mucous membrane of the uterus, and thus gave rise to abortion. There was a chronic inflammation of the mucous membrane which went to form the decidua, and the placenta which arose from this being the organ through which the fœtus received its nourishment, the latter naturally perished.

The effects of *hereditary* syphilis on the system are somewhat different from those which I have described when the disease is acquired. Children who are born syphilitic are recognised by their impoverished look and by the morbid condition of the skin. On post-mortem examination the liver may be found indurated, the lungs the subject of lobular pneumonia, and a peritonitis may exist, as first pointed out by Sir J. Simpson.

When less severely affected, syphilitic children do not exhibit traces of the disease until some weeks after birth, when a roseolous or lichenous rash appears, accompanied by snuffles, ulceration about the mouth, condylomata, &c., and perhaps some inflammation of the structures of the eye.

In about a twelvemonth these children get well, and until quite lately were supposed to be then altogether free of the syphilitic taint. It was supposed that hereditary syphilis was a purely infantile disorder, and that all traces of it disappeared after the period just named. It has, however, been shown by the long-continued and very accurate observation of Mr. Hutchinson that the disease by no means ends here, but after a few years its effects may again be witnessed, in a manner which has just been described to you, in the tertiary stages of the acquired disease, but still possessing some peculiarities. The novelty of the observations consists in the fact that a person may be suffering from the effects of hereditary syphilis in adult age, and at a period when it is possible he may acquire the disease for himself. In such cases, however, not only are the morbid processes seen in action, but the effects of those which occurred in childhood

have left their indelible traces on the countenance. Thus, in a young person, say at the age of puberty, a syphilitic action may be found still proceeding, although engendered at birth; and the subject very often exhibits the hereditary taint in his person. He is often puny or ill-developed, as was seen in two young men who were lately in the hospital; although in a girl who evidently was the subject of hereditary syphilis the general conformation was good. These puny lads had the configuration which Mr. Hutchinson has so well described. There was the protuberant forehead, indicative of the ventricular effusion which had occurred in infancy; the peculiar flattening of the nose, induced by the inflammation of the mucous membrane and periosteum; the puckering around the mouth, from cicatrization of former ulceration; and, above all, the peculiarities presented by the teeth. Owing to the pulps of the permanent teeth having been involved in the inflammation at an early period of childhood, the formation of the teeth becomes altered, seen especially in the incisors; these are dwarfed, rounded, narrowed, and notched. With regard to the teeth, you are no doubt aware that much scepticism exists as to the correctness of the observations that have been made, and therefore I may remark that, having had my attention early drawn to the subject by Mr. Hutchinson, I have taken many opportunities of testing its truth, and I have not the slightest hesitation in giving in my adhesion to his views in every particular. Not uncommonly the shafts of the bones are found of inordinate size, from the chronic induration which has been for many years in progress. Besides these marked effects of former morbid processes, we may find that the fire is still burning, that ulcerations may occur in the throat, that a fresh periostitis may break out, and at the same time an affection of the eye which appears to be peculiar to this form of hereditary syphilis. It is seldom seen before the fifth year, and consists of a cloudiness coming over the eye, due to an infiltration of the cornea with lymph, and which is technically styled "interstitial keratitis." Sometimes also the patient may be deaf. At a later stage these patients come before us with dropsy and albuminuria, and we find they are the subjects of the lardaceous disease before mentioned.

Now, I would have ended my subject here, and not touched on the question of *remedies*, had they not thrown further light upon the nature of syphilis. I have already said that

syphilis is a specific contagious disease, and that in not a single example of the class to which it belongs have we any knowledge of a remedy properly so called. Each runs its course, be it typhus, small-pox, or cattle plague. As regards syphilis, the only remedies which have ever been regarded in the light of curative agents have been mercury and iodide of potassium; and most men of experience are agreed that these remedies do have a most marked effect in removing certain venereal symptoms, and producing for a time an apparent cure. At one time, no doubt, mercury was looked upon in the light of an antidote; but, from a better knowledge of its action, its influence appears to be exerted merely on the general secreting apparatus of the body, and so, by promoting absorption, assists in getting rid of many of the morbid results of syphilis. Similar effects of the drug are seen in the removal of a bronchocele, enlargement of a lymphatic gland, or a pleuritic effusion. Iodine and potash have also analogous effects. When, therefore, a node is removed from a bone, it is probable that an absorption of the new material takes place, but that the drug administered has no influence over the cause producing it; thus it is that after a short time a relapse takes place, and the same symptom occurs again. It would seem, then, that our best remedies—as those just named—have no influence over syphilis itself, but only over its effects. A practical lesson here follows, which I have often adopted with the best success: instead of considering that mercury is a remedy for the earlier stages, and that at a later period tonics are required, this drug may be found useful even when the cachectic condition of the patient would have rather contra-indicated it. I have several times witnessed the good effects of more active treatment in patients whose condition had suggested merely wine, quinine, cod-liver oil, and suchlike remedies, but where a true syphilitic action was still in operation.

