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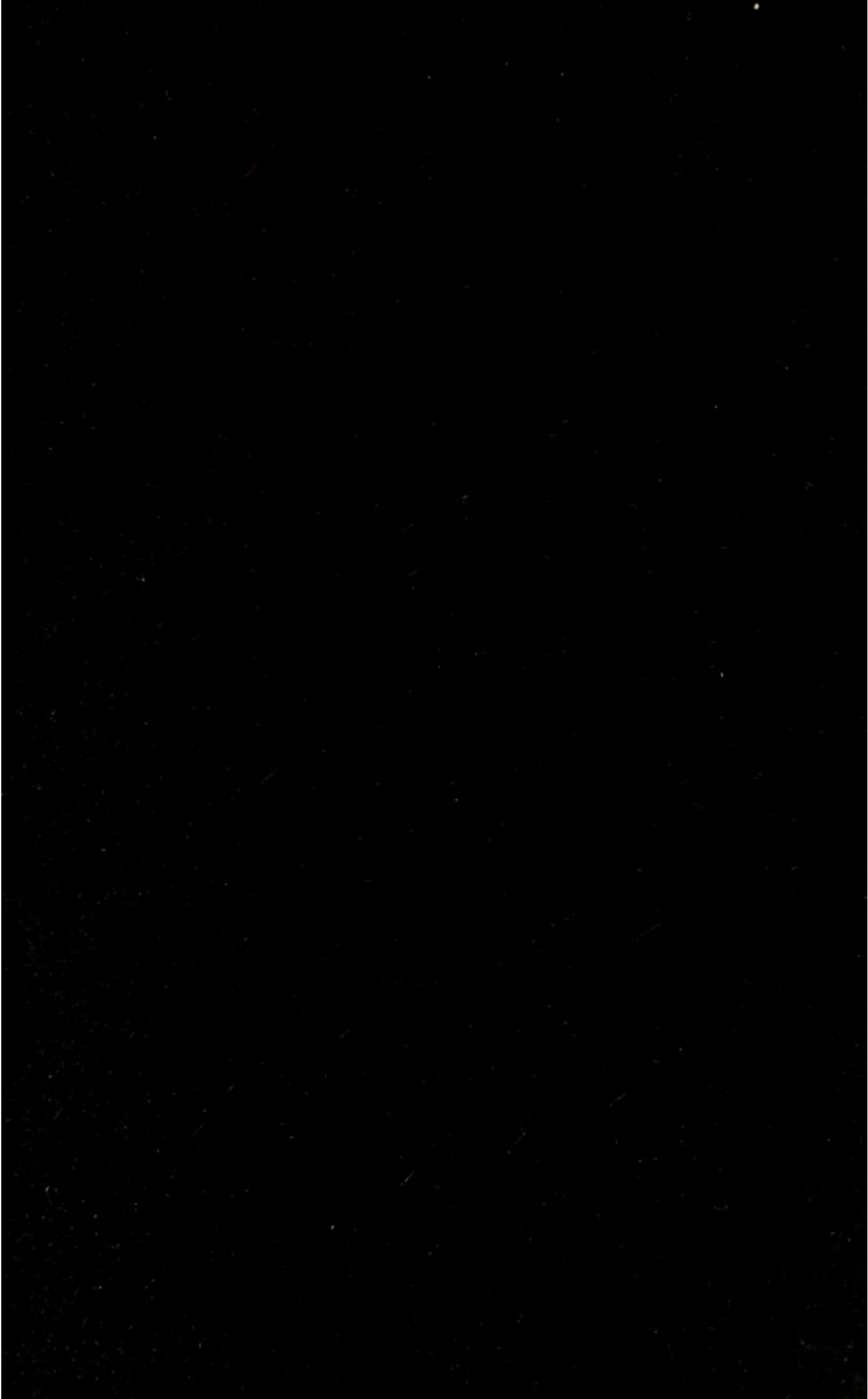


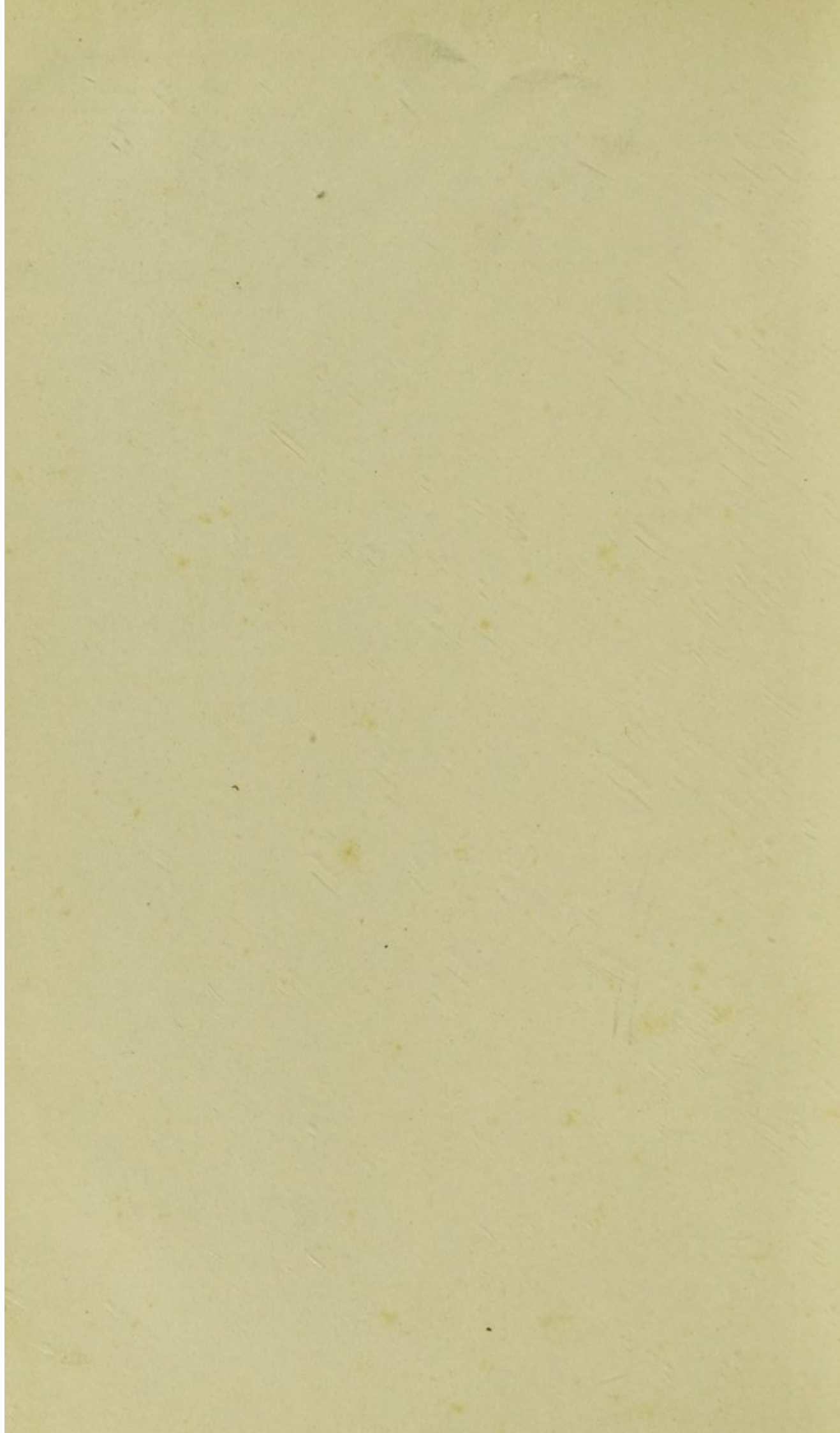
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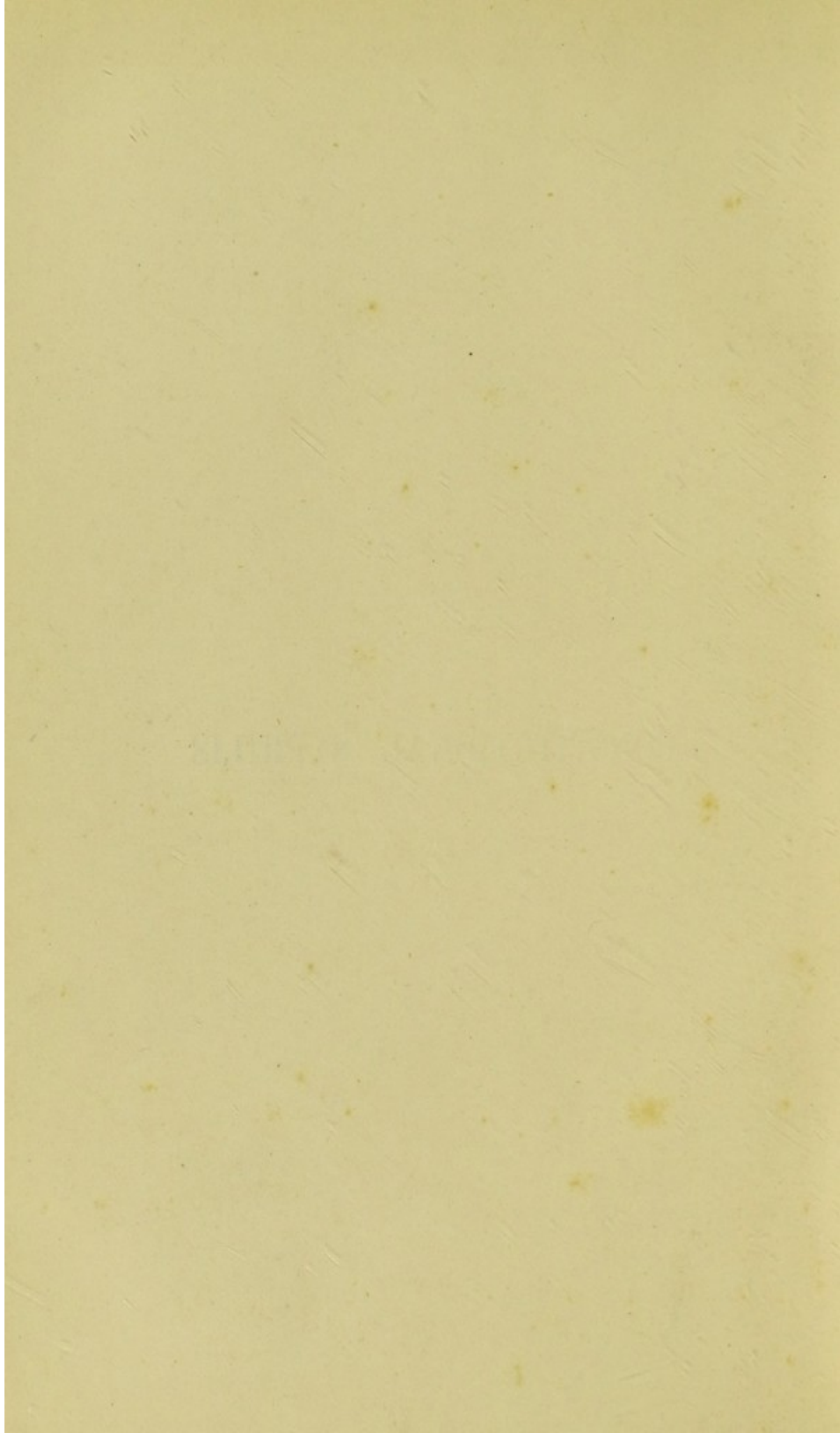


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CONSTITUTIONAL SYPHILIS



THE TREATMENT
OF
CONSTITUTIONAL SYPHILIS

BY

OSWALD ZIEMSEN, M.D.,

KNIGHT OF THE IRON CROSS, AND OF THE PRUSSIAN ORDER OF THE CROWN
WIESBADEN

LONDON

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1893

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THE TREATMENT

OF

CONSTITUTIONAL SYPHILIS.

