clinic in connexion with her ante-natal department, and only found it necessary to induce abortion in the rare cases when every other treatment had failed. She was agreeably surprised at the small number of Caesarean sections Professor Kerr had mentioned. She had abandoned sterilization for heart cases to a great extent, and strongly disapproved of hysterectomy as the means to this end. Future pregnancy might be prevented by x rays or radium, or a contraceptive pessary might be used when further pregnancy was not advisable for a year or two. She thought that many patients with tuberculosis became worse through being discharged too soon from a sanatorium to bad home conditions for fear that labour might occur in the sanatorium.

Dr. MARY MACNICOL (Edinburgh) thought that the outlook in syphilis with pregnancy was very good, but with gonorrhoea the reverse was the case. She urged that once a patient was known to have had syphilis the treatment should be given in every subsequent pregnancy, even if the Wassermann reaction was negative. A history of repeated miscarriages was sufficient to justify a course of anti-syphilitic treatment. With more attention to cervical and vaginal discharges less would be heard of the occurrence of autogenetic puerperal sepsis.

Dr. E. K. MACKENZIE (Tain) gave his experiences as a rural practitioner far away from specialist advice and help. Cases of mitral stenosis and aortic incompetence had caused him the greatest amount of worry. He thought that digitalis should be restricted to cases of fibrillation. The mental state of cardiac patients, especially in aortic disease, was sometimes particularly distressing.

Mr. R. H. PARAMORE (Rugby) explained the absence of higher blood pressure in normal pregnancy as being due to the rise of intra-abdominal pressure, which increased the blood supply of the brain and extremities. It was the rise in pressure within the abdomen which led to an increased strain on the right side of the heart, and hence, in disease, to failure of compensation. In cases where Caesarean section was called for on account of cardiac distress he suggested that hysterectomy would be advantageous by removing the products of involution, which otherwise might seriously affect the already embarrassed heart muscle.

Professor R. G. McKERRON (Aberdeen) said that the majority of cases of valvular disease passed through labour without distress provided the myocardium was good. When failure of compensation occurred opinion was divided as to the best mode of procedure. Very little help could be obtained from the textbooks, while approval might be found for practically any method of treatment. In the early months it was very rarely necessary to interrupt pregnancy. In mitral stenosis induction of abortion was by no means free from danger. He advised induction in any case when decompensation had occurred in a previous pregnancy.

Dr. D. LEES (Edinburgh) asserted that the examination of films was of no use in the diagnosis of gonorrhoea. In suspected syphilis a provocative dose of salvarsan would frequently lead to the Wassermann reaction becoming positive, but a negative reaction was without value. He strongly objected to the phrase "venereal disease;" the majority of cases occurred in those who had not contracted the diseases venereally. Syphilis should be suspected in cases of aortic disease; treatment on these lines often led to improvement.

The PRESIDENT opposed the sterilizing of cardiac patients, especially in old-standing cases. Compensation might later be established, and with it the chances of a successful pregnancy being sustained. He agreed that artificial pneumothorax was a most valuable addition to the treatment of pulmonary tuberculosis.

Professor MUNRO KERR, in his reply, stated that he had been struck by the number of times the pathologist reported the presence of fresh vegetations on the valves in cases

which terminated fatally. He thought that Mr. Paramore's suggestions in regard to hysterectomy were of great importance, and he was disposed to act along these lines in the future in cases of the type under discussion. He agreed with Dr. Mackenzie that digitalis should be reserved for cases of definite decompensation.

Dr. E. RIST (Paris) explained that he had obtained his experience by an elaborate follow-up system. He was not formerly so pessimistic as at present. He thought that the physician saw patients for a more prolonged period than the obstetrician, and was thus in a more favourable position to observe the bad effects of pregnancy. He did not agree that the excursions of the diaphragm were seriously impeded in pregnancy.

THE USES AND LIMITATIONS OF ULTRA-VIOLET RADIATION IN DERMATOLOGY.

THE EVOLUTION OF ACTINOTHERAPY.*

BY

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I MUST first express my appreciation of the honour you have done me in asking me to open this discussion, although the task of replacing a distinguished foreign actinotherapist is not an easy one, and the views I shall express will no doubt differ from his.

I do not propose to bring before you details of cases, which are tedious and often misleading, or statistics, which are notoriously fallacious, but I shall endeavour to give you the impressions I have formed as the result of a considerable experience of ultra-violet light treatment in hospital and private practice extending over many years.

