PROFESSOR KOCH'S REMEDY FOR TUBERCULOSIS.

A LECTURE

ON

THE NATURE OF LUPUS, WITH ESPECIAL REFERENCE TO ITS RELATION TO TUBERCULOSIS.

*Delivered in the Post-Graduate Course at the Examination
Hall, January 27th, 1891.*

By JONATHAN HUTCHINSON, F.R.S., LL.D.,
Ex-President of the Royal College of Surgeons.

[MR. HUTCHINSON, at the opening of his lecture, made some remarks on "rhinoscleroma," in which he said the nostrils and upper lip become involved in a lumpy, thick, indolent growth, which is certainly infective, almost as certainly inflammatory in its beginning, and very prone to return after operation. This disease is not absolutely restricted to the parts from which it takes its name. Although very different in many features from other forms of lupus, it is easy to prove that in its main features it comes much closer to lupus than to any other malady, and that it has good claims to be one of the family. He then continued as follows.]

We can no longer say with any regard to pathological accuracy that the disease which eats away the tip of the nose and the alæ nasi, and is attended by the brownish-yellow apple-jelly deposit, is "lupus," and that the others have nothing to do with it. We can no longer speak of a "true lupus," and place the other maladies apart as if they bore resemblance only, and had no real relationship. No, the relationship is real, and its bond consists in this, that all these various maladies depend upon inherited tissue vice. That inheritance renders its possessors liable to chronic inflammations, which assume specialised peculiarities in each in connection with the inheritance of other tendencies, and modifiable also by the part of the body on which they are first displayed. In some connection, as yet very ill understood, it would appear that these inflammations are peculiarly apt to be attended by the development of the tubercle bacillus. Our knowledge does not permit of our being in any way definite as to what the relationship of the two really is. We must wait for further facts. I am bound, however, to repeat what I have already said, that, looking at the facts as we have them from a clinical point of view, they do not favour the belief that infection with the tubercle bacillus is the sole and efficient cause of the disease which we call "lupus."

The possession by inheritance of peculiarities as regards cell nutrition, and proclivity to its disturbance, seems to me at the basis of all maladies which assume the lupus type. It is also, doubtless, of many others. In lupus, that which is inherited seems to be a susceptibility to external influences, above all to that of cold, but sometimes to that of heat also. This appears to me to be the key to a real knowledge of the nature of the disease. I have suggested over and over again that lupus erythematosus is after all only a modified form of chilblain. Amongst the modifications which it has received there is one which I admit to be all-important. It is this: that the products of the inflammatory action—or perhaps it would be safer to say its attendants—become capable of spreading the disease by contagion. Chilblain inflammation is but little, if at all, capable of infecting the adjacent tissue; but it has become so when it assumes the name of lupus erythematosus. This is its chief peculiarity. Since I had the pleasure of addressing you last week, a case has come under my notice which so emphatically illustrates these views that you will almost suspect that I have invented it. I show you the drawings from the case of a lady a little past the middle period of life, residing in Essex. You will see that her hands are covered with patches of dusky erythema which affect the palmar surfaces more than the dorsal ones. Her fingers are swollen, and their tips are

peeling and excoriated. The nails are thin, softened, and flattened out by the swelling of the fingers. Her hands are disabled, and she cannot dress herself without the assistance of her maid. We turn to her face, and on the nose and cheeks we find the characteristic bat's wing patches of lupus erythematosus, and a similar condition involves both her ears. Her affection began in the early part of the present winter, which, as you know, has been exceptionally cold. In reference to the possible influence of season, however, it must be remarked that the patient has been living in warm rooms and surrounded by every comfort. Shall we call the disease lupus erythematosus or acute erythematous chilblains? In one sense it matters but little what we call it, for in the beginning I hold that they are the same thing. As regards prognosis, however, very much depends upon the name. If it be chilblains only, it will probably pass wholly away when the warm weather comes; if it be lupus, it will be relieved by warmth, but not cured. It will demonstrate infective qualities, other patches will occur on adjacent parts, and it may probably prove incurable. I have myself no doubt whatever that the disease has to some extent passed into the lupus condition, and that the prognosis just suggested will be the one realised. At the same time, I have no doubt that the red patches which you see on the hands are to all intents and purposes acute chilblains, and that they will pass away when the warm weather comes. In saying this I am not speaking at haphazard. A lady whom I have been attending for the last three years for patches of lupus erythematosus on her nose, cheeks, and chest, had her disease begin during cold weather by an attack of inflammation of the hands, attended by cracking and excoriation of their tips. Very soon after this a patch formed on her nose, and, although her hands have long since got well and continued so, the disease in most typical conditions still continues on her face. This will be a suitable place for me to tell you that both these ladies had enjoyed very fair health through life up to the date of the attacks which I have described. Both of them had suffered from chilblains in childhood, but in neither had the proclivity been severe, nor had it persisted in adult age. In both of them, as I hold is usual in lupus erythematosus, there was an overwhelming family tendency to tuberculosis. Miss G., the first patient, had lost a brother and a sister from phthisis, and, to use her own expression, "all her father's family excepting himself had died of it." She herself, on account of chest delicacy, had been obliged to take cod-liver oil for six months. In Mrs. K.'s case (the second one) the facts were almost equally strong, and she herself, although a lady of great energy, was fragile and delicate. You will ask, on the hypothesis that lupus erythematosus is not a bacillary disease, and on the more than hypothesis that chilblains have nothing to do with bacilli, what is the bond of connection between tuberculosis, lupus erythematosus, and chilblains? I must reply with what is only a conjecture. The lupus and the chilblains are directly and essentially connected as depending on the same kind of cell organisation and vascular endowment. They are influenced by the same kinds of disturbance of vascular equilibrium—such, for instance, as sex, inherited delicacy, etc.—which are at the basis of Raynaud's symptoms. Their connection with tuberculosis is probably indirect and non-essential. They imply and reveal a state of constitution in which the bacillus, once implanted, will easily flourish. The discoveries of the future may perchance demonstrate a closer connection than this, but for the present this is all that we can say.