INTRODUCTION.

“The four rules for the preparation of an article for a journal will be (1) have something to say, (2) say it, (3) stop as soon as you have said it, (4) give the paper a proper title.”

Billings, “Transactions of the International Med. Congress.”

THE publication of this essay has been delayed, as Koch's recently-announced discoveries seemed to indicate a new method of treatment for constitutional syphilis as well as for tuberculosis. Now, however, that these discoveries have been put to the test of practical experience, with the result that while in some cases improvement has been observable, in others death has occurred, and that the composition of the remedy itself has been communicated to the world by the author, there is little ground for such a belief, as on comparing the two diseases many striking

points of difference are seen to exist. These are shown in the subjoined table :—

TUBERCULOSIS.	CONSTITUTIONAL SYPHILIS.
Micro-organism causing the disease known.	Micro-organism causing the disease unknown.
Infection in man by contact (inhalation), first proved by Koch.	Infection in man by contact, as has been known for centuries.
Hereditary.	Also hereditary.
Transmissible to animals.	Transmissibility to animals doubtful.
No remedy known before Koch's discoveries.	Remedy known for a long time.
Cure by inoculation not attempted before Koch.	Cure by inoculation tried before Koch, but with very bad results.
In advanced cases the possibility of cure is even now doubtful.	The possibility of cure, even in advanced cases, has long been known.

To complete the analogy between tuberculosis and constitutional syphilis, it is necessary, in accordance with the principles laid down by Koch, first, to discover the micro-organism which causes the disease, and, secondly, to find animals in which the disease can be inoculated. Whether, however, even if both these conditions should be fulfilled, a remedy analogous to Koch's tuberculin would be capable of curing constitutional syphilis is at least doubtful, inasmuch as previous inoculations (Boeck), which may be looked upon as having the same effect, have proved useless. In contrast to what has been the case with regard to tuberculosis, remedies have been found for constitutional syphilis which are superior to Koch's in

one respect—namely, their capacity of curing even advanced cases. In addition to this, a new remedy analogous to that of Koch will be of little diagnostic value in the case of patients who have been previously treated with mercury, Boeck having already found inoculation less effective in such patients. Such a remedy, therefore, will probably be of use only in the diagnosis and treatment of recent cases.

The various methods of treating constitutional syphilis have frequently formed the subject of discussion at different medical congresses in recent years. No one who has attentively followed these discussions can say that any agreement has been come to either as to the best method, or as to the reasons why this or that method should be preferred. With regard to constitutional syphilis, one authority contradicts another, as a learned colleague said at the Congress of Medicine, held at Wiesbaden in 1886. Moreover, hardly a month passes without a new monograph being published on this subject, in which usually some new chemical preparation or some new method of treatment is recommended so uncompromisingly that the practitioner who is anxious to choose the best remedy and the best method for his patients finds himself in a somewhat difficult position. In short, the question *how constitutional syphilis can best be cured must be regarded as still open.*

The majority of works on this subject naturally originate from the large hospitals. It may be well to lay stress on the fact that hospital practice and private practice are two very different things. Treatment which can be carried out in private practice is not always admissible in a hospital, and *vice versá*.

Private patients often demand secrecy, privileges, and advantages which, though procurable by private resources and necessary for the maintenance of society, are for various reasons not permissible in hospitals. It is doubtful, moreover, whether the statistical records of large hospitals can lead to any definite conclusion as to which method of treatment is best adapted to cure, not merely a particular symptom of the disease, but the disease itself. It can easily be understood that a case of syphilis admitted into a hospital will not afterwards be followed up for many years so well as a private patient can be by his private medical attendant, whose counsel he seeks under all circumstances. All hospital statistics as to complete cure are, and must be, incomplete, and are therefore worthless (Kaposi).

Another point which should be borne in mind as making judgment very difficult is the excessive multiplication of *specialists*. I do not think it well that the treatment of syphilis should be left in the hands of specialists. The division of labour which is a consequence of the enormous development of medical science is necessary for treatment *requiring special manual dexterity*; ophthalmology, laryngology, and other special branches which are concerned with *single organs* can show cause for their existence, but they are insufficient for the treatment of syphilis, a disease which may attack *any and every organ*. A physician who wishes to treat constitutional syphilis successfully must bestow an equal amount of attention on the study of *all organs* and *all diseases*. How else can he make a differential diagnosis, and how else

can he be prepared to cope successfully with all the contingencies that may arise in the course of treatment? This is why patients suffering from syphilis are the best tests of a practitioner's *general* professional training, a point which might well receive more attention at the Universities. As syphilis may attack the most diverse organs, patients suffering from it unquestionably afford the best material for the "all round" development of a young physician, as the disease compels him to give full attention to every organ in the patient whom he is treating.

Moreover, the multiplication of specialists who treat single organs, as the skin, the larynx, etc., is a serious obstacle to the acquisition of a thorough knowledge of the disease as a whole. Patients consult different practitioners for the various manifestations of syphilis, so that few, if any, medical men have the opportunity of following a case in all its phases, and so studying the disease as a general constitutional infection, not merely as a cause of specific lesions in a particular organ. Having had the opportunity of carefully examining many patients, I have often been able to say that different "single-organ specialists" (*sit venia verbo*) have been consulted for the different symptoms of the same disease. The initial sore or commencing induration had first sent the patient to the syphilologists and skin specialists, and pharyngeal ulceration had next led him to seek the advice of a laryngologist. Later on, however—if for instance some affection of the nervous system or visceral syphilis makes its appearance—how is the patient to know that his complaint is syphilitic? He

naturally goes to his ordinary medical attendant or else to some consultant, who is known as an authority on the organ supposed to be affected. The syphilitologist who is first consulted, if he does not concern himself with all the organs of the body and is not known as a non-specialist, will be unable to keep the case in its further developments under observation, and will thus get an entirely erroneous notion of the final effect of his treatment. With the view of preventing this, I am in the habit of drawing the attention of patients sent to me by other practitioners to this point, and I urge them always to keep in communication with their former attendant, and to inform him of all the details of the treatment which they undergo.

No disease has caused more unhappiness or has brought more misery on whole families than constitutional syphilis. Here at Wiesbaden, whither patients come from all parts of the world, an extensive experience can be acquired, which has enabled me to compare the different methods of treatment in vogue elsewhere with my own, so that I am able to supplement my own methods by taking advantage of any good points that I see in the others.

This is my reason, as a non-specialist, for bringing before my professional brethren the results of the experience which I have gained with regard to the cure of constitutional syphilis in the course of more than twenty-five years' practice.

CONSTITUTIONAL SYPHILIS.

“Syphilis should be regarded as a *curable* disease—indeed, as the *most easily curable* of all infectious constitutional diseases.” With these bold words, Kaposi opened the discussion on the treatment of syphilis at the Congress of Internal Medicine, held at Wiesbaden in 1886. Considering that for some centuries past many of the most eminent physicians have been eagerly seeking to find the philosopher’s stone in the form of a radical remedy for syphilis, I must own that I accepted that statement with a certain reserve, and, indeed, it may be interpreted in two different ways. Many in whom, as Shakespeare says, the wish is father to the thought will prefer to interpret it as meaning that every patient who is systematically treated will recover easily and completely. I am sorry to say, however, that the experience of other practitioners, including my own and even that of Kaposi himself, shows that the proposition above quoted must be interpreted in quite a different sense; that is to say, as meaning simply that it is *possible to cure syphilis*, or, in other words, that *syphilis is not incurable*.

In the first place, neither Kaposi nor any other physician can indicate with certainty how the disease can, in any given case, be pronounced to be definitively cured. Before such a statement can be made with

justice it is necessary that the fact, and not merely the possibility, of a cure having been effected should be demonstrated. This it is which is desired by patients and aimed at by physicians, but, unfortunately, at present with no absolute certainty of success.

Moreover, Kaposi himself, by insisting later on on the frequency with which antisyphilitic treatment has to be repeated, confesses that his own patients often suffer from relapses. How then can a disease be said to be cured or to be most easily curable, so long as it is uncertain whether relapses will occur after a longer or shorter period of time? Our ancestors succeeded in curing particular symptoms of the disease, but they never called that the radical cure of the disease itself. Having often had the opportunity of seeing how *cruelly patients who have been deceived on this point* have afterwards had to suffer, I always make it a rule to point out clearly to those under my care that, up to the present, all we are able to do is to remove the *actual* symptoms of the disease. The earlier manifestations of syphilis are not always so plainly marked as absolutely to exclude error, and it is a peculiarity of the disease that relapses may occur even after intervals of many years, and these late relapses often simulate other affections so closely as to deceive even the most skilful physician. The proof that the complaint is of syphilitic origin can often be obtained only by noting the effect of antisyphilitic treatment. The diagnosis is still further complicated by the fact that patients, who have no reason for misrepresenting the truth, may never have noticed any primary sore.

This forces one to the conclusion that this syphilitic infection is not always conveyed in the usual way, but may attack a patient without his knowledge. Patients who have been assured that they are thoroughly cured, partly in order to comfort them, partly from more questionable motives—on which, however, I do not propose to dwell—easily overlook relapses and seek medical aid too late, misleading the physician until irreparable mischief reveals the true origin of the disease, when it is too late. The fear that the patient, if made acquainted with the whole truth, may suffer mental anguish, is out of all proportion to the gravity of the danger to which we expose him by pronouncing him to be absolutely cured. Frankness on this point is all the less likely to have a bad effect on the patient's mind that he knows by experience that possible relapses can always be satisfactorily dealt with. I need not dwell on the fact that, when complete recovery has been promised and relapse has, nevertheless, occurred, the patient's confidence in his adviser must necessarily be considerably shaken.