My first acquaintance with this work began in the year 1900, in conjunction with the late Sir Malcolm Morris, and, if you will permit me, I will quote a sentence from a paper published in the *BRITISH MEDICAL JOURNAL* of May 31st, 1902, and repeated in the preface of a little book published in 1907, stating the view we had formed of the value of phototherapy in dermatology:

"Although in our opinion the results we have obtained have fully justified the employment of the treatment, and in some cases no other treatment could have produced such good results, we do not regard it as the only method to be used in all cases, nor advocate it indiscriminately to the exclusion of other methods."

I emphasize this opinion because I think there has been a growing tendency to exaggerate the results of actinotherapy in recent years. My own views to-day are the same as those stated in 1902, and I expressed the same opinion two years ago at the British Medical Association meeting at Bradford, and at the Royal Society of Medicine last March. I must therefore ask you to bear with me if there is a certain amount of repetition of what I said on those occasions.

The bacteriological effect of light was discovered as long ago as 1877 by Downes and Blunt, but ultra-violet light was of course first employed systematically in the treatment of disease by Niels Finsen of Copenhagen, who not only advocated its use in the treatment of lupus, to which he chiefly devoted his attention, but also its exclusion in the treatment of small-pox—a method which has recently been criticized by French observers after its trial in a recent epidemic in Paris. Finsen's light treatment was, I believe, first introduced into England by the late Sir Malcolm Morris in May, 1900, and I remember assisting him in the treatment of the first case of lupus at the beginning of that month. A few months later the light treatment of lupus was instituted at the London Hospital by Dr. Sequeira, whose publications did so much to secure for it a permanent place in British dermatology.

* The opening paper of a discussion in the Section of Dermatology at the Annual Meeting of the British Medical Association, Edinburgh, 1927. The President of the Section, Dr. R. Cranston Low, was in the chair.

Finsen used both sun and arc light, the rays being brought to a focus by means of quartz lenses, the concentrated light being cooled and the skin rendered anaemic by pressure with a quartz vessel containing circulating water. The fact that the original type of lamp is still employed at the London Hospital and other institutions is sufficient evidence that the principles laid down by Finsen—namely, the necessity of concentrating the light and compressing the tissues to allow penetration of the ultra-violet rays—still hold good, although they seem to have been forgotten by a good many workers of the present day.

The original Finsen lamp was a cumbersome and expensive piece of apparatus devised for the treatment of four patients, and this was improved upon by Reyn, who used a focusing tube embodying the same principles and adapted for the treatment of a single patient. With both these lamps, however, the exposures were so long, and the area treated at each application so small, that the results obtained in extensive cases were slow and comparatively ineffective. Attempts were then made to obtain penetration and increase the size of the area exposed by bringing the source of light close to the skin, burning being prevented by the interposition of a quartz lens containing circulating water, which was placed in the path of the diverging rays and brought into contact with the skin. This was the principle of the apparatus devised by Lortet and Genoud, which was modified for use at the London Hospital, being known as "the London Hospital lamp," and was the forerunner of the Kromayer lamp, in which the U-shaped mercury vapour burner replaced the carbon arc.

An attempt was also made to increase the proportion of ultra-violet rays and decrease the time of application by using iron electrodes, circulating water or ice being employed to intercept the heat rays. The action of these lamps, however, proved too superficial to affect the deep infiltration of lupus, and the results were less satisfactory than those obtained by the more penetrating concentrated rays of the Finsen lamp. Another development was that of the Simpson arc, in which wolfram electrodes were employed. Dr. Sequeira demonstrated the superficial action of this lamp and the failure of the rays to penetrate even a thin sheet of paper, a disadvantage which still holds good for the tungsten and mercury vapour lamps used at the present day.

I have dealt at some length with the evolution of these different types of lamps, because we are still faced with the difficulty that the mercury vapour and tungsten lamps lack penetrating power, whereas the available area treated by concentrated carbon arc rays is too small to give entirely satisfactory results. For those of us who have charge of large dermatological clinics, and have the disheartening experience of seeing numerous cases of facial lupus every week, it is an undoubted advantage to have at our disposal a conservative method which can be repeated almost indefinitely from week to week, with much mental comfort and little physical discomfort to the patient, who is thereby kept under constant supervision, and quite rightly encouraged to persevere with the treatment in the hope of eventual cure. But, speaking from my own experience, I doubt if many extensive cases of lupus are cured by unaided light treatment. With surgical measures and such applications as acid nitrate of mercury, pyrogallol acid—which is, I believe, extensively used in Denmark—and other selective caustics, we are able to accomplish in a short time and with little expense, although with more pain and scarring, what it would take months of light treatment to achieve.

