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ON THE TREATMENT

OF

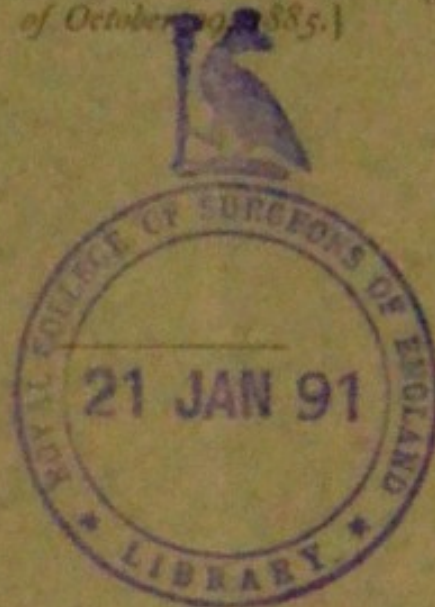
LUPUS BY PARASITICIDES.

BY

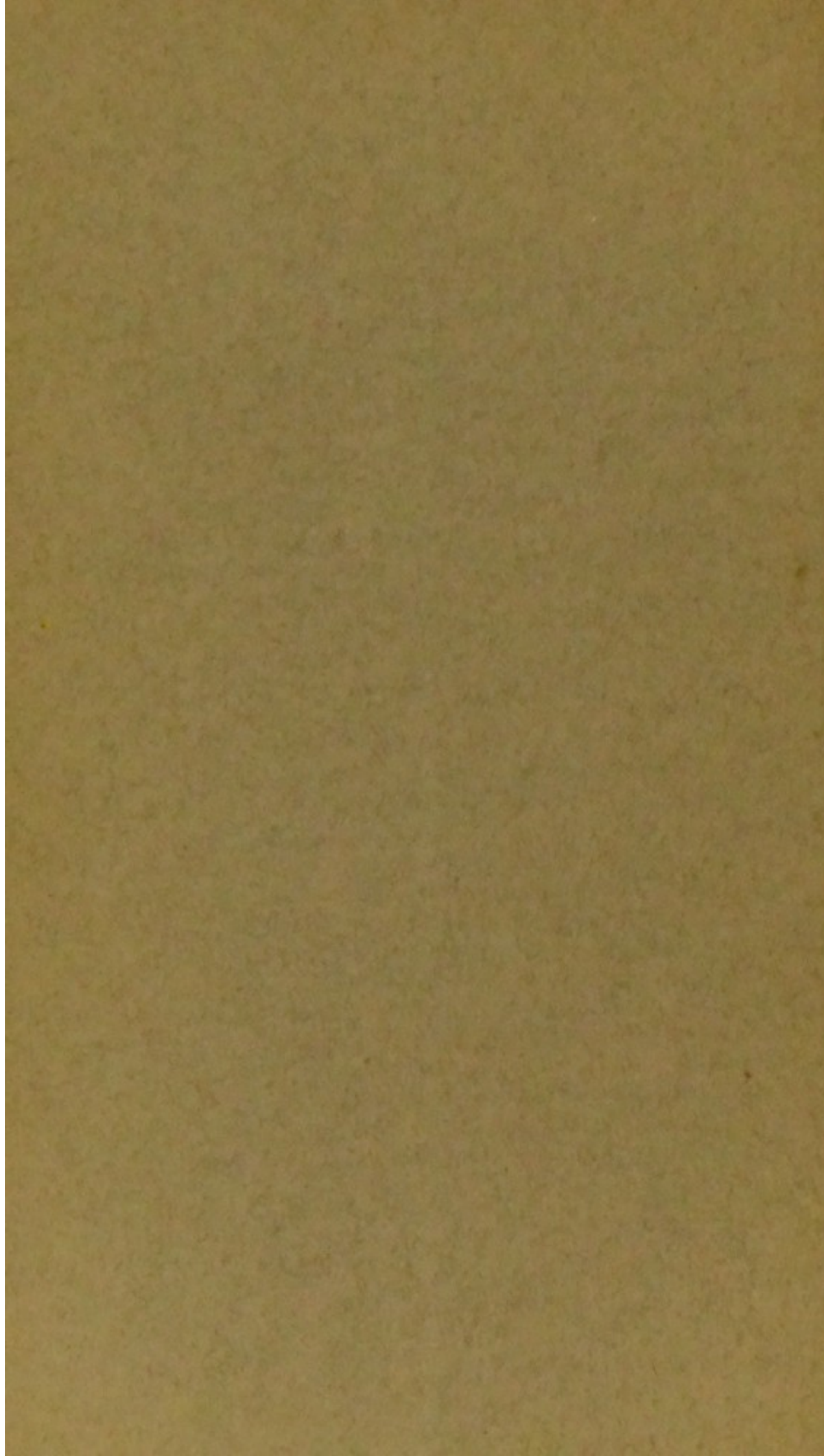
JAMES C. WHITE, M.D.,

Professor of Dermatology in Harvard University.