As a matter of fact, many practitioners, like Fournier, *consider relapse more probable than radical cure*, and base their whole treatment on this belief. I am, therefore, of opinion that Kaposi's statement regarding the cure of syphilis should be more cautiously worded, and I propose the following as an amendment: "*The radical cure of constitutional syphilis is possible, but there is as yet no certain proof of this at our disposal, relapses having occurred even after many years.*" Assuming that

this proposition is accepted by all scientific physicians, we still stand exactly at the same point which I indicated fifteen years ago, when I said that *there is no mode of treatment yet known to us which radically cures the disease with absolute certainty.*

It is true that our knowledge of the disease has advanced in recent years, and with this knowledge let us hope that we may ultimately succeed in finding a remedy and a method of applying it, whereby the disease can at once be eradicated. Our ancestors, knowing the disease to be highly infectious, termed the active principle engendering it the "virus." As long as this virus was known only by its pernicious activity and not in its true nature, every kind of treatment was inevitably condemned to be, and to remain, empirical. The splendid harvest of new truths, with which Lister, Pasteur, Koch, and others have enriched medical science, encourages us to hope that at no distant time the mystery of the syphilitic poison will also be unravelled. Like other infectious diseases, syphilis is most probably caused by a microbe. The mode of infection by direct contact, the time necessary for the visible development of the disease, the elevation of temperature during the eruption, the diffusion of the virus throughout the body, the possibility of its remaining latent in the body for many years—all this is only seen as the result of microbic invasion. To kill this microbe directly or to modify the soil in which it flourishes, that is to say, the human body, in such a manner that the microbe can find no nourishment therein,

and must, therefore, die—that is the idea which has guided me in the endeavour which I have now pursued for several years to find a real, thorough, and radical cure for syphilis, which shall cleanse the whole body from the microbe as a surgeon makes a local sore aseptic. And as the surgeon knows by the occurrence of suppuration, by the onset of erysipelas, or by a rigor that a sore is still septic, and that the antiseptic employed has been too weak, so I look upon every relapse as a sign of inadequate disinfection, owing either to the use of inappropriate, that is, insufficiently disinfecting, remedies, or to too short a course of treatment, or to both these causes equally. To discover a method whereby adequate disinfection can be carried out, that is the problem to be solved. The treatment of constitutional syphilis has hitherto been symptomatic; we should now aim not merely at the removal of a particular symptom, but at the complete cure of the disease itself and the definitive removal of its cause.

As it was most likely that some one of the various remedies and methods already known to be capable of removing particular symptoms would be capable of eradicating the disease itself if applied long enough or in sufficient strength, I have tried every one of them, with the view of determining what prospect it might offer of entirely destroying the microbe. Moreover, every method having its advantages and facilities, or its disadvantages and difficulties, in relation to the individual patient, the physician should choose that method which, while curing the disease, involves no unnecessary pain, disfiguring operations, etc., and is

as agreeable as possible to the patient. A point of vital importance to consider is whether the energetic and prolonged application of the method may not, in the end, prove more detrimental to the patient's constitution than the disease itself. As the human body is not a test tube in which microbes can be cultivated in gelatine and then destroyed without damage to the tube, this question is a very difficult one, and can only be decided by practical experience.

The chief difficulty to my mind is that *the course of the disease is hardly ever the same*, whether without treatment or under the same treatment, syphilis presenting a greater variety of symptoms than any other affection. In the text books, it is true, the individual symptoms are grouped under various heads from different points of view, but such an arrangement, though perhaps necessary for young students, is of little use in practice. Not only the difference between secondary and tertiary lesions, but even the nature of the disease becomes doubtful when an innocent-looking soft sore, which disappears under local treatment, is immediately followed by a most dangerous affection of the brain, by necrosis of the vomer, or by the development of nodes on the tibia. Further, the same patient, when different symptoms develop, responds differently to the same treatment, rendering it necessary to alter the strength of remedies, the period of time during which they are used, and all the details of the method which he had borne well previously. It may easily be conceived, therefore, how difficult it is to compare the effect of different methods of treatment applied to different

patients suffering from different symptoms. For this reason I do not believe that this question can be decided by statistics. I hope, however, to show that the *various methods differ in themselves*, and that a physician, free from prejudices, can easily discover which method is the best adapted for the particular case before him.

LOCAL PREVENTIVE METHOD.

This method is directed to the cure, or better to the prevention, of the disease by removing (cutting out or destroying) the initial focus of infection. As it is not logical to speak of preventing a disease which has already infected the constitution, this method should more properly be called *prophylactic*. As, however, it has been very frequently spoken of in recent years, I am obliged to refer to it. Daily experience gives us the following data relative thereto :—

1. It is well known that the virus of any infection gaining entrance through broken skin *disseminates itself throughout the body with extreme rapidity*. Many an unfortunate person, who has been bitten by a rabid dog or who has received a dissection-wound, has died, although the wound has been immediately excised and cauterized. The same holds good with regard to the poison of syphilis. I am acquainted with patients who, in spite of thorough cleansing after exposure, yet became infected. I particularly remember cases in which medical men whose hands had become infected either at a confinement or in the course of an operation, and who had had a finger amputated with the object of removing a possible source of septic infection, afterwards developed syphilis, although they had immediately had recourse to thorough cauterization. If this is borne in mind the possibility

of obtaining a good result appears even more doubtful in the case of patients who, when they call in a medical man, have already had the sore for some days. All these patients will remain infected in spite of local treatment, or it may be inferred with certainty that they have never been infected at all.

2. There is as yet no certain sign to indicate whether or not a primary lesion—for instance, a chancre—will be followed by constitutional syphilis. It is true the eye and the sense of touch of a medical man become so refined in the course of a long practice that as a rule the primary lesion will be recognized. But, on the other hand, it cannot be denied that occasionally constitutional syphilis has been met with in cases where there has been no hard sore, while in other cases it has not developed even when induration has been present. When, therefore, I find it stated by practitioners that a small number of patients have been radically cured by excision of the primary sore I do not doubt the fact of such recovery if the patient has been kept long enough under observation, but I do doubt that this result was due to the excision, since it cannot be shown that these patients had ever been constitutionally diseased.

3. Owing to the action of local remedies, or to the patient's own neglect, an innocent sore sometimes becomes so modified that both to the eye and to the finger it appears to be indurated. I have seen the cauterization or excision of such sores followed by extensive induration, which disappeared under the local use of simple warm baths without further evidence of constitutional disease. For instance, it is well known

that herpes præputialis, with which many patients are troubled again and again in spite of the most scrupulous cleanliness, is sometimes followed by induration, which afterwards disappears without further treatment.

4. Even without any primary lesion (chancre or lymphangitis) I have known undoubted constitutional syphilis occur. Knowing that such patients through shyness do not always speak the truth and try to conceal the primary infection, I have often succeeded in getting at the real state of the case by unexpected questions. Several, however, who had no reason for secrecy, have persisted in denying the fact even years afterwards.

My own practical experience has led me to the same conclusion which the four arguments just set forth enforce from the theoretical standpoint, viz., that the notion of local preventive treatment is based on fallacious premisses, and is not the outcome of practical experience. The proposal to extend this mode of treatment to the neighbouring glands if they have already been attacked is still less rational, since no one can say how far the inguinal glands, for instance, are already infected. Moreover, by that time the virus will already have entered the system through the glands.

Although I feel compelled to pronounce against the local treatment of primary lesions by the preventive method, I am, nevertheless, firmly of opinion that it is a valuable adjuvant of the general methods which I shall describe later on.

GENERAL PREVENTIVE METHOD.

On the hypothesis that local primary lesions afford no certain indication of the beginning of a constitutional disease, the general treatment applied before the development of undoubted syphilitic symptoms has been called the general preventive method.

This designation I do not accept. The stages which the syphilitic virus or microbes go through between the time of infection and the first appearance of undoubted syphilitic symptoms are so imperfectly known that we cannot found a solid system thereon. The only thing that we know for certain is that the poison enters the body from without. Therefore, the local primary lesion, if observed at all, must be recognized as the real beginning of the disease, and a general preventive treatment is then just as much out of the question as local methods. It follows logically that general, that is to say specific, treatment should be adopted as early as possible; delay is justified neither theoretically, as every one will admit, nor practically, as my own experience has taught me.

It is true that on this principle patients will be subjected to specific treatment whose symptoms are purely local and who might, therefore, dispense with general treatment. Such treatment, however, can do no harm, and affords, at least, the moral satisfaction of feeling that nothing has been left undone.

Many practitioners have adduced, as objections to this "early treatment," as I may call it, unfavourable results, such as speedy and troublesome relapses, which have occurred in their experience; such objections, however, I cannot regard as well-founded.

The leading principle in the treatment of constitutional syphilis is thoroughness; either there should be no treatment or it should be radical. This holds good still more with regard to primary lesions. To ensure a good result, the treatment should be radical and energetic in the case of the primary, as well as of the later, symptoms. We should not be content with the simple healing of a sore, as I have often had occasion to observe, but local and general treatment should be continued till the last vestige of induration has disappeared.

Every case, however slight and free from danger it may appear, should be regarded as serious; if this be taken as the guiding principle in the treatment of primary lesions, the results cannot fail to be satisfactory. It may be difficult to induce some patients to persevere, or in large hospitals it may not be easy to adhere to this principle, owing to want of room and to the expense which the method involves; all this, however, in no way invalidates the principles which I have enunciated.

Another argument advanced against this "early treatment" is the *uncertainty of the possible occurrence of later attacks*, an uncertainty which the medical practitioner shares with the patient. "Both patients and practitioners may remain in doubt for years and years—a state of things which may be more

disagreeable than the disease itself, inasmuch as if symptoms are present we know what we have to do, whereas the uncertainty of the occurrence of further manifestations might lead us either to subject healthy persons to useless treatment or, on the other hand, to neglect treatment where it is really necessary." This argument will not bear examination. The treatment of healthy persons being always useless, an individual whom we recognize to be healthy should not undergo any treatment whatever; one, however, who has a chancre cannot be called healthy. Moreover, experience shows that some apparently simple and innocent sores which heal without any general treatment are followed many years afterwards by undoubted symptoms of constitutional syphilis. *In both cases, therefore, there is an element of uncertainty, whether general treatment be carried out or not.* As syphilis is a highly dangerous disease, and one which has spread enormously in our days, I must repeat again and again that every affection of doubtful nature which proves refractory to ordinary remedies should be put to the test of regular antisyphilitic treatment.

The absolute necessity of early treatment is best shown by the fact that local primary lesions—chancre and swelling of the inguinal glands—often become worse, in spite of appropriate local treatment, to such a degree that the practitioner cannot wait for the development of the so-called secondary symptoms, *but is obliged to institute general treatment forthwith.* The immediate, or speedy, subsidence and disappearance of local symptoms shows clearly how right and necessary the general treatment was; moreover, it

seems to prevent many serious complications of the earlier stage. Although I have heard of the destruction which may be produced by gangrenous chancres, and of the so-called "galloping" syphilis which allows of treatment by mercury only after the lapse of two years, I can only say that in my 25 years of practice I have never seen this occur among the thousands of patients whom I have had under my own care.