Amongst the best established and yet the most remarkable of the laws regulating the transmission of tendency to disease are those which produce what are called "family diseases." By this term, in the special and conventional sense, it is not meant that there is tendency to the recurrence of the same malady in successive generations, but that in one and the same family of children several examples of the same malady are produced.

Family diseases, using the term in this sense, are all more or less peculiar; although they approach and resemble, they are never exactly the same as, those which are transmitted from generation to generation. Ichthyosis is one of the best examples of what is meant; but deaf-mutism, colour blindness, retinitis pigmentosa, and a host of other maladies also

afford examples of it. Family diseases are by no means always congenital; indeed, as a rule they are not so, but wait until the patient has attained a certain age, and until the tissues have been subjected, so to speak, to a certain amount of trial in the highway of life, before they are developed. Then it is found that they will not bear ordinary exposure. The skin becomes dry and harsh in the case of ichthyosis, or the retina speckled with pigment in the case of that of retinitis pigmentosa. Although, as I have just said, these family maladies are never the exact reproduction of any other recognised disease, yet they have, I think, invariably their prototypes, which they resemble, and which probably stand to them in some mode of parental relationship. We must suppose for their explanation that in the father and mother of children so affected certain peculiar inheritances meet and become welded together in their offspring. Amongst the minor forms of disease which come under this law of family production I believe that we must count some cases of exaggerated tendency to freckles and some others to chilblains. Probably there is a family form representative of nearly all the types of intrinsic disturbance of health. I exclude by the word "intrinsic" all maladies caused by accidents or due to contagion. Now, it happens that there is a family disease of which the following are the main features:—The children—several in the family, and always all of them apparently healthy at the time of birth—become in early childhood liable to the production on a most extraordinary scale of freckles. At first the disease is thought to be only freckles, and in many cases it stops there; but in some others the freckles inflame and become vascular, and ulcerations occur, and when they heal little vascular tufts—stigmata—remain. The face is always the part most severely affected, and exposure to either sun or cold is the influence which exaggerates the disease. The tip and alae nasi are often attacked, and then sometimes to a considerable extent destroyed. In later stages bossy masses of granulation tissue may form on the ulcerated surfaces, and later still, in exceptional instances, the ulcers may assume the condition of epithelial carcinoma. Some of the milder cases of this malady recover, and many probably survive without actually recovering; in not a few, however, it ends fatally in an early period of adult life. It fell to my lot, through the kindness of Mr. Balmanno Squire, to have the opportunity of examining two children who were the subjects of this malady, and who were the first in whom it had been observed in Britain. I cannot tell you the interest which they excited in me. "Here," I exclaimed, "we have the family form of lupus." It was a disease certainly not common lupus, but partaking of all its characters, affecting the same parts, evoked by the same class of causes, and tending to the same results. Subsequently, when I became acquainted with cases which were attended by pigmentation only, I was inclined to modify the expression, and to say that it was a family form of freckles. But later still, reviewing the facts which have since been so ably collected by numerous observers, I am inclined to go back to my original position, and to hold that Kaposi's disease is really and essentially a family form of lupus. You will see that it unites in itself lupus vulgaris and lupus erythematosus, being symmetrical, but at the same time showing a tendency to destroy by ulceration. Its relationship to freckles is, of course, undoubted, and I put it aside, not as in any degree ignoring it, but simply because the relationship to lupus is much more important. Probably after all the tendency to freckles, when extreme, reveals an irritability of cell structures of the same kind as that which lupus discloses. I need scarcely remind you, for it has been often remarked, that strumous children are very liable to freckle.

The argument which I adduce from this demonstration of a family form of lupus is that the latter cannot be a disease due to the accidental implantation of a parasite; if it were so it could not have a family form. As to what the value of the argument may be, and as to the cogency of the facts on which I have built it, I leave them for your consideration.

It remains to say a few words in defence of the attempt to constitute a family of lupus diseases, instead of allowing one single member of it to arrogate that name, and leaving a whole series of cognate affections to receive each for itself a distinctive designation. It is quite possible that I have not succeeded in convincing you—or at any rate all of you—that

the maladies of which descriptions have been given are really all of them in their essential nature lupus. I may, however, claim to have brought before you clinical evidence that these several maladies do exist. Even of the very rarest I have been able to produce more than one case (with the exception, perhaps, of Dr. Morrow's), and thus to prove that the malady in question keeps close to its type. Whilst this keeping close to type is true of a certain number of cases in each group, I think I may also claim to have proved by demonstration that there are ill-marked or mixed examples of every one of these type forms which constitute connecting links between them. If now we refuse to recognise a lupus family, if we continue to insist that there is a "true lupus," that lupus erythematosus is distinct from lupus vulgaris, and that the other diseases which I have claimed as belonging to the same family are yet further apart from it, what is our position? It seems to me to be this: that we shall have to continue to use a number of separate names, and to invent many new ones, burdening the memory of the observer in each instance with detailed descriptions, and at the same time not giving the least assistance by nomenclature as to the real nature of the things described. We shall be involved in what is surely an *a priori* improbability—the suggestion that there are a large number of separate maladies resembling each other in some of their features, but in reality wholly different, having neither known parentage or relationship, and being in many instances *sui generis*. Such would certainly be the position, if we refuse to accept a lupus family, of the maladies known as rhinoscleroma, lymphangioma pigmentosum, Kaposi's disease (or xeroderma pigmentosum), tuberculosis papulomatosus cutis, and a number of others. If we accept, on the other hand, the word lupus as the family name for them all, coupling with it in each instance some distinctive epithet, this laboriously contrived confusion is avoided. The diseases in question, as I have already, and I fear at too great a length, endeavoured to prove, have all of them these features in common. They attack chiefly those parts of the surface of the body which are exposed to the influence of cold and irritants, and they occur by preference to those who are by inheritance or acquisition of somewhat feeble organisation, and who are proved to be in greater or less degree liable to the attacks of the tubercle bacillus. Every one of the diseases named is developed most commonly in the period of adolescence. They are all infective in their local qualities, and continue to spread slowly for an indefinite number of years; and it is possible in every one of them that after prolonged duration as a non-malignant chronic inflammation a tendency to cancer may be shown. Every one of them disorganises the tissues which have been affected by it, and leaves behind it a scar. Concerning almost all of them, we freely admit that syphilis may produce very close simulations, and at the same time we utterly deny that their type forms have any connection, remote or otherwise, with such taint. Finally and most importantly, it is true that if the word "lupus" were used in the sense for which I have pleaded, it would in every case to which it is applied afford a clue to a correct treatment. With the exception only of the most erythematous forms of erythematous lupus, destruction by local measures of the infective material is required in every case, and, without any exceptions at all, attention to the general health by the use of a liberally tonic regimen is requisite, together with the protection of the parts from all external irritation, and more especially from cold. As regards prognosis, it is, speaking in general terms, the same in all. Very few cases will be really cured, and in almost all instances—even under the most careful and persevering treatment—an inveterate tendency to relapse, or to a reproduction of the malady, will be witnessed.