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ON THE TREATMENT OF LUPUS BY PARASITICIDES.¹

BY JAMES C. WHITE, M.D.,

Professor of Dermatology in Harvard University.

It may be stated without exaggeration that the announcement of the title of my communication, had it been made at any meeting of the association previous to the last one, would have been received with amazement, if not with incredulity; and yet to-day it is entirely needless to offer you any explanation of my reasons for presenting this subject to your consideration. The revolution in their views of the etiology of the so-called chronic infectious diseases among dermatologists during the past few years, unparalleled in the history of the progress of medicine, and the unanimity with which it has been accepted independently of schools and past prejudices, furnish the strongest proof that it is based upon no mere theory, or the power of a passing novelty of opinion, but upon sound observation of facts.

I may be pardoned if I very briefly, although needlessly before this society, recall the evidence by which this change of opinion concerning the nature of lupus has been accomplished. The French school of dermatology has long maintained that lupus is a scrofulide, basing its belief upon clinical connections and anatomical resemblances, and this opinion was also held to a limited extent by writers of other nations. Within the last decade the close mutual relationship of the two affections has been more generally recognized. During this period it has been demonstrated by

¹ Read at the meeting of the American Dermatological Association, Aug. 26, 1885.

Koch that tuberculosis is a bacillus disease; that one and the same bacterium is constantly present in active tubercular tissue; that the inoculation of such tissue in animals produces in them tuberculosis; that the inoculation of the bacillus itself, isolated and purified by repeated culture, also produces tuberculosis; and that the tissue changes in so-called scrofulosis, as well as in tuberculosis, are the direct result of the irritating presence of the tubercle bacillus. These points established, their pathological significance in relation to the etiology of lupus was soon recognized, and investigation opened. Demme was the first to discover the presence of bacilli in lupus in 1883. Since then numerous others, although their observations were at first largely negative in results owing to imperfect methods, Pfeiffer, Cornil and Leloir, Köbner, Doutrelepont, Koch, and others, have demonstrated the existence of a bacillus, identical with that in tubercule, in lupus tissue of the integument, of bone, of lymph glands, and in pus beneath its crusts, although its growth is more sparse and apparently feebler than in other forms of tuberculosis. Inoculation of lupus matter by many experimenters into the tissues and cavities of various animals has given rise to forms of tuberculosis in the same, with the accompanying growth of tubercle bacilli. The bacillus from lupus tissue has been cultivated by Koch for sixteen months, and in these successive cultures has retained its apparent identity with that of tubercle. Repeated inoculations with such isolated growths by him have always resulted in the production of all the various forms of local and general tuberculosis, and similar results have been obtained by many other observers. The introduction beneath the skin of the lupus bacillus by Leloir was followed by the development there of true scrofuloderma in one instance.

Let us briefly consider now how far this most satis-

factory experimental proof of the pathological identity of lupus and tuberculosis is supported by our knowledge of their clinical relations. The common occurrence of lupus in so-called scrofulous subjects, or, in other words, with tuberculosis of the glands, joints, or bones, or with milder forms of the latter, has long been recognized, but recent analysis of extensive series of cases has shown this association to be much more frequent than had been supposed, the ratio varying from thirty to sixty per cent. in the returns of different observers. The direct development of lupus upon old lesions of scrofuloderma has been not infrequently noticed. General miliary tuberculosis has in several instances followed extensive mechanical operations upon lupus, as scarifications, by which process bacilli might readily be introduced into the cutaneous circulation for diffusion throughout the system, as if by intentional multiple inoculation. Finally, now that careful attention has been directed to this point, it has been ascertained that the termination of lupus in tuberculosis of the lungs occurs as often as six to fifteen per cent. in the experience of different observers.