I cannot help thinking that those severe lesions of the early stage would never have become developed had general mercurial treatment been carried out at once. In this opinion I am confirmed by the fact that by such energetic mercurial treatment I have quickly cured several gangrenous chancres which had continued to extend and cause widespread destruction, as long as they were only locally treated.

General treatment—curative, not preventive—should therefore be commenced as soon as possible after infection.

THE EXPECTANT METHOD.

On the analogy of the similar course which other infectious diseases, such as measles, scarlatina, rotheln, etc., generally run, and in accordance with the fact that the poison of these infections is eliminated or dies within the body without the use of other than symptomatic remedies, it has been proposed to treat—or rather *not* to treat—constitutional syphilis in the same way. The disease is to be allowed to take its own course, without any treatment beyond the observance of certain rules as to diet and mode of living. It must be pointed out, however, that those infectious diseases run an acute course, their virus becoming extinguished after some weeks or months; constitutional syphilis on the other hand runs a chronic course, and the virus may remain in the body for years, and may ripen into the most dangerous activity even in the later periods.

This so-called expectant method seems, however, to find favour in the eyes of many practitioners, even among those who profess to condemn it. For what mode of treatment can be called "expectant" if it be not the plan of leaving the patients suffering from chancre, extensive induration, and swelling of glands without general treatment? May we not say that the practitioner waits until the development of the disease forces him to begin treatment

instead of at once attacking the enemy as he should do?

It is true the body kept in good condition by general dietetic rules and a regular mode of life will be better able to eliminate the syphilitic poison, but to neglect the use of well-known remedies is simply to *abandon patients to the accidents of incalculable chance*. In most cases we shall find ourselves compelled to alter our plan after the patient's constitution has been damaged and valuable time has been lost. I may add that patients—particularly private patients—are anxious to be treated, and the practitioner who seeks to comfort his patient with the prospect of a possible natural cure is not, as a rule, successful.

The virus of the disease being recognized to be of microbic origin, it follows directly that everything should be done to ensure the destruction of this microbe.

THE DIAPHORETIC AND DIURETIC METHOD.

In discussing the various methods of treatment, diaphoresis and diuresis may appear scarcely worthy of mention at this time of day, since the majority of practitioners are agreed that they do not effect all that is expected of an active remedy in this disease. For instance, at the International Medical Congress, held at Copenhagen in 1884, Liebreich introduced the discussion on syphilis with the following words:—"No discussion should be required in this place to show that mercurial preparations are the real remedies for this disease;" and he went on to say, "I therefore omit all reference to anything touching on the controversy as to this point."

This view, however, is not sustained by practical experience, as I have found that a large number of practitioners, especially among the older members of the profession, use diaphoretic and diuretic remedies, and claim to obtain satisfactory results therewith.

And, indeed, these remedies do not deserve to be altogether abandoned, since they not only have a historical interest, but are in themselves of material value as adjuvants of the more *effective remedies*. From the latter point of view they require some mention here.

The diaphoretic and diuretic treatment may be carried out, first, by means of herbs, and, secondly, by means of warm or hot baths, combined with the use of thermal waters. The former of these plans consists in the daily administration of decoctions of herbs, among which the principal are sarsaparilla root, guajari wood, and sassafras wood. These decoctions are generally to be found ready compounded in druggists' shops in Germany. There are two sarsaparilla decoctions, the stronger consisting of sarsaparilla root, aniseed, fennel, senna leaves, liquorice root, sugar, and powdered alum; the weaker made by adding to the residue of the stronger one lemon (peel and fruit), cinnamon, cardamoms, and liquorice root.

Nor should Zittmann's decoction, which is also official and is still in use, be forgotten. The official formula directs that Hydrarg. chlor. mit. and Hydrarg. sulph. rubr. (sacculo linteo inclus.) should be used instead of alum. Should Zittmann's decoction cause an effect different from that of the decoction of sarsaparilla, this must be attributed to the mercury which it contains, and the decoction will therefore be mentioned when I come to speak of the mercurial treatment.

Some other mixtures similar to these decoctions have gained the confidence of practitioners in other countries, *e.g.*, the *Roob de Laffecteur*, in France, Cuisinier's Syrup, the decoctum Pollini, and other preparations called after their inventors or compounders. After each dose of any of these decoctions, which represent a large quantity of warm liquid, the

patient should be wrapped in woollen blankets to promote perspiration. In addition to this, strict diet must be adhered to and the patient must be confined to his own room during the treatment. This method has long been considered the mildest of all modes of medicinal treatment, inasmuch as these remedies do not injuriously affect the body in any way, and the slighter manifestations of syphilis sometimes quickly disappear under the use of them. No one now contends that these decoctions have any specific action, but it cannot be denied that an increase of metabolism, and thereby a disappearance of slight lesions, may be induced by restricted diet and increased diaphoresis and diuresis.

The same effect may be seen if typhoid fever, pneumonia, and other diseases accompanied by high fever and profuse perspiration attack a syphilitic patient. Bearing in mind, however, that syphilis is caused by a microbe which may remain in the body, not for a few days or weeks, but for years, we are driven to conclude that such a method, although by checking the growth of the microbes it may for the moment be followed by improvement, can never, or only by accident, destroy the microbes. This is confirmed by daily experience. Relapses are the rule, and the few cases in which it is claimed that a radical cure has been effected are open to grave doubt as to whether the disease was really constitutional. Often the method causes only loss of time and loss of strength to the patient. I fully agree with Michaelis in calling such patients, weakened by decoctions of herbs and semi-starvation, unfortunates exposed, as

it were, to the full fury of the disease in all its various manifestations.

The second of these methods consists in the employment of warm and hot baths, combined with the internal use of a sufficient amount of mineral water. Similar results may be obtained, not only at thermal springs, but even without the use of such waters, if the patient takes a bath of water artificially heated up to 102° F., or artificial vapour baths. I therefore agree with Professor Pick, of Prague, when he asks the searching question, "Are we not justified in maintaining that the same effects were produced under corresponding circumstances when we had simply warm water from Moldavia at our disposal?" The moist heat is the active principle, the efficacy of which is increased by the wrapping in woollen blankets, without which the diaphoretic mostly fails exactly as the decoctions of herbs do. This question, however, assumes an entirely different aspect when, in addition to diaphoresis, a diuretic action is required. The quality, as well as the quantity of warm or hot water which is introduced into the body in these decoctions, is of great importance. For instance, Pick's Moldavian water would not be suitable for drinking if not boiled beforehand, and even then medical advice might fail to induce the patient to drink boiled river water. Even when the water is corrected to suit the patient's taste other drugs would need to be combined therewith, as the prolonged use of warm water tends to cause obstinate constipation, an effect which is likely to be still further aggravated in the case of persons using warm baths. These facts make it easy

to understand how a natural thermal water fulfilling all these indications is preferable. It is true the chief condition that the water shall be in itself a specific against syphilis is not fulfilled by any thermal water; if the one selected is liked and tolerated by the patient for a long time this is all that can be looked for.

Among the various thermal springs there is one kind for which the claim of being a specific against syphilis has been more particularly advanced, namely, sulphur springs. This claim has some amount of inherent probability in its favour. Salts held in solution in the bath being incapable of penetrating the skin, it was believed that the effective agent which entered the system was not the sulphur salts dissolved in the thermal water, but sulphuretted hydrogen formed from the sulphuret of sodium under the influence of atmospheric air. This was the view held at Aix-la-Chapelle in 1868, when I began to occupy myself with the treatment of constitutional syphilis at that place. Doubts were, it is true, even then expressed on the subject, but no proof to the contrary was brought forward. I endeavoured in various ways to clear up this matter, and finally was driven to a conclusion unfavourable to the claims advanced on behalf of the sulphur springs. As repeated inquiries have been addressed to me on the subject, I think it well to give here a summary of the views which I published in 1876.

The supposed effect of sulphuretted hydrogen on syphilis is based on observations made at the thermal sulphur springs. Liebig, on analyzing the strongest

sulphur spring at Aix-la-Chapelle, found 0.095 gramme of sulphate of sodium in 10,000 grammes of water. The fact has, however, been overlooked that Liebig obtained the water which he analyzed from the deepest part of the "Emperor's spring." An entirely different result is obtained on analyzing the water as it is ready to be used for bathing. The water which, on issuing from the spring, has a temperature of 131° F. cannot be used at once for bathing purposes. In order to cool it, it is first conveyed into large basins or through a cooling apparatus (*Gradirwerk*), like that used in the salt works at Kreuznach and elsewhere.

It is clear, on theoretical grounds, that in this way decomposition of the sulphuret of sodium must take place, and sulphuretted hydrogen must escape. To be quite sure, however, in 1876 I asked Dr. Wings, a thoroughly competent chemist, to make an analysis of the thermal water which had just been running into the basins, and registered a temperature of 95° F., being, therefore, suitable for bathing purposes. The result was very surprising to us both, for 10,000 parts of the water under these conditions contained, not 0.095 of sulphuretted hydrogen as when taken out of the depths of the spring, but only 0.00468. Reckoning the whole capacity of the bath at 400 litres, this proportion gives a total amount of only 0.1872 gramme of sulphuret of sodium in the whole bath. As this quantity is too minute to be considered therapeutically effective even by the most thorough-going homœopath, it must be admitted that the sulphuretted hydrogen cannot have any particular

effect. It is well-known that many of the Aix-la-Chapelle practitioners prefer the baths at Burtscheid, because living is less expensive there. As these baths contain only one-fifth of the sulphuret of sodium present in the waters at Aix-la-Chapelle, these practitioners thus unwittingly testify that they consider the proportion of sulphuretted hydrogen unimportant. Indeed one of them, himself resident at Burtscheid, said, "Our sulphur springs would undoubtedly not have gained a great reputation if we could not have got mercury from the druggists' shops."

I pointed out these facts some years ago, and a medical friend of mine at Stockholm expressed similar views in the Swedish medical journal *Hygiea*, in which there soon afterwards appeared a defence of thermal treatment from the pen of a medical practitioner at Aix-la-Chapelle. Besides making a general statement to the effect that new analyses were at his disposal—which, however, he has not yet thought fit to publish—he said in so many words that "the chief value (of the springs) was naturally manifested in the inhalation room." A more misleading statement could hardly be made by a medical man—in the first place because Aix-la-Chapelle had only one inhalation room, namely, that in the so-called Emperor's baths, and in the second because even that room had not then been used for the inhalation of sulphuretted hydrogen; in fact, only two small apparatus for the inhalation of thermal water had been put up. The arrangement for the inhalation of gas was long ago recognized to be impracticable, and the two small atomizing apparatus were

seldom in use, and were therefore generally out of order.