I might add that all diseases of the lupus family are liable when inflamed to have the inflammation assume the character of erysipelas. This is a point which many observers have noted; and, further, it has been generally agreed that after attacks of erysipelas the lupus is usually in a much improved condition. This was an article of creed which the late Mr. Startin was very fond of expressing, and excepting in erythematosus—in which such attacks may prove fatal—I have always been accustomed to hail erysipelas in lupus as a direct gain to the patient. We must, I think, keep this

fact in mind when we examine the results of Koch's treatment.

Before proceeding to endeavour to estimate the different measures of success attending the different plans of treatment for lupus, it may be well to say a few words as to the grounds upon which such plans have been based, and what may be reasonably expected of them. My argument has been that lupus processes of inflammation originate in persons who are locally or constitutionally of feeble cell nutrition and prone to vascular disturbance. That a parasitic bacillus attends many of them is to be freely admitted; that its implantation constitutes the initial stage of lupus may be strongly doubted. The influence of enfeeblement of the general health, of exposure to weather and to cold as causes of the aggravation of lupus, must be admitted by all without a moment's hesitation. It is an old observation that those who live in country districts and are exposed to weather suffer more from lupus than those who dwell in towns. It is also a matter of quite general knowledge that most forms of lupus become worse in winter. Applying these facts to the development of principles of treatment, we should expect that much might be done by attending to the general health of the patient, and by protecting him from the influence of cold. Such is, I may say, undoubtedly the fact. Whatever increases the general tone does tend to restrict the lupus process, and to favour the healing of its ulcers. If the patient can be allowed to remain in warm rooms during the winter, or still better, if by changes of climate he may be enabled to enjoy summer weather all the year round, the chances of recovery from lupus will be very much increased. As regards lupus vulgaris, I cannot think that it is reasonable to expect a cure, unless advantages of this kind can be obtained. If the patient is still to be exposed to a defective dietary and hard life, if the vigour of his nutrition is to diminish rather than increase, there will then be no chance of his recovery from his lupus. The causes which set it agoing still remain in action, and they, in conjunction with his constitutional tendency, would begin the disease anew, even if by successful surgery it had been completely cured. As well hope to prevent the recurrence of chilblains in cold weather as that of lupus in a patient who has once suffered from it, and in whom no changes can be made in the conditions of life. In reference to these assertions, I might ask attention to the results of treatment of lupus in two special classes of cases in which I think nothing even approaching a cure is ever obtained. I allude to those first—a large class—in whom lupus begins in young persons who are obviously of very feeble health; and secondly, to those—a small class—in whom it begins in the aged. Senile scrofula in all its forms is less amenable to treatment than that of young persons, for it occurs at a time when the powers of life are on the wane, and when it is impossible to do anything definite in the way of their reinvigoration. On the other hand, the cases of lupus in which we do obtain cures, or in which we approach them, are those in which the disease begins in young persons or in early adult life, and is not associated with any conspicuous enfeeblement of health or of circulation. In these cases the advance of years is, if accompanied with suitable local and constitutional treatment, in our favour. The patient gets to eat and to drink more, and as the period of growth ceases, the constitution often settles down into a state of more assured vigour. To use a popular phrase, "he grows out of his delicacy."

In what has just been said I have been speaking solely of the constitutional element in lupus; but we must not forget for a moment that there is another, and even more important one—I refer, of course, to its locally infective tendencies. In a few cases constitutional treatment, or the improvement in health stamina which comes with advancing years, is sufficient to put an end completely to the lupus process. Examples of perfectly healthy scars without the least fragment of lupus tissue remaining, and without any tendency whatever to relapse in winter, may not infrequently be seen under these circumstances. Very often they are in patients who have suffered from the disease on several parts at once, and in whom some patches have undergone cure, whilst others have persisted. Although not very common, they are abundantly sufficient to prove the point that the lupus process

may, in exceptional instances, come spontaneously to an end. In the majority of cases, however, it may be freely granted that whatever be done for the benefit of the general health, it does not cure the lupus patch. The latter continues, in virtue of its own infective elements, to spread at its edges and to produce fresh satellites. It is here that surgery comes to our aid. By treating the lupus nodules exactly as we should those of cancer or any other material known to be infective, we can do very much towards effecting a cure. Undoubtedly the surgeon takes the most conspicuous, if not really the principal, share in the cure of lupus. If I speak a little doubtfully on this point, and if I seem to rate measures of constitutional treatment more highly in comparison with local ones than I have done in some of my former writings on lupus, it is because I have become more and more convinced that it is absurd to expect a permanent cure of a disease by measures which do not include the removal of its original causes. The results of surgical treatment, however careful and persevering, are, I fear, on the whole, strongly confirmatory of this impression, for however excellent may be the cure at first obtained, the disease almost invariably relapses on fresh exposure to cold.

I will now pass to consider the details of the local measures which have been chiefly employed. We will, if you please, consider that enough has been said as to the paramount importance of protection from cold and attention to the general health. The different measures of local treatment have all had a common object—that, namely, of getting rid of the infective material. When I was a student at the York Hospital, I was taught to use for this purpose a chloride of zinc paste, sparingly and thinly applied, and I have never since seen better results from any treatment than, as far as my memory serves me, we occasionally obtained from this. Its use, however, is inconvenient on some of the parts which lupus most commonly attacks—the nose, for instance.