This certainly shows a very intimate association of these forms of disease, hitherto regarded as well defined individual processes. But why is it that this individuality is so sharply observed, and that tuberculosis of the skin, scrofuloderma, and lupus do not resemble each other more closely, or undergo mutual transformation as a rule rather than as the exception? For reasons not yet understood; but this ignorance of the laws of bacterial life, dependent upon insufficient observation, should not be used as evidence against the identity in nature of these affections, for by the same reasoning quite as diverse forms of other diseases, the unity of which no one doubts, might be separated as distinct disorders. In leprosy and in syphilis, for instance, we have a far greater diversity of tissue

change, and as various and well defined varieties of clinical expression, in the latter in fact far greater differences. It seems, indeed, to be a characteristic feature of these organisms, this capability of so impressing human tissues, that they shall express their resentment of the irritating presence of the former by the greatest possible diversity of lesions. In the protean manifestations of the syphilodermata, and in the multiplicity of tissue changes in the deeper structures of the body in the same disease, we have the culmination of this power of bacilli. In leprosy and tuberculosis we have a longer period of incubation, a slower growth, a much more restricted spread, and a greater uniformity of tissue change, but in all three of these every portion of the economy may in time become involved. It is probable that the tubercle bacillus finds an uncongenial soil in the cutaneous tissues; at any rate it spreads from its primary point of inoculation or manifestation but slowly as a rule, and is found but sparsely in lupus matter. The persistency of its growth, however, is wonderful, as it may continue to occupy a very restricted field throughout the long lifetime of its host. This tendency to confine itself within very limited areas of the corium, and the very slow rate of its progress there, even when it assumes a serpiginous type, furnish the most consistent reason for the usual preservation of its clinical form, and the escape of the system from general inoculation. This is no more remarkable than the usual confinement of the bacillus to the pulmonary tissues in tubercular consumption, or to the glandular structures for indefinite periods in scrofulosis. Students of morbid anatomy have many times solved to their own satisfaction the mystery of lupus disease, and in this or that histological element of tissue change have discovered the individual secret of its being, but wider investigations have shown that these were in no way

peculiar to it, and that the products of chronic inflammatory disturbance were all that they had found. All the while lay there unseen and unsuspected the foreign elements of evil, which remained for the investigators of a very different training to disclose. So in discussing the peculiarities of tuberculosis in its various forms, we may not apply the ordinary methods of reasoning employed in departments of pathological anatomy; we have to deal with the attributes of plant life and are entering the realm of vegetable physiology, in which we have nearly all our knowledge to gain.

Starting then upon the basis that lupus is a form of tuberculosis of the skin, and that it consists of chronic inflammatory changes in its tissues produced by the presence of a bacillus, we are to consider what effect this discovery of its parasitic nature may have upon its treatment. It is evident that if we could bring in contact with the bacteria any substance which, without injuring the animal tissues, will destroy the life of the former, we shall accomplish in a simple and rational manner what surgery has always been endeavoring to effect by all conceivable means of therapeutic art, characterized in the main by violence and suffering, and with most unsatisfactory results. The endless succession of new remedies in the history of its treatment is conclusive evidence of the inefficiency of all, of the necessity of something better. The lack of any specific internal remedy is universally acknowledged.

It may be interesting to consider how far the action of means, hitherto the most successful in results, confirms our present view of the pathology of lupus. In the first place all mechanical measures, which form the final resource in so large a proportion of cases, demonstrate that in removing the products of the disease, or lupus matter, we wholly or largely get rid of its essence or cause, or, in other words, that we are deal-

ing with a local and not a constitutional affection. The knife and scraper should be radical in their action, if thoroughly enough handled, but the former cannot be employed over extensive areas, and the latter is necessarily a surface instrument. They may, and do in a crude way, remove the bulk of the bacillus or lupus growth, but they are not searching enough in their action. The knife, as a scarifier, probably owes its more or less favorable results to the washing out to the surface of bacilli through the free hæmorrhage which follows, 'but the remedy has never given satisfaction in my hands, and, as already stated, has proved in some instances to be a most mischievous operation. The destruction of the diseased growths by heat would ensure, of course, that of the vegetable organisms they contain, and the same may be stated with regard to most of the caustics so successfully employed. Of some of the milder forms of remedies thus designated, and of a great number of so-called chemical agents, it may be said that we know but little of their mode of operation; so far as they are operative it cannot be stated that it may not be due to their parasiticidal action. This leads us to the question:

What is a parasiticide? As employed in medical language up to recent date the term embraced (in addition to its application to animal parasites) all remedies which checked or destroyed the growth of vegetable life parasitic upon man when brought in contact with it. Practically it included the substances ordinarily employed in the treatment of the mycoses of the skin. Among them were some which were also widely used in the destruction of low forms of vegetable growths in other than human forms of parasitism, and to control various fermentative processes dependent upon the presence of similar organisms. More recently, since investigations have been carried on so successfully into the relationship of still minuter forms of

vegetable growths to far more important diseases of animal life, the field of applicability of such remedies has been widely extended, and systematic studies have been made with regard to the degree of destructive action of many substances upon them. As the result of careful experimentation, Koch has tabulated the comparative activity of some of the best known of these agents, as follows :

corrosive sublimate,
chlorine water,
bromine water,
iodine water,

and recommends the sublimate as the most destructive of bacterial life.

Buchholz found that the development of bacteria in a modified Pasteur's fluid was prevented by the following agents in varying degrees of concentration :

by sublimate, 1 part in 20,000 ;
by benzoate of soda, 1 part in 2,000 ;
by salicylic acid, 1 part in 666 ;
by carbolic acid, 1 part in 200.

As will be seen, among the most deadly of these are those which have long been in use as the most successful parasiticides in the treatment of the cutaneous mycoses, preparations of mercury, iodine, carbolic acid, etc., and with the action of which upon the skin we were well acquainted.

In January, 1884, Doutrelepont published² a report of the treatment of several cases of lupus by the application of solutions of corrosive sublimate, and immediately afterwards I repeated the experiment in cases of the disease then under my observation. Since then several mercurial preparations have been employed against the disease, and the action of other parasiticides upon it has been tested by dermatologists, particularly to be mentioned sulphurous acid and salicylic acid.

² Monatsheft für Prak. Dermat. Bd. iii. No. 1.

Very successful results have been reported by competent and reliable observers with these remedies alone, and as they were purposely used in all instances in such weak forms as not to cause any irritation, far less destruction of the animal tissues, it is fair to conclude that their action was in consequence of their parasitocidal properties.

I will briefly report the cases under my own observation during the past eighteen months. The first nine were out-patients at the Massachusetts General Hospital.

CASE I. A man of Irish descent, thirty years old. The disease had existed since childhood upon the left arm, progressing gradually in a serpiginous form, and leaving considerable areas of scar tissue above and below the elbow. When first seen there remained two quite large ulcerative patches upon the arm, covered with thick crusts, and numerous large and small tubercles, more or less softened but not denuded. The right ear was generally thickened and exfoliating, and presented a few small tubercles. A solution of bichloride of mercury, a grain in an ounce of water, was applied every morning and evening for half an hour upon thin compresses kept constantly wet. After three or four weeks of this treatment the tubercles gradually shrivelled up and sank down to the level of the general surface, and lost their dark-red color. The crusts fell off, and, after forming once or twice slightly, ceased to be re-established, and gave place in some six or eight weeks to a thin, exfoliating epidermal covering. At this stage of advanced improvement the patient ceased to attend my service.

CASE II. A girl of fourteen years. The disease was of two years duration. It occupied considerable portions of the cheeks, lips, nose, and extended within the cavity of the nostrils, and was mostly in a crusting ulcerative condition. After a preparatory treatment

of the ulceration by a wash, tartrate of iron and potash $\mathfrak{z}\text{i}$, water oi , and a boracic acid ointment for two weeks, a wash of corrosive sublimate, two grains in an ounce of water, was applied, as in Case I, for a short time, during which some of the ulcers healed, but the patient escaped from my observation too soon to allow the action of the remedies to be properly estimated.

CASE III. A girl, aged eighteen, from New Brunswick. The disease was of six years duration. She had had hip disease in early childhood. The upper portion of the right cheek was largely occupied by scattered tubercles of various sizes, several of which were soft and covered with scales. There was no ulceration. The solution of corrosive sublimate was applied for an hour in the morning, and in the evening the tubercles were thickly covered with an ointment, Hydrarg. bichlor. grii , adeps $\mathfrak{z}\text{i}$. After three weeks of this treatment the tubercles had almost wholly disappeared, leaving only dull red macules to mark their former seat.