The witnesses on our Committee, with few exceptions, were mostly of opinion that mercury was a valuable remedy in, but not curative of, syphilis. It might modify results, but not prevent them. Such opinion is probably now generally held. Thus Ricord says—“Le mercure fait disparaître les manifestations actuelles; il ne neutralise pas la diathèse.” And Welbank before him—“Mercury antagonises the influence excited by the syphilitic virus; but is no specific antidote to the virus itself, which must

be gradually modified or eliminated by the system at large." I may now add that Hunter held the same views. It is very remarkable how Hunter appears to have been misunderstood in this matter. He is often quoted as an advocate for the extensive use of mercury as a specific remedy. He uses merely the term specific in the sense of its having an influence over the disease in an unknown manner; but he labours hard to show that the drug in no way removes the cause, whilst it for a time influences the effects. I cannot but think that the obscurity of his language was caused by the very comprehensive grasp which he took of the subject, and which was consequently not appreciated by many of his readers. The very expressions which Hunter used clearly show, I think, not only his correct view of the whole subject of syphilis, but how he has anticipated the doctrines of the present day. Hunter says—"The venereal poison is capable of affecting the human body in two different ways: locally—that is, in those parts to which it is first applied; and constitutionally—that is, in consequence of the absorption of the venereal pus, which affects parts while diffused in the circulation. When the matter has got into the constitution, and is circulating with the blood, it then irritates to action." Hunter first speaks, as you know, of chancre, and then of the lues venerea. He then refers to the "disposition" to morbid changes in the body caused by the circulation of the virus; and these results he styles the "action." Now hear what he says of mercury—"I have asserted that what will cure an action (the effect) will not cure a disposition (the cause). If so, we should push our medicine no further than the cure of the visible effects of the poison, and allow whatever parts may be contaminated to come into action afterwards." Hunter then gives cases in illustration. One was that of a man who was under his care in 1781 for a chancre; and, being treated by mercury, soon got well. Three months afterwards he had febrile symptoms, with copper-coloured eruptions, pains in the bones, &c. He rubbed in mercury, and again got well. After some months he had affections of the eyes, with sore-throat. He again took mercury, and was cured. "Let us consider," says Hunter, "how far this case corresponds with the opinion of the action (effect) being easier of cure than the disposition (cause). The first action—*i.e.* the chancres, were perfectly cured by the quantity of mercury he took at first; for they never recurred. But the venereal matter had produced the

disposition in the constitution, which was not cured by the same quantity of mercury, for blotches appeared three months after; but all the parts that had taken on the disposition at that time, and had not yet come into action, were cured by the second course of mercury, and the other parts which had not yet taken on the action went on with the disposition till the influenza (which happened eleven months after) brought them into action. The first class of pocky appearances were perfectly cured by the second course of mercury, as the local had been cured by the first; for they never reappeared, not even with the second. The second set of pocky symptoms we have shown appeared to be perfectly cured by the third course of mercury. How far there may be a third set of pocky symptoms to come forth time can only tell." In another part of his philosophic treatise Hunter repeats—"It is probable that mercury can cure the action only, and not the disposition." Or, in the words of modern writers, it removes the effects without touching the cause.

Before leaving Hunter, I will take the opportunity of reading to you another passage, which will prove to you the correct view he took of the nature of syphilis. He says—"In the cure of chancre we have two points in view—the cure of the chancre and the prevention of the contamination of the habit. The first, by mercury applied either locally or internally through the circulation. The second object, to prevent the constitution from contamination, is obtained by shortening the duration of the chancre, which shortens the period of absorption." This is a doctrine the truth of which is still undecided, but many authorities are in favour of its accuracy. Hunter says, as regards himself—"This is not a speculative opinion, but the result of experience, and the destruction of chancres confirms it."