When I came to London and worked as assistant to the late Mr. Startin, at the Blackfriars Hospital, we treated all our lupus patients by repeated applications of the acid nitrate of mercury and an arsenical paste. If the surface were not broken, the acid nitrate was applied; but if there was an ulcer, then it was our practice to fill it with the paste. These applications were made over and over again. Our cases were very numerous and attended frequently, and half my occupation many an afternoon consisted in making these applications. The patients always took tonics and cod-liver oil, and often, for many years together, minute doses of mercury. The results were on the whole very satisfactory, but the treatment was tedious and the periods of attendance very long. When some years later the patients at this hospital passed under my own care, and I had also at the Metropolitan Free and at the London Hospital many other cases, I tried to expedite the cure by the use of the actual cautery instead of the acid nitrate. I had cautery irons of various sizes made, and we used them, under an anæsthetic, very freely. This was long before the introduction of M. Paquelin's ingenious little instrument, and at that time we used to heat our irons in the fire. At the time I thought this method, as regards expedition, a great improvement, and wrote strongly in its favour. I recollect that my friend, Dr. McCall Anderson, of Glasgow, also took it up, giving figures of my cautery irons. Somewhat later, Mr. John Gay made the radical proposal that lupus nodules should be cut out with the knife, and treated exactly as we would those of cancer, but unfortunately the inapplicability of this excepting to a small number of cases was only too obvious. You could not cut away the greater part of a man's nose or cheeks. Later still came the introduction of the process of erosion by means of Volkmann's scoops. This attained a very wide popularity, and it is indeed a very efficient method. The general verdict would, I think, appear to be in its favour over all other methods of local destruction. For myself, I may admit that I doubt if it possesses any advantages over the use of the actual cautery or the acid nitrate of mercury. I was accustomed some years ago to use it frequently, but I find myself now falling back more and more on the older methods. Instead of the arsenical paste which Mr. Startin employed so much (Dupuytren's paste), I now use the liquor arsenicalis. The latter may be painted on with a camel-hair pencil, and, if the

surface be not too large, the patient may be trusted to do it himself. It does not perhaps matter so much which of the several methods of getting rid of the lupus tissue we adopt, provided we do it very freely, and repeat it as often as is necessary. I have a decided impression, however, that the sores left after the acid nitrate or the actual cautery heal better than after the scoop. In many instances undiluted carbolic acid, freely and repeatedly applied, is very efficient, and it has the great advantage that, if the patient be intelligent, he may be trusted to make the applications. I am quite aware that in this sketch I have not enumerated by any means all the methods which are employed in the local treatment of lupus. There are many others, but I think that for the most part they are of the same class. I must not, however, omit to mention that Dr. Unna, of Hamburg, some years ago introduced a method by the application of plasters containing salicylic acid, which for a time obtained great favour with some well qualified to judge. I cannot speak from much personal experience regarding them, but have formed the impression that they are not less troublesome nor more efficient than some of the other methods. In this connection it may be well to state that whatever in the nature of a plaster or other application protects a lupus patch from the influence of air and keeps it warm invariably does good. This is of especial importance in reference to lupus necrogenicus and all lupoid affections of the extremities. As regards the prognosis of lupus, it is at once to be candidly admitted that examples of complete and permanent cure are rare. At the same time it is to be asserted that under favourable conditions and perseverance on the part of both patient and surgeon, great improvement may be obtained, the disease kept in abeyance, and a condition secured which nearly approaches a cure. In cold weather, however, and if through any influence the state of the health is lowered, relapses are almost certain to occur in almost all cases. I have recently had under observation a lady who when young was quite cured of lupus under the old methods by the late Dr. Anthony Todd Thompson. She enjoyed thirty years of immunity, and has only now relapsed when her tissues and her circulation have become enfeebled by age.

We must now engage in the most interesting question of all in reference to the treatment of lupus—that is, the effect upon it of the injections of Koch's fluid. As all are aware, it is now about three months since this remarkable fluid—a glycerine solution of substances resulting from the pure cultivation of the tubercle bacillus—was placed in the hands of the profession. It was reputed to have the power, when used by means of hypodermic injection in most minute quantities, of causing the cell structures adjacent to bacillary deposits to inflame. Very soon after its introduction it was announced that the most remarkable demonstrations of its effects were to be obtained in cases of lupus vulgaris. In these it caused the patches to inflame and certain small fragments to undergo necrosis, and after this a process of healing set in which left the patient, if not absolutely cured, at any rate in a greatly improved condition. During the last three months trials of this remedy have been very extensively made, and I now purpose to attempt some sort of brief summary of their results. I know that it will be said that it is too early to arrive at any conclusions, and, in a certain sense, this must be admitted. Very definite results have, however, on some important points been obtained, and it is highly desirable that, for the guidance of future investigators, these should be stated. My own personal experience—that is, as regards patients under my own care—has been very small, but through the kindness of many friends I have had opportunities of collecting facts over a tolerably wide field. In endeavouring to report upon them it may, I think, be stated in the first place that the original statement that the injection of Koch's fluid does cause lupus patches to inflame has been well borne out, but not without some striking exceptions. In a case under my own care, the portraits of which I have shown you, and concerning which the diagnosis of lupus vulgaris cannot come into any question, no effect whatever was produced on the patches, although the patient's temperature rose on every occasion after nine or ten successive injections. In this case Dr. Heron made the injections and examined the patient at all stages with the utmost care. I avail myself of his skill as a diagnostician in reference to