CASE IV. A boy, six years old, native of Boston. The disease had begun upon the edge of the nostril a year previously and had rapidly spread until the integument of the lower three-fourths of the nose was in a state of active ulceration, covered with thick crusts. It was greatly swollen. There was an older patch of the disease upon the arm, presenting scar tissue and a few indolent tubercles. One of the glands upon the side of the neck was in a state of "scrofulous" induration and enlargement. The bichloride wash was applied to the nose and the same in ointment form to the arm. In the course of a fortnight the nose had regained its normal size, and the granulations of the ulcerating surface were assuming a healthy and firm condition. At this time the patient showed signs of slight mercurial stomatitis. The application of the wash upon the nose was discontinued for a few days, and then used

reduced to one grain to the ounce. At the end of six weeks the nose had completely healed over, leaving a nearly smooth surface. The tubercles upon the arm had completely vanished under the action of the ointment, which had been constantly applied morning and evening. The gland in the neck remained unchanged.

CASE V. A boy, aged thirteen, native of Boston. The disease had existed several years, and occupied the whole chin, spreading down continuously upon the front neck to the level of the larynx. The central portion of this area was occupied by scar tissue, bounded in some places by active, crusting ulcers, in others by large boggy tubercles. The wash of bichloride of mercury was applied to the ulcerating surfaces, and the ointment to the tubercles. Within a fortnight the latter had shrivelled up in a surprising manner, and in a month they had entirely disappeared. The wash, on the other hand, seemed to produce but little impression upon the crusts and ulcers, and fearing to lose sight of the patient, and also partly for the purpose of exhibiting the process to my class, I treated this portion subsequently with the stick of nitrate of silver, under the repeated use of which the parts took on a healthy action.

CASE VI. A girl, aged fourteen, living in Boston. She exhibited on one arm a group of crusting tubercles of two years' duration. Upon the other arm there was a scar, the result of the same disease, which had not been in a state of activity for five years. Under the action of the bichloride wash and ointment, the tubercles were rapidly sinking down after a few week's use. She then ceased to attend my clinic.

CASE VII. A girl, eleven years old, a native of Massachusetts. There was upon the left cheek a firm, elevated patch, one by two inches in area, with sharply defined edges, slowly progressing through a course of six years. It was an example of the variety called by

Vidal sclerous lupus.³ There were no well-defined tubercles, nor any ulceration or crust formation. The bichloride ointment, two grains to the ounce, was applied twice a day, but with very slow results. After its use for four months the whole patch had become depressed to one half its former elevation. The case is still under observation.

CASE VIII. A girl, thirteen years old, a native of Massachusetts. The patient had been under my treatment two years previous to the beginning of this series of experiments. She had when first seen numerous patches of sclerous lupus scattered over arms and legs, varying in size from a dime to a silver dollar, and of irregular shape. The forehead was almost wholly occupied by the disease, as well as a large area of the skin below the chin. These patches were characterized by a nearly uniform, thickened, elevated condition, somewhat depressed in the centre, and by sharply defined, perpendicular edges. The central portions of the largest consisted of smooth cicatricial tissue, while the more recent parts were somewhat tubercular in appearance, especially at the edges, but the diseased tissue was very firm throughout, presenting very few inequalities of surface. There was scarcely any boggy tissue at any point, and the sharp stick of nitrate of silver had been made to enter it with very great difficulty. The case had been throughout an exceptionally intractable one under well known remedies. Two or three of the smaller patches had wholly disappeared finally after the repeated use of pyrogallie acid, \mathfrak{z} i to \mathfrak{z} i, but the larger part of them had resisted its action. A year ago I began to use upon several of the patches the wash and ointment of bichloride of mercury, and this treatment has been continued with numerous interruptions up to the present time. Under these applications, the elevated

³ *Annales de Derm. et Syph.*, 1883, p. 414.

margins have very gradually sunk down nearly to the general level, and the dull, reddish-brown color has grown pale, but the change has been exceedingly slow, and none of the patches can be said to have become wholly well again. During the use of the applications about the chin, there was a decided attack of stomatitis, so that they had to be suspended for a time and used with much caution subsequently. Very much remains to be accomplished in this case.