The internal use of the sulphur thermal water remains to be considered. In addition to sulphuret of sodium, the quantity of which in small volumes of some hundred grammes is very minute, the springs at Aix-la-Chapelle contain other salts. In a former publication I have already explained how great in this respect also is the dilution of the springs. Taking an ordinary dose of eight grammes of Carlsbad salts (five grammes of sulphate of soda, two grammes of carbonate of soda, one gramme of chloride of sodium), in order to introduce an equal quantity of sulphur salts into the body, a patient would have to swallow about 6,700 grammes of water from the Aix-la-Chapelle springs—that is to say eighteen glasses of twelve ounces each.

In bringing my remarks on the diaphoretic and diuretic method to a close I may sum up my views on the subject as follows :—

1. The use of decoctions and of thermal baths may occasionally effect a cure of slight forms of the disease, but in view of the frequent relapses and the weakening effect of the treatment these methods cannot be recommended.

2. In places which rejoice in the possession of thermal springs the decoctions which have a more or less injurious effect on the intestinal tract are less beneficial than the water from the spring.

Of the value of diaphoresis and diuresis as adjuvants to mercurial treatment I shall have something to say when dealing with the latter.

TREATMENT BY COLD WATER AND SEA BATHS.

As I propose to give in this paper only the results of my own observation, I feel compelled to warn patients and practitioners against this treatment, although in so doing I place myself in opposition to the opinion of many esteemed colleagues who have reported favourably of it. The patients whom I have seen, so far from being benefited by the treatment, had been obliged to give it up in consequence of the steady progress of the disease; some of them had been treated with mercury at the same time, but without advantage. All these patients rapidly improved under mercury alone. This is my own experience.

On theoretical grounds it is easy to understand that this treatment, like the diaphoretic and diuretic method, may possibly check the growth of microbes, but assuredly it can have no real antiseptic effect, and therefore cannot destroy them. On the other hand I freely admit that the cold water treatment and sea bathing have often proved extremely useful in restoring the patient's strength after vigorous mercurial treatment.

MERCURIAL TREATMENT.

It is well-known that since the fifteenth and sixteenth centuries mercury and its compounds have been recommended by various writers as remedies for syphilis, and the effect of the drug is often so striking that no one can deny its specific action. It is less known, however, that many medical practitioners, even in our day, not only absolutely refuse to use mercury, but even accuse it of aggravating the symptoms of the disease. In the year 1874 I was present, on the invitation of Mr. Jonathan Hutchinson, at a meeting of the Hunterian Society of London, when that gentleman, who has made himself famous for the recognition and cure of syphilis, devoted a long speech to enforcing the use of mercury in syphilis. The discussion which ensued proved that his view on the subject was not universally accepted in Great Britain at that time. Having stated on that occasion that in Germany the question had long before been decided in favour of mercury, I am now obliged to confess that this was an error on my part, for I have repeatedly since then had occasion to observe that great fear prevails, especially among medical men—and I daresay I have had more than fifty under my care—as to the consequences of a prolonged and energetic use of mercury.

I am of opinion that this question can only be decided by determining the effect which mercury has

on syphilis. Since the year 1868, when Sir Joseph Lister himself made me acquainted with the antiseptic doctrine, I have studied the action of mercury both on the human body and on syphilis, and I was, perhaps, the first who, on the theory that constitutional syphilis is caused by microbes, insisted both by word of mouth and in writing that mercury should be used in very large doses. I based this suggestion on the following considerations:—

As no antiseptic or antipyretic remedy is effective unless given in sufficient strength (quinine, for instance, curing malaria only if administered in proportion to the strength of the poison and the tolerance of the body), mercury, which, whether alone or in combination, is an antiseptic against syphilis, will effect a radical cure only if used in sufficient strength in proportion to the disease and the tolerance of the patient. I have acted on this principle for 24 years, slowly bending the bow by gradually increasing the dose of mercury in the proportion of from one up to twenty. This was not easily accomplished, as in doing so I had to fly in the face of many old prejudices as to the dangers of mercury which were, and still are, entertained by many medical men. I soon found that *there is no remedy and no disease as to which more superstition prevails than mercury and syphilis.*

It was at one time the received belief—and even now I still hear the opinion expressed—that mercury deposited in large quantity and remaining many years in the patient's body is likely of itself to cause various dangerous disorders, and, in particular, to make the manifestations of syphilis most malignant. The pro-

gress of chemistry has, however, shown that mercury does not accumulate in large quantities within the body. By analysis of some 1,000 samples of urine made some years ago, I discovered the fact, which is well-known to-day, that mercury from the very first days of treatment is eliminated in large quantities in the urine. Other physicians have made similar observations with regard to the intestines. Moreover, having often noticed that syphilitic sores in process of cicatrization under mercurial treatment still continue to heal for eight or ten days after the treatment has been discontinued, but after that get worse again until further treatment brings about the formation of a sound scar, I am driven to conclude that mercury is excreted in the course of eight to ten days to such an extent that what remains in the body cannot have any specific effect. I have never been able to find any evidence of metallic mercury being deposited in any part of the body, and when examples have been reported by others I have always been able to convict them of error. To cite one example, medical men who had gone through a course of mercurial treatment have called my attention to small bluish black specks scattered over the gums as being mercurial deposits, but I have proved that the suspicious colour was due to the use of charcoal tooth powder.

Pathological anatomy and exact clinical observation have, moreover, proved that the diseases of bones, of the central nervous system, of internal organs, etc., which attack syphilitic patients, sometimes after many years, are *syphilitic, and not mercurial*, in their

origin. As experience shows that the severer manifestations of the disease occur even in patients *who have never taken mercury*, it cannot be said that mercury is even a predisposing cause. Lastly, the experience of our daily practice teaches that it is just by vigorous mercurial treatment that the severer forms of the disease, which are said to be caused by mercury, are most quickly and most certainly cured. *How can a disease, which is caused by mercury, be cured by the very same drug?*

On the strength of these various experiences, I maintain that mercury has only a beneficial effect in syphilis. If syphilitic symptoms become aggravated under mercurial treatment, the fault will be found, not in the mercury itself, but in the way in which it has been administered. Further, every relapse is the surest sign that the previous mercurial treatment has either been too short or too weak; the longer and the more energetically the mercurial treatment is carried out, the greater is the prospect of the patient being definitively cured.

The Maximum Dose.—Like other antiseptics mercury acts differently on different individuals, and if given in too large a dose it may even act as a poison. I have never, however, in my own practice seen death caused by it, as reported by some medical writers.

The practical inference to be drawn from the circumstances here pointed out is that the *maximum dose, being different for different patients, must be found separately for every individual*, and that great care must be used in administering the drug; the larger the quantity used, the greater must be the

precautions employed. Moreover, daily experience has taught me that the apparent maximum dose can be artificially increased in individual cases.

That an *overdose* of mercury has been administered is evidenced by the occurrence of *stomatitis* and *dysentery*.

Mercurial stomatitis commences with swelling and relaxation of the mucous membrane of the mouth, particularly at the edges of the gums between the teeth. The parts most exposed to pressure and friction slowly wear away, the ulcerated surface forming a greyish-blue patch on the mucous membrane. This is best seen at the edges of the gums, and wherever the teeth, particularly those with cutting edges, press constantly against the mucous membrane of the tongue, lips, or cheeks (wisdom teeth at the angle of the jaw).

As *salivation* is usually said to be the first sign of stomatitis, I may mention that mercury does not seem to affect the salivary glands directly but the mucous membrane of the mouth, salivation being caused by irritation of the gums and mucous membrane. Only two out of many thousands of patients under my care, who have been under the influence of mercury, have suffered from salivation without stomatitis. In both these cases the salivation, which was due to a syphilitic affection of the glosso-pharyngeal and facial nerves, ceased under renewed mercurial treatment. Moreover I have always seen swelling of the salivary glands after, not before, the onset of stomatitis. It is clear, therefore, that stomatitis is the primary, and salivation a secondary, effect of mercury.

The more thoroughly the mouth is cleansed and freed from decayed teeth, or sharp edges, before the commencement of mercurial treatment, and the more carefully the cleansing is carried out during the treatment, the rarer is the occurrence of stomatitis, and the greater is the quantity of mercury that can be administered. It matters little what gargle, or tooth powder, is employed provided it be sufficiently concentrated, and it be used often enough. Solutions of nitrate of silver, such as I have known to be applied, are unsuitable on account of their staining properties. Even *lapis infernalis* (lunar caustic), which acts very well in stomatitis, should be used with the greatest care, so as to prevent discoloration of the teeth.

If the dose of mercury, used with the precautions which have been indicated, is slowly increased, threatening or commencing stomatitis will make it necessary to diminish the dose, or even at once to discontinue the remedy. When the treatment is resumed later on the *maximum dose* is that used before the appearance of stomatitis.

Mercurial dysentery presents the pathognomonic symptoms of ordinary dysentery, viz. frequent, (10-12 in one day) mucous, gelatinous, blood-stained motions, accompanied by tenesmus and griping pain, which later on is referred not only to the abdomen and the large intestine, but also to the bladder. Mercurial dysentery seems to give rise to less bloody stools than genuine dysentery, the blood being more diluted and more diffused through the mucous material. Without discussing whether this form of dysentery consists in muscular paralysis or in enteritis due to the direct

contact of the mercury with the intestinal wall, I need only point out that it comes on most rapidly if the bowels have been confined, and if they have been injured by the pressure of accumulated fæcal matter within them. It is almost beyond belief how negligent and indifferent many patients are regarding the condition of their bowels. This form of dysentery, which is speedily cured by discontinuance of the treatment and evacuation of the mercury by means of castor oil, must be regarded as another indication that the measure of the patient's tolerance of mercury has been exceeded. Nevertheless the dose may be still further increased if the patient, mindful of the warning he has received, is afterwards careful to keep his bowels regular, and is attentive to the advice of his physician respecting his diet. If dysentery again comes on, however, that must be taken as an indication that the maximum has been reached, and that no further increase in the dose of mercury is permissible.

Other symptoms apparently due to mercury.—I am unable to confirm the statements of other practitioners to the effect that the kidneys are injuriously affected by mercury; my own experience teaches me quite the contrary. Not one of my patients whose urine was found free from albumen at the commencement of the treatment developed albuminuria under it. Patients already suffering from it, however, early showed symptoms of stomatitis, a circumstance which led me to conclude that the kidneys in such cases being less able to excrete mercury than when these organs are healthy, greater care was needed in determining the maximum dose that could

be tolerated. Some of these patients were entirely cured of albuminuria by the mercurial treatment, which I looked upon as a proof that the renal affection itself was of syphilitic origin.