diseases of the lungs to assure you that the patient had no indications of pulmonary tuberculosis which would explain the recurrence of febrile reaction. After about a month's treatment, the injections having ceased to produce fever, we laid them aside, and the patient is now exactly as he was before they were begun. I have received information concerning more than one case in which somewhat similar results were observed. In one, about which Dr. Abraham is my informant, neither febrile reaction nor local reaction resulted, although the patient displayed nodules of the apple-jelly deposit of lupus in considerable abundance. Without an exception all my friends report that in the cases in which the lupus patch has been made to inflame the results, as regards its subsequent improvement, have been very definitely good. Large areas, which had been previously swollen and covered with scab and crust, have been made to heal, and the resulting scar has been flat and sound. No one, however, ventures to report an instance of complete cure. Of the cases which have been shown to me as the most satisfactory, I am bound to say that in every one there has been evidence at some part of the edge of the remains of lupus tissue, ready, I do not doubt, to start into fresh growth on the slightest provocation. In reference to this point I have to make a most important assertion, and that is, that the treatment does not always influence the essential element of lupus. The brown apple-jelly-like deposit which is universally acknowledged as the most characteristic of the lupus conditions sometimes remains untouched. This assertion is illustrated by a case which Dr. Heron was kind enough to show me, and in which he had practised injections some ten or twelve times. In this instance the inflammatory swelling of the parts affected had been quite got rid of, and the patient considered herself very much benefited. Nodules of lupus were, however, scattered about her cheeks in a conspicuous manner, and had she come under my care without my knowing anything of the previous treatment I should certainly have regarded her as an ordinary case of lupus still standing in need of efficient treatment by either the cautery or spoon. In the case which Dr. Gayton was kind enough to send us last week, and which had been under Mr. Watson Cheyne's treatment in King's College Hospital, and had received great benefit, you had equal opportunities with myself of judging whether it could be called a cure. The lupus edge was still there. As substantiating my statement that the treatment does not always destroy the most characteristic part of the lupus formation, I might quote from a letter from Mr. Waren Tay, of the London Hospital, who, speaking of a case in which great benefit has been obtained, remarks "that there still remain nodules which I should much like to attack with the scoop." The cases which appear to derive the greatest benefit are those in which there is most of inflammatory swelling, and in which the more specialised elements of the lupus process are least abundant. You will see the bearing of this statement. Should it be supported by future facts we shall be obliged to suspect that the remedy is, after all, one for certain conditions of the inflammatory process, and not for tuberculosis. Even in this position, however, it is possible that it may still prove of great help to us in the treatment of certain forms of lupus. I am not aware that it has yet been tried in any of the cases of what has been described as perfectly quiet lupus—such, for instance, as those of which I showed two portraits illustrating single patch lupus occurring on the cheeks of healthy persons, characterised by a thick growth of apple-jelly, and by the entire absence of any surrounding inflammation. These cases would be very suitable ones in which to test the power of the fluid in attacking the lupus growth itself; and from what I have seen thus far I quite expect that they would escape its influence. In the most rare forms of lupus the remedy has not yet been tried. On lupus erythematosus, however, a good many experiments have been made. It was foretold by those who believe that what they call "true" lupus is bacillary, and that lupus erythematosus is not so, that the fluid would have no effect on the latter; and, in the main, this prognostication has been fulfilled. In a very marked case under my own care, and in which Dr. Heron was kind enough to carry out the treatment, the patient had good febrile reactions after repeated injections.

but without any inflammation of her lupus patches. This remarkable result was, perhaps, explained by the supposition that the lady had tuberculosis of the lungs as well. She was, as is usual in lupus erythematosus, of a phthisical family, and she had herself been treated for suspicious symptoms. In her case, a week after we had abandoned the injections in the belief that they were doing no good, the erythematous patches on her face suddenly disappeared almost wholly. A number of discs on the upper part of her chest, however, some of which were so thick and definite that some observers were inclined to regard them as lupus vulgaris, remained wholly untouched. She had had nine or ten injections and latterly in full doses. I have seen this patient to-day, and her face patches are already returning to their first condition.

Apart from the question of its direct influence on the lupus itself, some collateral observations of much interest have been made as to the possible results from Koch's fluid. I am told that it has repeatedly caused general erythematous eruptions on the skin and in some nodular effusions into the cellular tissue. In one case the inflammation of the lupus (on the face) passed into unquestionable erysipelas of a rather severe type, and the patient was for some time in danger. In two cases, at least, during the febrile reaction old chilblains became again inflamed.

If we are obliged to report that nothing that can be called a cure of lupus has yet been obtained in London practice, it may seem unnecessary to ask whether cures are lasting. On this point, too, however, I am sorry to say that some evidence is already forthcoming. I fear it is the fact that relapses occur very quickly. The patient who was taken to Berlin by Mr. Malcolm Morris and Dr. Pringle, and was for a time supposed to be almost cured, is now, I am assured by both the gentlemen concerned, in a condition almost as bad as before the treatment.

If, on the whole, we are obliged to return a qualified verdict as regards this method of treatment in London, it by no means follows that it may not in the future be put to some use. On the contrary, it has in many cases done very great good, and no one can doubt that the fluid possesses very remarkable powers. It may be that in the future we shall learn to combine the older methods of destruction of the lupus deposit by means of cautery or caustic, with suppression of the attendant inflammation by injections. What I have seen would certainly lead to the belief that some patients are by the injections brought into a condition much more favourable for surgical treatment than they were before. The ill effects of the treatment on the general health, although obvious and considerable for a time, seem to pass away. No one has reported to me any instance of permanent damage. I may confess that nothing which I have seen leads me to be hopeful that very prolonged periods of treatment will avail more than short ones. If febrile reaction has ceased to occur, I do not think that there is any further hope that the lupus nodules will be attacked. On this point, however, as well as on many others, we need further experience. Amongst those to whom I have been most indebted for the facts upon which the preceding statements are based are Dr. Heron, Mr. Watson Cheyne, Mr. Waren Tay, Dr. Gayton, Dr. Radcliffe Crocker, Dr. Pringle, Mr. Malcolm Morris, Dr. Colcott Fox, Dr. Abraham, and Mr. James Startin. To these gentlemen you and I are alike indebted for the opportunities they have afforded us of seeing their cases this afternoon. For myself I cannot sufficiently express my sense of the compliment they have paid me in placing their facts at my disposal, and giving me leave to make my own criticisms. I hope that I have not been premature in expressing the opinions which I have done. If I have spoken with less enthusiasm of the results of Koch's treatment of lupus than it really deserves, I can only say that it will give me great pleasure in the future to change my opinions. By the kind permission of the two Colleges we shall meet in this well-lighted and beautiful theatre every Tuesday afternoon for the next five weeks. On any of these lecture days cases illustrating Koch's treatment of lupus will be welcomed, by whomsoever they may be sent, and those will be most welcome which come nearest to demonstrating completeness of cure. It is only by combined effort and by the public examination of the facts that satisfactory conclusions can be reached. Although, as you know, these lectures are not in

any way under the sanction of the Colleges, nor does their Committee of Management incur any responsibility in connection with them, yet I feel sure that this use of the theatre, which they so liberally allow us to occupy, is in entire consonance with its original destination. We are doing our best to elucidate one of the most important pathological questions of the day.