CASE IX. A girl of Irish descent, aged twenty. There was upon the left cheek a crusting patch, the size of an almond. The nostrils were thinned and nicked. On the tip of the nose and upper lip were several large, softening tubercles, partly covered with crusts. The disease had been in existence several years. To all of these lesions the bichloride of mercury ointment was applied. The change in their condition which followed was immediate and remarkable. Within three or four weeks, the excoriated surfaces had healed, and the tubercles, both hard and soft, had shrunk down to the general level of the skin. At the end of two months treatment was discontinued, as all appearances of the disease had vanished. Six months later, but a few weeks ago, a new tubercle developed upon the upper lip, at the edge of the nostril, which had broken down into an open ulcer before the patient presented herself again for treatment. This is the only instance of recurrence of the disease which has occurred after this treatment in a spot once apparently restored to a healthy condition.

The three following cases were seen in private practice.

CASE X. A young lady, twenty-one years old, a native of Massachusetts. Five years ago, she was under treatment for lupus of the larynx by Dr. F. I. Knight, and a report of the case may be found in the "Transactions of the Laryngological Association,"

1881, page 13. At that time she had, according to her statement, a sore nose. In April, 1883, the nose became "sore" again; and when first seen by me in October following, there was a large, boggy tubercle upon the tip of the nose and the nostrils were nearly stopped by crusts. She was anæmic and feeble. She had recently consulted Dr. Knight again, who found no disease of the larynx. An ointment of bichloride of mercury, one-half grain to the ounce, was first applied to the diseased parts, which after two weeks was raised to a grain to the ounce. In six weeks the nostrils had returned nearly to their natural condition at the edges, and the tip of the nose was much reduced in size, when it received a severe blow. Great inflammation followed, and the integument sloughed off, leaving an open ulcer as large as a dime. This slowly improved and had nearly healed under a continuation of the ointment, when a month later it again received a hard knock. This was succeeded by exuberant, fungoid granulation of the ulcerated surface, and great swelling of the whole organ. The application of the ointment was suspended, and the part was treated by a wash of tartrate of iron and potash, and a salve of boracic and carbolic acids as a dressing. In February the inflammation had so far subsided that the sulphurous acid treatment was begun, the tip of the nose being kept wet continuously through the day with a cloth dipped in a fifty per cent. aqueous solution of the same. This was used for seven weeks, but as it produced apparently no change in the lupus tissue, it was given up, and the part was thoroughly bored into with a crayon of nitrate of silver. This operation was repeated twice a week for two months, by which time the part had completely healed. During the use of the bichloride there was an attack of mercurial stomatitis, which led to the giving up of this method upon a part so near the mucous cavities.*

* At date of this publication the patient is apparently cured.

CASE XI. An American boy, aged five years. The patient was seen in January of this year. The disease began two years previously on the face and knee, and had made gradual and uninterrupted progress. He had an irregular, circular, elevated patch upon the right cheek, one by one-half inch in area, covered with a thick crust, which had been frequently removed by accident, to form again immediately. Upon the left knee there was a thickened and elevated lesion, of one-half the above size, soft and boggy in consistence, but still covered with epidermis. The general health had not deteriorated. An ointment of bichloride of mercury, one grain to the ounce, was directed to be applied to both patches twice a day. At the end of six weeks the crusts had ceased to form upon the cheek, and both patches had flattened down considerably and presented smooth surfaces. This treatment was continued until the middle of April, when an ointment — salicylic acid \mathfrak{z} iss., vaseline \mathfrak{z} i, was substituted for the morning application of the mercurial salve. Two months later, the diseased portions of skin had returned to their natural level and presented a smooth, but still slightly discolored surface. When last seen, six months after the beginning of treatment, the appearances were as last described, and an application of a solution of salicylic acid in castor oil, four per cent., was directed to be made once a day to the parts, as the only and final treatment.

CASE XII. A girl, sixteen years old, native of Vermont. The disease began eight years ago upon the back of the left hand, and had gradually extended so as to affect nearly the whole arm. It began upon the face two years later. At her first visit in April, 1885, she presented the following appearances: The whole arm to within two inches of the axilla was greatly enlarged, partly by œdema, pitting on pressure, mostly by a firm infiltration, a true elephantiasic hy-