Lupus rarely tends to get well spontaneously, but in alopecia areata, another condition for which light treatment is widely advocated, there is a tendency to spontaneous recovery which makes it more difficult to assess the value of treatment. There is no doubt that ultra-violet radiations are an excellent stimulant of hair growth; I have seen growth of hair occur on a bald scalp in circles corresponding to the area covered by the pressure glass of the Finsen lamp, but the results with the mercury vapour and tungsten lamps are less convincing. In this disease, as in lupus, it seems that the result depends upon the intensity of the inflammatory reaction; in other words, the actinic rays act as a counter-irritant in a similar manner

to the various stimulating preparations which are commonly used when light treatment is not available.

In psoriasis there is considerable difference of opinion regarding the response to actinotherapy. I have seen extensive eruptions clear up under light baths, and relapse during a continuance of the treatment, and the majority of cases in my experience have shown little permanent improvement. Possibly patients treated with carbon arc lamps are benefited by the heat rays and the sweating produced, although I have noticed that in cases treated by radiant heat the psoriasis patches sweat with difficulty. It seems probable that if the applications are pushed to the point of causing erythema and desquamation, in which the psoriasis shares, better results are likely to be obtained than those in which little inflammatory reaction is produced. On the whole I agree with Dr. Roxburgh, who has written one of the most unbiased papers I have read on the subject, that "in most cases an equal degree of benefit can be achieved more quickly, though less pleasantly, by the use of chrysarobin."

In acne vulgaris the suppuration is to a certain extent controlled, but improvement is chiefly due to exfoliation of the skin, and the results of actinotherapy are not much better in my experience than those obtained by keratolytic preparations, and much inferior to those produced by x-rays.

Cases of impetigo and staphylococcal infections which fail to yield to the ordinary antiseptic applications are benefited by light, and the same may be said of chronic septic and tuberculous ulcers, and some acro-asphyxial conditions. The sphere of light treatment has been greatly extended during recent years, and it would be impossible to refer to all the pathological conditions for which it has been advocated, nor is it necessary to discuss the more general aspects of actinotherapy, such as the results obtained in rickets, or the well known work of Rollier and Gauvain on surgical and other varieties of tuberculosis. What concerns us more particularly as dermatologists is the combined local and general use of light therapy. This was first advocated for lupus by Reyn, of the Finsen Institute, in 1918, who stated that the percentage of cures obtained by this method was increased from 60 to 80 per cent. Heiberg and With gave the percentage as 90, and stated that light baths alone could cure lupus without any local treatment, the same results having been previously claimed by Strandberg and Heiberg for intranasal lupus. Dr. Sequeira confirmed the value of the combined method, which he introduced at the London Hospital in 1922. I have had many cases of lupus treated in this manner, and in at least one extensive case of lupus of the face remarkable improvement followed light baths alone, while others have not improved when both local and general treatment have been adopted.

Time does not permit me to discuss the biological properties of ultra-violet radiations, but it seems probable that their action is mainly destructive, the defensive properties of the tissues being stimulated by the products of the damaged cells. That light can have pathological effects on the skin is well known to dermatologists, as exemplified in such conditions as xeroderma pigmentosum, hydroa aestivale, solar dermatitis, etc., and it is recognized that harmful results may occur from excessive therapeutic exposures, or from the injudicious treatment of acute and febrile cases. On the other hand, there is abundant evidence of improvement in the nutrition of children and adults as the result of actinotherapy, although the exact mechanism of its production is not clear. In rickets, in which the mercury vapour lamp appears to give the best results, it is thought that the effect is due to the activation of the cholesterol of the skin, whereas in surgical and other forms of tuberculosis carbon arc light, with its greater preponderance of luminous and heat rays, is the method of choice where sunlight is not available, and heat and fresh air are probable factors in the increase of haemoglobin and leucocytes, and in the bactericidal power of the blood.

It seems probable that the well known stimulating effect produced on fully clad operators working in close proximity to ultra-violet rays may be due in part to inhalation of ionized air. It is well known that inhalation of the

vapour given off by tungsten arcs has been employed successfully in asthma and other bronchial conditions in children. The fact that suggestion may also play a part in the results is often overlooked, and, without attributing too much importance to this factor, it is possible that the psychological effect may have no small influence even in infants.

The luminous and heat rays must also be taken into account. When the comparatively small number of ultra-violet radiations—none below 2,970 Angström units—which penetrate the atmosphere is considered, it seems doubtful if the health of the community can be dependent to any large degree upon the short wave radiations, and the value of such improvised measures as the provision of ultra-violet-passing glass in smoke-laden cities seems problematical, and in country districts superfluous.