CASES AT PADDINGTON GREEN CHILDREN'S HOSPITAL.

FOURTH REPORT.

PREVIOUS notes of the following cases have been published in the BRITISH MEDICAL JOURNAL of December 13th and 20th, 1890, and of January 3rd, at page 22. All ten cases have since received several injections, except Case VII, and that girl has been injected once only during the last three weeks. All the patients have much improved, except that same Case VII and Case IX, in which very little improvement has been manifested. We are again indebted to the notes of Dr. Guthrie, the Registrar, and to Mr. H. L. Lack, the House-Surgeon, for many particulars respecting the cases.

CASE I.—W. P. Eight injections during the last three weeks (making seventeen altogether). The three last times each injection consisted of 2 centigrammes. The temperature never rose above 101.4° F., except on the last occasion of all, when it rose to 104.2°, and continued high for eighteen hours, with subsequent rapid defervescence. He vomited seven times during those eighteen hours, and had severe abdominal pain. The abdomen is now soft; the wound nearly healed. His general health has greatly improved. The boy looks rosy, and has a good appetite.

CASE III.—F. C. Nine injections during last three weeks (making eighteen altogether); quantity increased up to 12 milligrammes. Still reacts slightly; the temperature has never recently risen above 101.5°. The eye is well. The strumous nodule over the knee has nearly disappeared. At the elbow two small, local, well-defined abscesses (not yet opened) are manifest, but there is no general enlargement of the joint, of which the movement is tolerably free. General health greatly improved.

CASE IV.—E. P. Eight injections during three weeks (making sixteen altogether). The quantity injected has been increased up to 7 milligrammes. Generally reacts slightly; after one injection the temperature rose to 103.2°. The radius and sinus running down to it are both slightly improved. Discharge almost ceased. General health good.

CASE V.—E. C. Nine injections during three weeks (making nineteen altogether); the quantity in each increased to 4 centigrammes. No reaction after any recent injection. The enlargement of the iliac fossa has greatly lessened. January 21st. A small sequestrum has come from the sinus in the back this morning, and a probe being passed inwards 2 inches touches dead bone near the sacro-iliac joint. General health good. Is shortly going out, and will then be injected twice weekly.

CASE VI.—C. N. Has had nine injections during last three weeks, making nineteen altogether; the quantity injected has been increased to 25 milligrammes on two occasions. These caused no rise of temperature, but great pain in the abdomen. The quantity injected lately has, therefore, been reduced to 2 centigrammes, which does not give abdominal pain. The sinus has quite healed, and all thickening at the hip has disappeared. The joint seems firmly ankylosed; general health very good; the improvement in this case is most marked.

CASE VII.—A. A. After December 30th the temperature rose to 103°, and remained high for nine days. Meanwhile, pain at the left knee and hip-joint became marked; there was fulness in front of the hip-joint, and the upper end of the femur became much thickened and tender. Chloroform was given on January 8th, and the sinus leading to the front of the hip was opened up and explored with the finger. It led to the neck of the femur, which was partly bare. All the thickening about Poupert's ligament and around the sinus had disappeared. Large drainage tubes were inserted, and extension splint and weight put on. On the following day the temperature became normal, and remained so with slight diurnal fluctuations until January 15th, when one injection of 4 milligrammes was made; the temperature subsequently rose to

101.4°. No injection has since been given as the temperature has been irregular, varying between 99.0° and 102.0° daily. The child, however, manifests no signs of general improvement; she has disease of the hip-joint, probably produced by extension from the suppurating glands. The discharge from the sinus is much increased since the last injection.

CASE VIII.—L. B. Eight injections during the last three weeks (making eighteen altogether). The quantity has been increased up to 4 centigrammes at the last two injections. The temperature on January 10th rose to 103.2°, and there was some diarrhoea; but the last four injections have been followed by no reaction. General health very good. Glandular swelling nearly disappeared. Patient to go out and return three times weekly for injection.

CASE IX.—P. S. Nine injections during last three weeks (making nineteen altogether). The quantity has been increased to 4 centigrammes on the last occasion. No reaction has followed either of these nine injections. The fingers have not recently diminished in size. General health very good.

CASE XI.—L. R. Nine injections during last three weeks (making nineteen altogether). The quantity has been increased to 6 centigrammes on the last two occasions. The last injection was followed by subnormal temperature. On January 12th Dr. Herringham reported that the expansion of the lungs was equal and normal. The respiration was puerile; expiration on the right was more prolonged than on the left. A few slight *râles* could occasionally be heard at the right apex, both at the front and back, when the child was made to cough or breathe deeply. There was then no bronchial breathing at the left apex behind. General health very good. Is to leave the hospital, and return for injections three times a week.

CASE XII.—E. M. Nine injections during the last three weeks (making eighteen altogether). The quantity has been increased to 4 centigrammes. No reaction followed any of these nine injections, and after the last two injections the temperature became subnormal, falling to 96.0°. The lung symptoms have much improved. On January 10th it was reported that there was dulness, with tubular breathing and bronchophony, and a few crepitations over a small patch below and around the right nipple. Nothing abnormal was heard at the base behind. The lungs elsewhere were normal. General health very good. She is to leave the hospital for the Convalescent Home at Wembley.

CASES AT KING'S COLLEGE HOSPITAL.

FOURTH REPORT.