peritrophy. The hand was some three inches thick at the palm. The fingers were enormously bottled, as in advanced dactylitis, and offered a dense resistance to pressure. In the palm, on the back of the hand, and upon the forearm, were very large and highly-elevated, flattened cicatrices, somewhat corrugated upon the surface. Also firm prominences of large extent near the elbow, penetrating apparently below the general depth of the integument, not at all cicatricial in character. There were in addition scattered over the forearm numerous verrucous outgrowths of considerable extent and of a dark color, such as often occur secondarily in true elephantiasis of the extremities. Large areas of integument covering the fingers, back of the hand, and in the vicinity of the elbow, were in a state of open excoriation, not exhibiting much activity or deep ulceration, and partially covered with crusts. This same condition, it was stated, preceded the formation of the cicatricial growths. The central face was occupied by numerous, isolated tubercles, the size of a large pea, many of which were boggy and scaly upon the surface. The lower portion of the septum and the edges of the nostrils were in a state of superficial, open ulceration, and the latter were thinned and pinched. The glands on both sides of the neck were greatly enlarged, and there were marks of old ulceration, now extinct, over the seat of one of them, upon the left lower neck. The larynx was examined by Dr. Langmaid, and found to be in a healthy state. The patient was anæmic, and was reported to have had many attacks of erysipelas of the affected parts. She had had no systematic treatment.

According to the father's report, her sister had, between the ages of two and ten, "similar sores all over," some of which ulcerated through the neck, and allowed the fluids of the throat to escape. The bones of the fingers and jaws were affected. The disease

proved fatal at the latter age. He stated also that his own brother and sister died of consumption, and that his mother had "scrofulous sores."

This case presented such striking examples of lupus lesions of all grades, and at the same time, such marked manifestations of "scrofulous" disease, the deep cutaneous infiltrations, the dactylitis, the condition of the glands, that I asked my colleagues in Boston, Drs. Wigglesworth, Greenough, and Tilden, to see the patient. It was the most remarkable case of association of the two conditions that I had ever seen.

An ointment of bichloride of mercury, gr. i to ζ i, was directed to be applied twice a day to the lesions upon the face, and a dressing of salicylic acid in castor oil, a four per cent. solution, to be worn constantly over the ulcerating surfaces upon the hand and arm. Ten days after the beginning of this treatment, an erysipelatous dermatitis of face and arm, with a decided disturbance of the general system ensued, so that the local remedies were suspended for two weeks. The attack was said by the patient to be identical with those which had occurred several times previously. Two months after the beginning of treatment she returned to Boston from her home. She had gained greatly in weight and strength. The tubercles upon the face had subsided nearly to the level of the skin, and the excoriations about the nostrils had disappeared. All the ulcerated areas upon the hand and arm had healed, and were covered with a nearly normal epidermis. There had been no change in the deeply infiltrated prominences, nor in the dactylitic condition of the fingers. It should be stated that the patient had been taking cod liver oil during this period, and that according to her statement, the disease was generally better in warm weather; but it seemed to me extremely improbable that such marked changes in the lesions

could take place independently of the action of the local remedies.⁵

Although the number of cases here reported is small, and the larger part of the patients were imperfectly under observation and control, owing to the nature of an out-patient service, some positive conclusions may be drawn from their study, I think. The lesions of lupus in their early forms are certainly and rapidly acted upon by the direct application of corrosive sublimate. The tubercular manifestations, large and small, firm and soft, almost immediately begin to undergo a change under its influence. They shrivel and become paler in a single week after its application, and, in the majority of cases, shrink down to the general level of the skin in a month, or, in the case of large nodules, within two months. Rarely has it seemed necessary to prolong the treatment beyond this period. The tissue involved returns to its natural condition apparently in all respects — consistence, color, and epidermal covering. In the more advanced stages of the disease, the ulcerating, crusting forms, I have not been so well satisfied with the action of the sublimate. It has been more uncertain, and always much slower in controlling the progress of the affection. In two cases I was obliged to give up its use, so inert did it appear to be. On the other hand, in some cases its action upon areas of open ulceration has been completely effective. Upon the least advanced or retrograded forms, the dull-red, more or less thickened, glazed or excoriating areas, sometimes extensive, its action is slow but seemingly satisfactory, the skin gradually recovering its natural appearances. In the rare sclerous forms of the disease, like all other remedies, its beneficial effect is extremely protracted, but still unmis-

⁵Seen in September again, the patient's face presented no trace of the former tubercles, the skin of the arm had become entirely smooth, and the hand had resumed its natural condition so far that she could take lessons in piano playing. These later changes had followed the exclusive use of the application of salicylic acid.