A number of other troubles have been attributed to the action of mercury. These vary in severity from slight general disturbance, manifesting itself by pallor of complexion, want of appetite, general *malaise*, sleeplessness, headache, and scorbutic bleeding up to dangerous nervous and mental diseases; even cases of sudden death have been reported. I certainly do not deny that such consequences *may* follow the injudicious administration of mercury, but I assert, with confidence, that *they do not occur* under properly regulated treatment, if mercury alone is administered.

The principal condition of *a well regulated course of mercurial treatment* is that the patient shall order his mode of life in conformity thereto. I am utterly opposed, therefore, to any plan of treatment under which the patient is allowed to follow his usual avocations. If his domestic arrangements are unsuitable for the carrying out of the treatment—which is not often the case—the patient must find a place where he can avoid all exertion and be out of reach of the temptations of daily life. It is quite immaterial whether he goes into a hospital or not provided he can get plain nourishing food and have the advantage of fresh air. In order to meet the former of these requirements I, at one time, used to combine systematic milk diet (there being several good establishments in Wiesbaden where this can be carried out) with the general treatment. I gave this up, however,

on observing that fresh milk is very apt to cause constipation, and therefore dysentery, in patients under the influence of mercury. I order my patients to be out of doors as much as possible, and even in winter I make them take a walk for an hour or two during the warmer part of the day. The acknowledged mildness of the climate of Wiesbaden makes it particularly suited for this purpose. If, in other places, and especially in large hospitals, injurious and fatal consequences have occurred through patients under mercurial treatment catching cold, I cannot admit this as in any way invalidating the views here put forward. A patient who has been confined for weeks to a sick room will run a great risk if he suddenly exposes himself to a draught in the course of any other illness. If, on the other hand, he has been accustomed to be in the open air from the beginning of the treatment he will run no risk of this kind; at least, I have never, in my own practice, met with a case in which anything of the kind has occurred. As I have already said, stomatitis and dysentery should be avoided. For this reason I do not allow the slightest irregularity to pass uncorrected.

In order to keep the skin in proper activity I order a warm bath to be taken every day. While ministering to the body I do not forget to attend to the patient's mind. There is no doubt that many patients suffering from syphilophobia have been driven to that condition by the treatment which they have had to undergo, for the knowledge that they are suffering from syphilis is sometimes sufficient to induce melancholia. I have several times seen patients faint outright on being at

their own request informed of the true state of matters. One of them subsequently went mad, attempted suicide, and died a few days afterwards. In the asylum, after tearing off the strait waistcoat which had been on, he ran his head against the strong plate-glass windows, inflicting on himself considerable injuries, which were followed by erysipelas. It is easy to understand how a disease like syphilis, especially having regard to the opinions respecting it which are prevalent among the public, should have a powerful (of course purely psychical) influence on the mind. If, therefore, such a patient is kept prisoner from the world—perhaps shut up in a room by himself—from four to six weeks, or longer, one cannot be surprised if mental disorder should ensue.

I know of no absolute contra-indications. These appear to arise only when intercurrent acute diseases, such as typhoid, pneumonia, etc., prevent the rules of the treatment, as set forth above, from being adhered to. The age of the patient makes but little difference. Children and elderly persons have been treated with equal success. Pregnancy so far from being a contra-indication makes it necessary to employ more energetic treatment. No miscarriages or abortions have occurred, and in most cases the infants appeared to be healthy, and remained so.

As regards chronic diseases I believed till 1878 that the cancerous diathesis and consumption were contra-indications, as doubtful cases of this kind, which on account of their obscure nature were subjected to what I may call *diagnostic* mercurial treatment, had taken a bad turn. The experience of the last twelve

years, during which I have pushed the mercury to the extreme limit of the patient's tolerance more boldly than I had previously done, has clearly shown that such results are attributable, not to the mercury itself, but to its having been given in doses insufficient to check the development of the syphilis. I even noticed that ulcers on the skin, recognized by medical men from the microscopical appearances as of carcinomatous nature, shrank and even healed up to a certain extent under the treatment. In explanation of this I may refer to the fact repeatedly pointed out by the late Professor von Langenbeck that there is an affinity between syphilis and carcinoma to this extent that a cancer may develop out of or in a syphilitic scar. It is possible that carcinoma may be a late form of syphilis, or even in some way related to that disease, and as such it may require the strongest mercurial treatment. The treatment of real or suspected consumption has been modified by Koch's discovery to such an extent that it is impossible to say at present how this will influence the question of the combination of mercurial with other methods of treatment. At present my impression is that the disease, the symptoms of which are most urgent, should be dealt with first.

It is impossible to say beforehand how long the treatment ought to be continued, as this depends on the greater or less degree of severity of the disease, and on the maximum dose of mercury that can be tolerated. On antiseptic principles it will readily be understood that it is only if treatment be persevered with till all symptoms have disappeared that a lasting

result can be hoped for. From the antiseptic point of view it is not justifiable, and from the practical point of view it is of little use, to repeat the treatment if no new symptoms manifest themselves. It should be had recourse to at once, however, if any relapse occurs. Fournier's plan of repeating the treatment once a year for four years might just as well be extended to the whole of the patient's life, for I have seen relapses, even after four years, in cases in which less energetic forms of treatment, like Fournier's, had been undergone every year.

THE DIFFERENT MODES OF APPLYING MERCURY.

Mercury and its compounds can be introduced into the body in two ways, namely, by the intestinal tract (*per os* and *per rectum*) or by the skin (mercurial baths, mercurial vapour baths, subcutaneous injections, and inunctions). I omit another mercurial preparation (bichloride of mercury), which is employed in surgical operations for washing out the uterus and vagina, the use of which has at times been attended with fatal results, as the mercurial application was not made for the purpose of curing syphilis.

If we attempt to compare the different methods several difficulties arise. Although the antisyphilitic power of mercury is well known, its chemical combinations within the body whereby the effect is produced are unknown. It is only known that subchloride of mercury is transformed into the perchloride in the stomach. The chemical process by which it is eliminated is equally unknown, for in order to separate mercury from the excreta it must be dissolved. Moreover, it is impossible to determine the quantity of mercury which is really consumed by the body as distinguished from the amount introduced into it. An attempt has been made to determine the quantity of mercury excreted in the urine and so to show how much mercury has been absorbed,

but this method cannot be relied upon, inasmuch as the quantity excreted by the intestines and the skin was not estimated. The real test of its healing power and of the maximum dose in individual cases consists, therefore, in the disappearance of syphilitic symptoms and in the appearance of mercurial reaction.

INTERNAL APPLICATION OF MERCURY PER OS OR PER RECTUM.

Pure mercury in the form of *Mercurius vivus* and every variety of compound thereof have been used internally without any marked superiority being observed in the action of one or the other remedy.

Each practitioner has always had his favourite preparation. *Mercurius vivus*, which is much used in Great Britain in the so-called "blue pill," or in the form of *hydrargyrum cum cretâ*, was given by Sédillot in combination with *Sapo medicatus* and *Pulvis Althææ*. Dzondi and Engelsted preferred perchloride of mercury; Baerensprung was partial to albuminate of mercury which Van Swieten dissolved in alcohol. Green iodide of mercury was brought into fashion by Ricord, the red oxide by Berg, the red iodide by Gibert, the subchloride by Weinhold, and particularly by Zittmann, whose decoction has still a considerable reputation at the present day.

Although all these compounds are conveyed directly into the body by the mouth or by the rectum, it is doubtful how much is consumed and how much leaves the body just as it went in. A striking instance in illustration of this occurred in 1866 in the Berlin Military Hospital. The physician in charge had ordered Dzondi's treatment in a particular case. The

patient, thinking to hasten his recovery, took, in spite of strict orders to the contrary, all the 240 pills, containing 12 grains of perchloride of mercury, in one day. There was, however, no appearance of mercurial poisoning, and the patient's health did not seem to be affected except that he suffered from slight colic. I am sorry to say that the fact came to my knowledge too late for me to determine, by examination of the excreta, how much mercury had passed through without being absorbed. On the other hand, I have seen acute stomatitis rapidly brought on by small doses. The dosage, therefore, must be looked upon as uncertain. It is well known that slight forms of syphilis often quickly disappear under the internal use of mercury, but only to be followed in a short time by severer symptoms. The same internal medication then often fails, having no effect on the disease, and quickly giving rise to stomatitis and dysentery.

The explanation of this lies in the different state of the mucous membrane of the intestine, which at first rapidly absorbs the mercury, but later on, being damaged by the use of the drug, loses its absorbent power and even develops severe inflammatory conditions (gastritis and enteritis). If opium or other remedies having a similar action be given to counteract this state of things the purging will be diminished, but the unhealthy condition of the mucous membrane will be aggravated, as will be evidenced by want of appetite, and soon by impaired nutrition. Even if the precaution be observed of never taking these compounds on an empty stomach but always after meals, and in the form of pills, this does not ensure

protection for any length of time. The fact that blue pill, for instance, is much used as a domestic remedy, or that subchloride of mercury is not disliked by children, is nothing to the purpose, since these remedies are only given once in a way and at long intervals as purgatives. If given continuously they always induce enteritis.

The striking discrepancy between the slight effect produced on the severe forms of the disease and the rapid production of stomatitis and dysentery is very characteristic of the internal use of mercury. The patient's strength is often reduced to the lowest ebb, and a more prolonged systematic treatment with maximum doses, with the object of eradicating the disease, is quite out of the question. The doubt whether it is the mercury itself or its administration in an unsuitable form that should be blamed for the result is easily resolved by the fact that under a treatment in which mercury is equally given, but in a different way, not only do these patients quickly recover, but mercury displays its full specific healing power.

INTRODUCTION OF MERCURY THROUGH THE SKIN.

A. MERCURIAL BATHS; MERCURIAL VAPOUR BATHS.

These methods of introducing mercury into the body through the skin are carried out by adding a mercurial compound (perchloride of mercury) to a simple bath, or by evaporating subchloride of mercury in a kind of vapour bath. In both methods we have a twofold effect, viz., that of the mercury, and that of the bath or vapour bath, the latter of which by itself is capable of causing the disappearance of slight syphilitic lesions of the skin. It is, therefore, impossible to say whether the improvement is due to the bath or to the mercury. Severer forms of the disease were not affected by such treatment, neither could I observe that the patient showed any sign of mercurial reaction. I must confess, however, that I only ordered the baths to be taken for half-an-hour daily; perhaps if they were continued for some hours some effect of the mercury would show itself. But these long-continued baths present many difficulties in practice, and have a weakening effect on the patient. This is why I have abandoned the use of both these methods.

The mercurial vapour bath is, to my mind, open to a further objection. The method is described by Mr.

Henry Lee as follows:—Subchloride of mercury mixed with water is vapourized over a small lamp ; the patient sits on a chair above the lamp with a tight fitting cloak, which goes over the chair and the lamp, and covers him up to the neck. If this arrangement does not seem to be sufficient, the cloak which covers the patient must be opened a little in front, that he may also inhale the steam. This inhalation often causes such severe coughing that I have hesitated to employ it.