THROUGH the kindness of Mr. Watson Cheyne we are able to report the further progress of the cases under the Koch treatment at King's College Hospital. A sufficient time has now elapsed to allow an opinion to be arrived at as to the effects produced. In lupus the result is most striking and satisfactory. The patient whose portrait was given in the BRITISH MEDICAL JOURNAL of January 3rd has continued to improve (Case I). She has now had twenty injections, and the last was followed by a slight local reaction. Her nose is soundly healed without further loss of substance; all the crusts have separated, and the skin is soft without nodules. She herself is highly gratified with the result, and seems to think that it has amply repaid the course of treatment. The question now arises as to when the injections should cease, but it is probable that more will be given. In another of the cases of lupus mentioned in our previous reports (Case II) the face is remarkably improved. It may be recalled that this young woman had lost the lobe and ala of the nose, and had had a great many operations performed. The nose is now soundly healed, and beginning to assume a normal colour. She herself says that her face is now better than it has ever been after any of the operations. She has had eighteen injections of a gradually increasing strength, the last being 0.2 g. Only the first ten caused reaction, and her general appearance and health seem decidedly improved. She, too, is highly gratified with the result. The youth with lupus in the left axilla and in the right popliteal region (Case V) has now had eighteen injections. His progress has been decidedly slow, but there are now no tuberculous nodules, and the patches feel dry and harsh and look like patches of chronic eczema. His general health seems unaffected, except for the better.

In another case of lupus of the face (Case XX), in a woman of 60, improvement is as marked as in the others of the same class. She has been six weeks under treatment, and has had twenty injections, their strength having been gradually increased to 0.12 g. For some reason, perhaps on account of her age, she has never had any marked general reaction, except on the first occasion, when her temperature was 103° F. The last case we need mention is that of a nurse (Case XXIV), also with lupus of the face. She has also improved very much, and has had ten injections. We merely mention it because she is able to attend at the hospital for the injection and then go away. This plan has been unattended with any ill result. The cases of joint disease, in which the synovial membrane only seemed involved, also exhibit marked improvement. The girl, aged 6½ years (Case XI, J. H.), who had a marked affection of the hip with considerable pain and restriction of movement, can now, after twenty injections, be pronounced cured. No splints or extensions have been used, and the hip is painless, with perfect movement in all directions, except in extreme abduction. She has not, however, walked upon the leg. The improvement might plausibly be put down to the rest in bed, but another case of the same severity, and not mentioned before in these reports, was kept at rest a fortnight without injections on purpose to test this question. The disease steadily progressed, and made no improvement until injections were begun. The more advanced cases of tuberculous joint disease, and particularly those in which there was evidence of tuberculous bone disease cannot, we think, be said to have improved. Those with septic sinuses seem least amenable, and upon some operations have been done to remove tuberculous deposits. It seems as if it would in future be better to begin the treatment by taking away the cheesy material. In the case of tuberculous enlargement of the cervical and axillary glands, occurring in a man aged 38 (Case VI), the greater part have been excised, and as they proved to be mere masses of tuberculous cheesy deposit, it seems unlikely that any remedy could have caused their removal.

The following is the sequel of the very interesting case of tubercle of the iris which was sent from Moorfields for injection (Case XVII). In our last report we gave rather a gloomy view of the progress of the eye, and since then the organ has been excised, the disease having steadily advanced. Mr. Cheyne has ascertained that the eye is tuberculous, and has also performed some inoculations with it into the eyes of rabbits. Further, after the excision of the eye, a fresh injection of lymph was given, and produced a marked reaction; inasmuch as the eye, which never reacted well, was gone, it seems possible that the girl has a concealed tuberculous focus in some other region.

Case IV, a child, who became tuberculous after circumcision, has also to be recorded as one in which no good result has ensued. The infant has steadily passed into a hopeless state, and became so ill and emaciated that a week ago the injections were stopped. The result was interesting because the hectic temperature, which was in abeyance during the injections, appears again after their cessation. The most we can say of this unfortunate child is that the remedy has done no harm, but has perhaps prolonged its life a few weeks.

Curiously enough, the patient with anæsthetic leprosy (Case XXV) has volunteered the opinion that her hands are better. She says, and it seems true, that the fingers are looser at the joints, and that the hand can be opened more widely. She has now had fourteen injections, five of which reacted.

IRELAND.

In the Surgical Section of the Royal Academy of Medicine, Friday and Saturday evenings (January 23rd and 24th) were devoted to papers on Koch's treatment of surgical tuberculosis. As many surgeons wished to put their results on record, the Council limited the length of each communication to ten minutes. The reading of papers took up the whole of the first evening, when those who made communications were Mr. F. A. Nixon, Dr. Bennett, Mr. T. Myles, Dr. Franks, Sir W. Stokes, Dr. Tweedy, Mr. Tobin, Dr. Meldon, Dr. J. K. Barton, and Mr. Thornley Stoker.

The papers showed that a large number of cases of lupus, joint, bone, and glandular cases are under treatment, but

few were reported as cured. The lupus cases showed the best results. Most of the readers expressed their belief in the efficacy of the remedy, but stated that sufficient time had not elapsed to make a declaration as to curative effects in the majority of cases.

On Saturday evening there was a discussion, in which Dr. Lentaigne, Mr. McArdle, Mr. William Thomson, Dr. Bennett, Dr. Franks, Mr. Myles, Mr. Tobin, Mr. Thornley Stoker, and others took part. The criticism was on the whole favourable, but there was some dissent from the prevailing view that a cure has been found for tuberculosis.

RADCLIFFE INFIRMARY, OXFORD.

SEVERAL cases of tuberculosis have been under treatment with Koch's fluid at the Radcliffe Infirmary, Oxford. Dr. Brooks has injected some cases of pulmonary phthisis, lupus, and other local tuberculous affections. The cases have only been under observation during the past three weeks, so that a definite opinion as to the result of the treatment cannot be arrived at. In most of the cases there has been improvement, but in one case of phthisis, with old pleurisy, pneumothorax developed after two injections had been given.

SUNDERLAND UNION INFIRMARY.