I cannot dismiss the subject of mercury without making reference to an opinion often expressed, that many of the results attributed to syphilis are really due to mercury; and in illustration those wretched examples of tertiary disease are pointed at, where necrosis of bones and other organic affections are seen in persons who have taken much of this drug. Now, in order to decide to which the effect is due when two causes are in operation, it is necessary to watch the operations of each singly. In the first place, it has been proved over and over again that every effect which has ever been attributed to syphilis has been observed where not a

particle of mercury has been taken ; and in the second place, in those who are poisoned by mercury the peculiar and characteristic effects of syphilis are never seen. Moreover, a consideration of the operation of the two substances, the syphilitic virus and mercury, upon the body, will remind us that the effects are not only different, but opposed or antagonistic. The one is disposed to cause the formation of a fibro-plastic matter, the other to absorb it ; the syphilitic is a formative process, the mercurial is a destructive one. If, then, it be stated by men of experience that the worst forms of disease are those where mercury has been given, it can be explained only on the supposition that the remedy was never needed or was given in excess. If, for example, mercury has caused the absorption of lymph in a bone, and still be continued, a disintegration of tissue might commence, and mercury be justly accused as the fomenter of the process ; but this is a very different thing from declaring that mercury can originate a disease of the bone, much less a thickening or hypertrophy, a result which is the very opposite to that which would be expected from this mineral. As many surgeons in the public service have treated syphilis without mercury, they could speak authoritatively upon this matter ; thus, Dr. Beith and Dr. Hardie, and some others, stated that they had frequently witnessed tertiary affections and disease of the bone where no mercury had been given.

Now, one word on "syphilisation," as being a subject bearing on the nature of the disease. You know that Prof. Boeck, of Christiania, states that for many years past he has been in the habit of inoculating persons suffering from constitutional syphilis with the venereal matter, and that after so many weeks of the practice the matter ceases to "take," and the patient is well. During the process the whole of the syphilitic symptoms disappear. He also states that the cure is much retarded if the patient has taken mercury. I have read his work, in which he details a large number of cases in the most systematic manner, and I cannot but believe in their truthfulness. The professor does not theorise much on his system, but he seems to think that the poison is thoroughly eliminated by the means adopted. I apprehend his opinion to be that, a virus having entered the system, it must produce its regular "fermentative" changes before the patient can be pronounced free of it, and therefore that every remedy which shall only temporarily retard its operations is valueless, and that a method is to be adopted which

shall soonest eradicate it from the system. If this be Dr. Boeck's opinion, it would be analogous to a case of small-pox which should suddenly stop in the middle of its course, either spontaneously or from the action of the medicine; under these circumstances our efforts would be directed, not to stay the disease, but to assist in its completion. When, therefore, in the case of syphilis, mercury is given, although it may arrest the disease for a time, it does not cure it; and thus, if the latter is still obstinate, and not disposed to finish off by itself, the method would be to continue inoculating the person with fresh matter until all the stages were complete. This, Dr. Boeck says, he does for three or four months, and the patient is well. If his statement be correct about the retarding influence of mercury, it is a further corroboration of the effects of this drug over the disease.

A principal objection to such theory by some is, that the professor does not inoculate with the syphilitic virus at all. As I told you, it is the most difficult process to obtain any secretion from an indurated chancre which will inoculate. If you refer to the work of Langston Parker you will there see quoted the various trials of inoculation by different experimenters, and their almost complete failure. Mr. Lee, our home authority, says syphilitic inoculation does not produce a pustule; the disease which affects a patient's constitution begins as an abrasion, pimple, or tubercle. A true chancre does not produce pus, or at least not until irritated. When, therefore, I tell you that Boeck inoculated with purulent matter, it is denied that he used the syphilitic virus at all; his matter, indeed, was obtained from other pustules, from soft sores, from chancres which had been irritated by ointments, and, in some of the cases related by Bidentkap, from matter which ran from the prepuce in cases of phimosis, the character of the sore being unknown. The answer to this by Boeck is simple enough: that he believes the purulent matter under these circumstances does contain the syphilitic virus; in fact, he believes that the local or soft sore contains the true poison. Those, however, who object to this, and who still believe the professor's statements as to the cures, explain his facts by supposing that the pustules produced on the skin act by an eliminative process, and so assist in getting rid of the peccant matters from the system; and in corroboration of these views it is stated that other irritants have produced liked cures—as, for example, tartar emetic. Dr.

Boeck himself has used these methods, and admits that a cure of the secondary symptoms took place.

Another element of difficulty, however, is here introduced ; for if the irritant used be not of a specific nature, as asserted, tending to render the body insusceptible to the virus for the future, and yet after a time fails to produce the usual effects on the skin, it is evident that some other cause for the result must be in operation. It has, therefore, been stated that the skin becomes proof against a particular kind of irritation if that be long continued. This explanation, however, throws no light upon the fact of the symptoms disappearing and the patient being cured, which is, after all, the fact of practical import. It is not for this reason, however, that I have broached the subject, but rather because the facts elicited do seem to corroborate the idea of the pustular eruption being a final and eliminative mode of getting rid of the disease.

The subject of syphilis is written in as many volumes as would fill a library ; but I trust I have said enough to bring the salient points before your notice, and prove how interesting is this malady when taken in connexion with the kindred specific contagious diseases. I have endeavoured to give you its natural history.



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