B. THE HYPODERMIC METHOD.

Mercury has been introduced under the skin in the form of the pure metal and of various compounds, some soluble, others insoluble. Scarcely a month passes without some new compound being recommended. This fact itself shows that none of these compounds is sufficient, for the greater the number of remedies recommended for a disease the less satisfactory is any of them found to be. The premature publication of many of these remedies is actually a hindrance in the treatment of syphilis. Instead of following old methods of proved efficacy, and of gaining experience from the use of them, young practitioners, whom many syphilitic patients prefer to consult in the first stage of the disease, show a decided tendency to try the drugs recommended in the current medical literature of the day. Afterwards learning wisdom by failure, they often have recourse to the older methods, but in the meantime their patients have had to suffer from the inefficacy of the treatment.

With regard to the hypodermic method the following points must be borne in mind :—

1. The *pain* at the site of injection, varying as it does according to the preparation used and the personal peculiarities of the patient, is sometimes so intense that private patients, who are not under the strict rules of a hospital, often decline further treat-

ment by that method, and even express their opinion on the subject with unpleasant frankness.

2. *The injection sometimes gives rise to abscesses.* Although I have not seen this accident follow any injections which I have myself performed, I have often been consulted by patients suffering from such abscesses. In private practice particularly the abscesses, though not a dangerous, are a very disagreeable, complication. It is unfair to accuse the practitioner of clumsiness or of neglecting aseptic rules, for different chemical compounds introduced under the skin with the strictest aseptic precautions have been known to set up suppuration. For the purpose of avoiding the production of abscesses the injections have been made into deeper parts, even into the muscles; such a method of injection certainly makes the abscesses less visible, but may, nevertheless, give rise to worse troubles than the other. I have been obliged to make deep and extensive incisions in order to open such abscesses, which I have found filled with large amounts of necrotic tissue.

3. Even if no abscess is found an *induration* which may cause the patient considerable annoyance, *generally persists* for some time, even for some years.

4. The method can be carried out while the patient is allowed to pursue his ordinary avocations, a mode of procedure which, as I have already explained, is distinctly dangerous in the case of syphilitic patients.

5. It is claimed that the method has this advantage in private practice, that it can easily be kept secret. The few patients, however, whom I have treated by

injection for this reason have suffered so much pain that concealment was almost an impossibility. If the injections are given by the medical man himself the patient will be compelled to see him every day, a circumstance which cannot easily be kept secret. A clever physician, however, will always find a way to keep any kind of treatment secret if necessary.

6. The method of injection, like that of internal administration, would appear to make exact dosage possible. On the contrary, however, experience shows that mercurial compounds introduced under the skin are *not certainly absorbed*, but partly form a local induration in the tissue, and in part remain at the point of introduction, as a kind of depôt from which the remedy is absorbed in very varying degree.

7. This *inequality of distribution* is a cause of *grave danger* to the patient, as the practitioner may be led by the small effect of the first doses to give too strong a dose. If this occurs it is somewhat difficult afterwards to get the excessive quantity out of the tissues. I discussed all these points at the meeting of Scientists and Medical Men, which was held at Wiesbaden some years ago. The note of warning which I felt it my duty to raise on that occasion, and which Dr. Lewin made light of at the time, has been justified even more fully than I feared. Medical literature, I regret to say, shows that some patients have been killed by the injections, while others have with great difficulty been saved by incision and evacuation of the injected remedy.

8. *Inequality of distribution is also an obstacle to the finding of the maximum dose without danger to*

the patient. The consequence is that many practitioners who use the injection method give the mercury in insufficient doses. Those who declare that the injections very seldom give rise to unpleasant secondary effects attributable to the mercury ought in fairness to admit that they give too little mercury, and they need not be surprised at meeting with so many phagedænic chancres and cases of so-called "galloping" syphilis, which they find refractory to treatment. The necessity of repeating the treatment year after year is explained in the same way.

All these considerations go to prove that this method is unsuitable for the radical cure of syphilis.

C. TREATMENT BY INUNCTION.

Inunction, one of the oldest methods of introducing mercury into the body, is carried out by rubbing the skin with metallic mercury, minutely diffused through grease, fat, etc., in the form of ointment or soap. The way in which the mercury is absorbed has been much discussed. Without entering into the details of the experiments of other physicians, I will only state the fact which my own practice has demonstrated, that is to say, that *mercury being very volatile in itself when diffused in an ointment and spread on the skin, forms an atmosphere of mercurial vapour around the patient's body, and enters the body through the skin in a gaseous state.*

I have been led to this conclusion by the following considerations:—

1. If all the mercury remaining on the skin after the inunction was rubbed off with a sponge or cloth without any pressure, no evidence of mercurial influence, or hardly any, was perceptible. Therefore, the quantity of mercury which is pressed into the skin by inunction is of little importance.

2. The mercurial atmosphere enveloping the patient is readily recognized by its amalgamating power. It is well-known that patients' watches and gold chains become amalgamated. In order to test this point experimentally, I stitched small gold plates inside the

waistcoat pockets of some patients; a few days afterwards these plates were found to be amalgamated. Sovereigns and other gold coins often become amalgamated in the patient's purse. Another interesting fact noticed was that, in the case of patients suffering from hemiplegia, this amalgamating effect was unequal on the two sides of the body, one side being colder than the other.

3. The notion that the mercurial vapour is inhaled by the mouth is negatived by the fact that I have never seen gold stoppings in the teeth amalgamated, an observation which is confirmed by dentists. Gold being very sensitive to the action of mercury, the amount inhaled, if any, must be extremely small.

4. The specific action of the mercury displays itself earlier, and more particularly during the heat of summer and again in winter, when patients remain longer in warm rooms and in bed than they do in the cooler seasons of autumn and spring. Mercury evaporates more quickly at high temperatures, and is also absorbed more quickly and more readily under the same conditions.

In order to form an accurate judgment as to all the effects of inunction in different cases uniformity and exact control are absolutely necessary. The following is my mode of procedure:—

a. The *inunctions* are carried out by trained nurses, who have been under my observation for many years (one of them has been so for 22 years). I object to patients performing the inunctions themselves, as the necessary control is wanting under such

circumstances, and, moreover, many patients are too weak to do it properly.

b. The inunction must be performed in such a manner that *no great amount of the ointment is wasted*. If the attendant rubs it in with his hands a considerable portion will stick to them. In like manner, gloves, even when oiled, and large pledgets of wool covered with leather, took up a quantity of the finely-diffused particles of mercury, which could be measured by weighing. A hollow glass pestle was at length brought under my notice by a patient; this acts exceedingly well, as it lies comfortably in the nurse's hand, does not hurt the patient's skin, and, above all, makes it impossible for even the smallest amount of the ointment to be lost. These glass pestles have the further advantage that they can be more easily cleaned than the nurse's hand—a point of importance in private practice.

c. *Each inunction must last an equal time* (15 minutes), in order to obviate the objection that in unequal times varying amounts of ointment may enter the skin.

d. After the inunction the *parts are always wrapped in flannel* for a certain number of hours. This facilitates the rapid entrance of the mercury, and prevents the patient from wiping off the ointment, while at the same time it protects his linen and bed-clothes from being soiled.

e. When the flannel bandage, which is kept on during the night, has been laid aside, the *patient takes a bath*, and the ointment is rubbed into some other part.

f. The order in which the inunctions are made in different parts (the arm, back, thigh, etc.) is a matter of little importance, but when any particular order has been adopted it is as well to adhere to it, unless the condition of the skin at any part makes it desirable to make a change.

g. With regard to the *ointment*, I may say that, having used that prepared according to the German Pharmacopœia (6 parts of purified mercury, 4 parts of suet, 8 parts of lard) for some years, I afterwards changed the composition, taking, not one part of mercury to two parts of fat, but two parts of mercury to one part of fat, in order to reduce the bulk of the ointment. The fine distribution of mercury in this proportion being somewhat difficult, as the diffusion is unequal at different temperatures and the mercury tends to fall out, *resina benzoës* was added, or the ointment made up as follows:—*R.* Mercury, 20; lanolin, 2; suet, 2·8; lard, 5·2.

Inunction carried out in the manner just described presents the three following advantages over all other forms of mercurial treatment:—

1. *The inunction never does any permanent harm to the body*; as a rule the rubbing in of the ointment does not hurt the skin in any way. Occasionally, indeed, erythema or a kind of acne develops about the hair follicles, in the region where inunction has been applied, but this disappears in a few days, leaving neither scar nor induration. Five times, however, I have seen extensive reaction (*herpes* covering nearly the whole surface of the skin) take place, but this disappeared in a few days and the treatment was

continued. In only one instance was inunction impracticable owing to this cause.

2. *The absorption of mercury can be interrupted at any moment.* As the mercury lies on the skin and forms a mercurial atmosphere around it the patient can prevent absorption of the drug at any moment by taking a bath, changing his clothes, and going into the open air.

3. *Inunction is the only treatment which allows of the dose of mercury being increased up to the maximum without endangering the patient's life.*

The objection advanced by some that large and even maximal doses are of no use, inasmuch as no greater quantity of mercury is thereby introduced into the body, is easily refuted by daily experience, which shows that patients react very differently to different doses. Some who react to one scruple of mercury (three scruples of ointment) can tolerate eight scruples of mercury (12 scruples of ointment), while in other cases eight scruples of mercury (12 scruples of ointment) have to be used in order to cause reaction, and as much as 12 scruples of mercury (18 scruples of ointment) could be tolerated. This proves that mercurial inunctions as formerly used were much too weak to bring about a cure.

D. COMBINATION OF MERCURIAL WITH THERMAL TREATMENT.

The combination of mercurial with thermal treatment has many advantages in private practice arising from the mode and surroundings of life in the various watering-places, and the *peculiarities of the waters themselves*. The circumstances are as a rule such as to allow of a patient, while *away from home and his daily avocations*, to submit himself entirely to the directions of his physician *without entering a hospital*. Living as he does among strangers there is plenty to occupy his mind, and he generally enters on the new treatment with confidence, and with the conviction that he will at last be thoroughly cured. These points, though apparently trifling, have an importance of their own which must not be underestimated.

Moreover, a course of mercurial treatment, which as a rule proclaims too plainly the nature of the complaint from which the patient is suffering, may be carried out in a watering-place without exciting suspicion. Places like Aix-la-Chapelle and Burtscheid have this drawback, that a stay at either of them is looked upon as a certain proof of the disease.

The majority of thermal watering-places by their beautiful situation, their wholesome pure air, interesting walks, and excellent arrangements for bathing offer the conditions of comfort and agreeableness

which I hold to be essential features in every course of mercurial treatment. Even in respect of expense watering-places offer a greater variety than hospitals. At Wiesbaden, for instance, the expenses vary from what may be called fancy prices down to a daily charge of five or six shillings for board and lodging.