WE are informed that Dr. Prowde, the medical officer of the Sunderland Union Infirmary, has received from Berlin a supply of the above fluid, and that it will be employed on several suitable patients who are at present under his care.

USE OF THE INJECTIONS IN PREGNANCY.

DR. LAMBINON, of Liège, is strongly against the injection of Koch's fluid in pregnant women. That it causes rise of temperature, we all know. That the rise is especially high in those cases which are most typically tuberculous we have also been abundantly informed. A sickly woman bears a rise of temperature badly, and her sickness and fever combined are likely to provoke abortion if she be pregnant. Phthisical women are apt to abort, so that the new treatment would, in cases of this kind, only aggravate a natural tendency. The peril to the foetus, even if retained till term, is always great when the mother is feverish. The rise of the foetal pulse in cases where the mother contracts any form of fever is well known. Runge has proved that pregnant rabbits can bear a high temperature which is sufficient to kill their unborn offspring.

Dr. Charles (*Journ. d'Accouchements*, Jan. 15th) recommends that both in cases of phthisis and of external tuberculosis in pregnancy, when it is thought justifiable to inject Koch's fluid very small doses, not exceeding 1 milligramme in the adult, should be given at first, and should be very slowly and gradually increased, so as to avoid violent reaction which might cause abortion or kill the foetus.

NOTES FROM BERLIN.

[FROM OUR SPECIAL CORRESPONDENT.]

ON Sunday morning, January 18th, an address was presented to Professor Koch by a deputation of students from the Berlin University. In thanking the deputation, Koch said that, though he had striven to do his duty as a teacher, he was fully aware that his best powers had always gone to his scientific work. He spoke of the high and difficult calling of the scientific inquirer as being a purely ideal one, and said he was happy to find Berlin students sympathising with his ideal pursuits, as it proved their own ideality was not extinct.

The Prussian Budget for 1891 includes a demand for 165,000 marks (£8,250) for the new Koch Institute, which is being built close to the Charité Hospital. The annual expenses are calculated at 235,405 marks (£11,770), which are divided as follows: 20,000 marks (£1,000) for salary for the director, Professor Koch; for salaries of heads of departments, 6,000 marks (£300) each; salaries of various assistants together, 17,650 marks (£882); for scientific researches, 50,000 marks (£2,500); for nurses and servants' wages, 14,400 marks (£720); hospital expenses, 46,300 marks (£2,315); for drugs, 12,000 marks (£600),

etc. A revenue of 70,000 marks (£3,500) is calculated for from paying patients.

It is stated that the chemists will shortly be permitted to dispense and sell Koch's lymph. Regulations are about to be published concerning its price, dosage, mode of keeping, etc.

The meeting of the Berliner Medizinische Gesellschaft on Wednesday, January 21st, was of exceptional interest. Amongst the demonstrations in connection with Koch's remedy, some specimens exhibited by Virchow aroused general attention. These specimens were taken from the body of a man of 54, who had been admitted to the Charité as an in-patient on October 6th of last year, suffering from pleurisy, and whose condition had been satisfactory up to November 20th, when treatment by Koch's remedy was begun. There was no fever, no loss of weight. Since November 20th five injections of 5 milligrammes each had been given, followed each time by powerful reactions. After the last injection (January 9th) fever set in, which persisted until death (January 20th). *Post-mortem* examination showed, besides old-standing induration in the lungs and remains of the pleuritic condition, an exceptionally widespread miliary tuberculosis, extending over the lungs, the spleen, the kidneys, and the liver.

The discussion on Fraenkel's address was resumed by Professor Ewald, who gave a report of his experiences with Koch's lymph in the Augusta Hospital. One hundred and fourteen cases have undergone the treatment at this establishment, the total amount of lymph used being 32,000 milligrammes. Ewald classed the cases in the usual manner, giving a detailed history of some specially characteristic ones. He summed up as follows: "Gentlemen, if I am openly to express my conviction, I must say that I have not yet seen a single case that I could really call cured." He went on to say that it was impossible almost in any one case to foretell the effect of the treatment, giving examples of cases which had seemed most likely to do well and which nevertheless had ended fatally. Before beginning the treatment, he said, the physician should inform the patient of its uncertain effect and possible danger, just as the surgeon did before performing a difficult operation the issue of which might be doubtful. The patient should, however, also be told that in a certain number of cases the improvement following the injections had been greater than had ever been known to result from any other remedy in so short a time. In short, the decision as to the employment of the treatment should be left to the patient.

Dr. James Israel, Surgeon to the Jewish Hospital, gave an account of 24 surgical tuberculous cases treated by the lymph during from thirty to sixty days. One case of hydrops tuberculosis of the knee he pronounced to be cured; 2 cases ended fatally; 5 cases, 1 of which was lupus, remained absolutely uninfluenced by the treatment, the injections, though followed each time by the well-known general reaction, producing neither local reaction nor even the slightest beginning of any therapeutic effect; 1 case of tuberculosis of the prostate showed neither general nor local reaction, even after injections of 4 centigrammes, nor any change of condition; 6 cases showed decided improvement, 5 showed no improvement, 2 cases relapsed, and 3 became decidedly worse. Dr. Israel gave a detailed history of 3 of his cases, which were specially interesting, and, in conclusion, summed up as follows:—1. The remedy does not in all cases, even if we exclude caseous foci, exert an influence on tuberculous tissue. 2. The remedy does not always produce decided necrosis, but sometimes inflammatory phenomena also. 3. The intensity of the local reaction bears no proportion to the intensity of the general reaction. 4. The intensity of the local reaction is no criterion of the therapeutic effect. Good effects may be achieved where the local reaction is feeble. Intense local reaction may be unaccompanied by any favourable therapeutic effect.

DR. J. B. RUSSELL has submitted his annual report on the health of the city. The movements of the death-rate in Glasgow since the commencement of registration in 1855 are shown by the following figures: Mean death-rate for the 6 years, 1855-60, 29.9; 10 years, 1861-70, 30.4; 10 years, 1871-80, 28.6; 5 years, 1881-85, 26.32; 5 years, 1886-90, 24.10 (10 years, 1881-90, 25.2).