takable. With regard to the durability of its action or the completeness of the cure which follows its use, it compares favorably, in my opinion, with other remedies. I do not speak with any certainty upon this point, for my experiments with it, at the farthest, run back but eighteen months, and relapses among out-patients often fail to be reported, but the cures have presented every appearance of being complete, so far as one can judge by the external condition of the skin, and I have seen but a single point of recurrence among all the cases. If its use be continued long and thoroughly enough, a point not yet sufficiently determined, I see no reason to doubt its absolute power over the parasitic nature of lupus. Concerning the best form of application, I am convinced that the sublimate ointment is much more effective in tubercular and all closed forms of lesion than the wash. It needs to be applied but twice a day to act continuously upon them, and the agent penetrates more deeply, I believe, in this form than in that of aqueous solution. Upon open, ulcerated, and crusted surfaces, I have chiefly used the latter, as it seems more appropriate to do so, although I have no satisfactory reason to offer for this opinion. Neither do I feel at all certain that I have employed the remedy in either form as strong or freely as I might have done safely and with more rapid results. The only objection to a more constant or a continuous application, or to a greater strength than one or two grains to the ounce of fat or water, is the possibility of the absorption of the drug to a dangerous degree. In the few accounts of its use in the disease which I have seen, it has been stated that no such results have followed; but in two or three of the cases under my observation, a decided stomatitis, salivation, red line about the edge of the gums, and swollen approximate glands, have ensued after the use of the above preparations for two or three weeks. This result never occurred, however,

except when the disease affected the regions immediately bordering upon the mouth, and always rapidly subsided when they were omitted for a short time. In this region, so frequently the seat of the disease, such a danger is a decided objection to the use of mercurials, but with proper caution they may be effectively employed. I have seen no evidence of more general absorption or systematic poisoning, and I shall not hesitate to employ hereafter still more concentrated and continuous applications. I have had no experience with other forms of mercurial preparations, recently advised by Unna and others, nor do I see how they could be more effective than those of corrosive sublimate used in the above cases. I am desirous, however, of testing the effect of injecting its solution directly into the lupus lesions.

With the action of sulphurous acid in the disease, so strongly recommended by Mr. Hutchinson of London,⁶ I have had but little experience, having employed it for a short time only in but three cases of the affection. Its powerful suffocative effects on inhalation when applied upon or about the lower face, its rapid volatilization when used as an evaporating lotion, and the speedy deterioration of its aqueous solution, are strong objections to its selection as a parasiticide in this affection. Possibly its solution in oil may be a more serviceable preparation. In any form its action would rank below that of bichloride of mercury in effectiveness, and its only superiority lies in its absolute safety when used over extensive areas.

Only recently I have been studying the action of salicylic acid upon the disease, in consequence of a notice of its employment by Marshall.⁷ I have used it in solution in castor oil in three cases, in strength varying from two per cent. to four per cent. It dissolves readily when warmed with the oil. I have kept pieces

⁶ Medical Times and Gazette, April 26, 1884.

⁷ British Medical Journal, June 25, 1884.

of sheet lint saturated with the above solutions upon lesions of all grades and of considerable extent, and in every instance it has been well borne, forming indeed a bland and soothing dressing to the most active ulcerating surfaces in the affection. In one case only have I used it upon parts not previously treated by parasitocides, and in this (case xii) extensive areas of skin in a state of excoriation rapidly healed under the continuous dressings. Large groups of tubercles also were dwindling away under the same treatment, but I consider my experiments with it all too brief and limited to permit any conclusions to be drawn from them as to its value.⁸ If its activity and certainty as a remedial agent shall be demonstrated, it will be of great service because of its non-irritative and absolutely harmless action upon the skin and general system, however extensively or continuously employed.

I present this very limited experience in the use of parasitocides in lupus and the meagre conclusions I have ventured to offer, to this association, in no sense as a satisfactory demonstration of their value, or as positively confirmatory of the bacillus nature of the disease; but so far as they go they have led me to form a decided opinion in favor of both, and I have little doubt that the continued study of the subject will lead to most valuable improvements in the therapeutics of the affection. The desire that my colleagues here may take an active and immediate interest in settling this important question must be a sufficient excuse for bringing to their notice so imperfect a contribution to the subject. Should farther experiments confirm the favorable impression produced by the recent trials of these remedies, what a revolution may they not be foretelling in our future power over, not merely other forms of tuberculosis, but syphilis and leprosy as well, by direct medication.

⁸ See foot-note to page 17.