The chemical composition of the various thermal springs was formerly thought to render them more or less suitable for the treatment of syphilis. Among all the thermal waters it was particularly the so-called sulphur springs for which, when their reputation as curative agents in syphilis was lost, it was claimed that they were, at any rate, useful aids to mercurial treatment. I have already shown that the designation "sulphur springs" is entirely misleading, even the baths containing little more than a trace of the sulphuretted hydrogen to which they were supposed to owe their virtue. This fact, however, appears to be an advantage rather than a drawback, inasmuch as a larger quantity of sulphuretted hydrogen would form an insoluble compound with mercury, and thus hinder its action. If any especial efficacy is to be claimed for these so-called sulphur springs as adjuvants to mercurial treatment, this can only be in respect of the chloride of sodium which they contain, as this substance is believed to promote the absorption and transformation of mercury within the body. This I have proved by observations extending over 26 years. Inunction carried out under circumstances otherwise exactly similar, is differently tolerated at different springs. Except in the case of some par-

ticularly susceptible patients, a daily dose of $\frac{1}{2}$ -1 scruple of mercury (2-3 scruples of ointment) is well borne ; if warm baths without chloride of sodium are used at the same time stomatitis and dysentery will be induced on increasing the dose. If, however, springs containing chloride of sodium are used internally and externally the daily dose can be increased in direct proportion to the amount of chloride of sodium therein contained. This is best seen on comparing hot springs containing different amounts of chloride of sodium. The spring at Aix-la-Chapelle, which contains 2.64 per cent. of chloride of sodium, allows a daily dose of $1\frac{1}{2}$ -2 scruples of mercury (5-6 scruples of ointment). The Wiesbaden spring, which contains 6.93 per cent. chloride of sodium, allows a daily dose of 6-10 scruples of mercury (10-15 scruples of ointment), On increasing these doses mercurial reaction occurs, except in a few cases.

This experience, acquired during eight years of practice at Aix-la-Chapelle and fifteen years at Wiesbaden, is the more worthy of attention that I had, to a certain extent, calculated it beforehand and published it in 1876, when I removed from Aix-la-Chapelle to Wiesbaden. When I had been two years at Wiesbaden I published (1878) that in contrast to what I had seen at Aix-la-Chapelle I had only once met with mercurial dysentery from the daily dose which I had been in the habit of giving at Aix-la-Chapelle. Since then I have repeatedly seen both the symptoms of mercurial reaction (stomatitis and dysentery) manifest themselves on quintupling the dose. As the rest of the treatment had been exactly the same both here

and at Aix-la-Chapelle the fact can only be explained by the different proportion of chloride of sodium.

It may, therefore, be taken as proved that a thermal water containing 6·0 per cent. of chloride of sodium makes the system capable of absorbing a larger quantity of mercury, and is, therefore, of *great value in the treatment of syphilis by maximal doses of that drug*. I have not had the opportunity of investigating the question whether a larger quantity of chloride of sodium enables a person to tolerate still larger doses of mercury. I may point out, however, that as the hot spring at Wiesbaden contains the same proportion of chloride of sodium that is physiologically present in the human blood (0·6 per cent.), a more concentrated solution would be less suitable for the organism generally.

The thermal springs, and especially the so-called sulphur springs, are also often resorted to after a course of mercurial treatment, partly with the object of *causing the elimination* of the mercury, and partly as a kind of *test treatment*. It seems clear that metabolism is always increased by the use of warm douches or vapour baths. It is even stated in the many pamphlets published by medical men practising at the sulphur springs that the *elimination of mercury* is also increased, but of this there is no proof. During my eight years of practice at Aix-la-Chapelle I never saw mercury really eliminated. The reports of small particles of metallic mercury having been found in the bath can easily be explained. Either a waggish patient has played a trick on his physician by dropping a little mercury into the bath, or, as I have actually

known to occur, the mercury has become separated from a badly made ointment. These pamphlets, moreover, contain a flagrant contradiction, inasmuch as the same baths are recommended first to promote the absorption of the mercury, and then to cause its elimination.

The Test Treatment.—The fact that relapses may occur after thermal treatment is of little or no practical consequence so long as it is only possible, but not certain, that all patients in whom the disease is still latent, show a return of it after having taken the baths. Relying on the statements made by the older physicians in their pamphlets, I have repeatedly ordered patients at Aix-la-Chapelle, who at the time showed no symptoms of the disease, to take the baths for five or six weeks and then discharged them as cured. Subsequent relapses have, however, taught me that the assertions of these authors were incorrect. If there be no relapse immediately after a course of the baths the fact may indicate a greater probability of recovery, but can never be taken as showing that recurrence will not take place later on. Nevertheless the public, and even many medical men who have no personal experience of these baths, believe that the test treatment is, in reality, a test of complete recovery. I can only characterize the attempt to represent such courses of baths as genuine test treatments as being utterly unwarranted.

THE IODIDE TREATMENT.

The iodine compounds—not so much iodine, tincture of iodine, or iodoform as iodide of potassium, iodide of soda, and iodide of iron—appear to enjoy as good a therapeutic reputation as mercury. They are said to be employed successfully not only in the late forms of the so-called tertiary stage, but also in the earlier manifestations, and even in the initial lesions of syphilis. The compound which I prefer is the iodide of potassium. I give it in daily doses of 1-2-6 scruples, simply dissolved in thermal waters (Kochbrunnen). Patients seem to tolerate it best in this solution, and prefer the taste of the drug to the various correctives, which after all disguise the taste very imperfectly. If gastric disturbance, want of appetite, abdominal pain, loss of flesh, etc., appear, I administer the remedy in clyster as recommended by Professor Gerhardt. It is interesting to observe how quickly the remedy is absorbed when given in this way, some patients noticing the taste of it in the mouth within half-an-hour of its administration.

I recommend, however, that it should be at first given in small doses, as it acts very differently on different constitutions. Apart from the frequent occurrence of acne, which is only a trifling annoyance, disagreeable effects may be produced on the mucous membrane of the pharynx and nose, extending

thence into the antrum of Highmore, the Eustachian tube, the lachrymal apparatus and the frontal sinus, sometimes almost suddenly causing most intense pain, even after a single dose of half a scruple. I have never myself seen increase of the heart's action or pains in the pleura or thorax caused by the drug—perhaps because I have never allowed it to be taken for months together.

With the object of testing this compound of iodine I have sometimes treated the most various lesions—tertiary, secondary, and primary—with it alone, and I found that under it simple syphilis of the skin without swelling, mucous patches and syphilitic sores, remained almost unchanged or continued to spread. On the other hand, all lesions accompanied by swelling or effusion into the tissues, *e.g.*, periostitic processes, swelling of glands, syphilis of the testis, liver and brain, often showed rapid improvement. This amelioration, however—and the point must not be overlooked—was merely temporary, often lasting only as long as the drug was taken. Comparing this with the effect of mercury, which acts equally on all syphilitic symptoms, I came to the following conclusion:—

While mercury by its antiseptic and bactericidal effect injures the microbe which is the cause of the disease, the iodide, by its absorbent action, removes the hyperplastic changes of the tissues which have been produced by the microbe. In short, while mercury cures the disease itself, the iodide only causes the absorption of the products of the disease.

As nearly all syphilitic symptoms are accompanied

by swelling of the lymphatic glands, at least of those through which the poison passes on its way to infect the organism generally, it would seem well to combine the use of compounds of iodine with mercurial treatment, the object being to attack the enemy directly with the mercury and indirectly with the iodine by changing the soil in which it flourishes. I am able to state that this combined method of treatment has had the most satisfactory results in my hands.

THE LOCAL TREATMENT OF PARTICULAR SYMPTOMS.

The local treatment of individual syphilitic symptoms is recommended either for *removal of the constitutional disease without general treatment*, or by way of *assisting general treatment employed at the same time*. It should be borne in mind that the disease sometimes appears to be so purely local, even after several years, that some practitioners maintain that it may possibly be so, the primary sore being at first merely a local affection also. I have already indicated the objections to the isolated local treatment of the primary lesions. The same holds good with regard to later local manifestations, for the following reasons :—

1. We have no sure sign to show whether the lesion is local or not. The disease may exist at the same time in other organs, such as the brain, the spinal cord, the liver, or the heart, and may at any moment break out into very dangerous activity therein. By purely local treatment, therefore, valuable time is lost.

2. A local operation, such as removal of necrosed bone, the cleansing of a phagedænic sore, etc., will often fail. Even plastic operations, undertaken to remedy deformities caused by syphilitic scars, may be the starting-point of new local mischief, and therefore of still greater disfiguration.

3. I have repeatedly met with patients in whom local lesions had persisted for years, and in whom, owing to the failure of local treatment of every kind, carcinoma was suspected. Under general mercurial treatment, however, they recovered in a few weeks. I am strongly of opinion, therefore, that no local treatment or operation should be undertaken without simultaneous general treatment. The *recommendation of local treatment of particular symptoms combined with mercurial treatment* was one of the first points on which I expressed (in 1868) views different from those current among the older practitioners, and I have adhered to this opinion ever since. I have related, in another publication, the various difficulties, particularly in consultations, which I have had to encounter owing to this belief and practice. The local treatment was said to make it difficult to judge of the effect of general treatment, and to add to the difficulty of diagnosis in doubtful cases. I cannot see, however, why, for instance, a broad condyloma should be cured only by the tedious process of absorption, if the condyloma, and with it a part of the disease, can be easily, and without detriment to the patient, removed with the knife. Being fully aware, however, that the condyloma is only a symptom of the constitutional disease, I naturally do not think it right to omit the simultaneous use of the general treatment.

Since 1868 a great change in opinion has taken place, and many simple methods of local treatment, which I had great difficulty in carrying out at that time, are now generally accepted, and their omission

would be reckoned a fault on the part of a practitioner, as for instance, the treatment of syphilitic iritis without atropine would be. The same may be said of the local treatment or possibly excision of primary sores, the compression or possibly incision and scraping of inguinal glands, the local treatment of various cutaneous lesions, the splitting and evacuation of gummata, the removal of necrosed bone, the local treatment of syphilitic laryngitis and ozæna, etc.

Syphilis of the brain and spinal cord requires to be considered separately. On various occasions I have recorded the belief, founded on my own experience, that warm baths and electricity may be usefully joined to the combined mercurial and iodide treatment, and I have explained in what the advantage of these methods consists. I have been pleased to note that my views on these points have been adopted by other practitioners. Visceral syphilis, also, and syphilis of the lungs and blood-vessels (*aneurysma syphiliticum*) require careful local study, and possibly special treatment. The possibility that every organ of the human body may be attacked by this constitutional disease, and the fact which experience teaches us that recovery may be facilitated by a combination of general with local treatment of the affected organs, leads us to the conclusion that *the treatment of syphilis should be carried out, not, as is often the case, by a specialist in skin diseases, but by a practitioner whose knowledge and experience extend over the whole range of medical art.*

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