It has been shown by Leonard Hill that the basal metabolism rate is not raised by actinic light unless accompanied by the cooling power of air. Hess gives charts showing the amount of sunlight in five of the great cities of the world, New York having twice as much as London, and more than Berlin, Paris, and Stockholm, but he forgets to mention Edinburgh. In this city, where cooling winds predominate and perhaps sunlight is not at its maximum, you will probably agree that the hardy northerner takes precedence in health and endurance of the softer, sunbaked, ultra-violet lighted inhabitant of the south.

In conclusion may I say that if I have taken, as some may think, an unnecessarily pessimistic view of the value of actinic light in therapeutics, I am far from wishing to deprecate a measure which aims at the relief of disease and the improvement of the public health, and I hope this discussion will not only help to place actinotherapy on the proper scientific basis it deserves, but will lead also to further progress in the knowledge of its effects and still better results from treatment.

DISCUSSION.

Dr. F. GARDINER (Edinburgh) thought that too much stress could not be laid upon the psychic effect of a new remedy such as this, administered in the semi-theatrical manner of all electrical treatments. The accurate and scientific dosage and the limitations of the new therapy could not yet be stated. Rickets was undoubtedly greatly benefited, but in other conditions the value of light was less certain; it was necessary to consider not only the various sources and wave-lengths, but also superficial and deep effects, and the compression or absence of compression of the tissues. It was still doubtful whether the ultra-violet rays could or could not penetrate to a greater or lesser degree the epidermal horny layer and the blood, and to what extent they were bactericidal. In tuberculosis of the skin the benefit, especially of a cosmetic character, was very noticeable, but there were occasional failures, most often when pulmonary affection was also present. In one case he had found by means of x-ray examination enlarged bronchial glands, in another the fumes of the lamp produced bronchitis. The fungating and ulcerative types responded better than the fibrous type. From January, 1924, to June, 1927, 171 patients had been treated at the Royal Infirmary with the carbon arc; 27 had been discharged provisionally cured, 65 as improved, while 76 were still under treatment. In addition to using the arc light it had been their custom to treat stubborn areas with trichloroacetic acid and other caustics. Better, especially cosmetically better, results and a higher percentage of cures were obtained by light treatment than by any other method. Tuberculides, such as Bazin's disease and allied conditions, healed remarkably well, and many cases of lupus erythematosus also did well. Skin diseases associated with general debility were benefited—as, for example, long-standing prurigo in debilitated children; on the other hand, prurigo in adults was aggravated. Extensive pustular cases of acne vulgaris affecting the back and chest were much improved. The systemic treatment of bad sycosis in debilitated subjects was useful. He warned against the dangers of unskilful use of the mercury vapour lamp, and thought that it was very unsatisfactory in psoriasis. In alopecia areata he had had good results,

but not equal to those expected by Nagelschmidt. In ulcers of the leg, although it benefited those of the Bazin type, it was useless for varicose and chronic ulcers. He concluded that the effects of the treatment were systemic and should be used where there was some general systemic disturbance; they stimulated certain areas, and might be used to reduce pustulation.

Dr. W. J. O'DONOVAN (London) described the origin of the light department at the London Hospital, which was opened on May 1st, 1900, with the lamps from Copenhagen given by Queen Alexandra; since then 2,800 cases of lupus had been treated. He emphasized the necessity of prolonged and uninterrupted treatment, and the equally continuous supervision of the patient; if these conditions were fulfilled the prospect of curing the cases was good. He thought that the only incurable type was that in which there was lymphatic obstruction of the area affected, usually the face; with this exception and with the help of proper supervision he could claim 90 per cent. cures. The introduction of light bath treatment at the London Hospital was second only in importance to the original application of Finsen light to the treatment of lupus. Some cases were healed by light baths alone; these were subsequently combined with local treatment. The light baths had perhaps been particularly valuable in dealing with lupus of the mucous membranes, which before 1922 had to be treated by surgical methods alone; it was often impossible to reach by these means the whole of the diseased area. A few cases always relapsed a few months after the suspension of treatment; for these a prophylactic course of light baths every year was advised. In the whole series there had been three deaths from meningitis. The only other bad effect which had been noticed was the occasional occurrence of tropical fatigue during general light treatment. He stated that there was no evidence whatever that carcinoma ever developed on the healthy scars left after Finsen treatment, although he was very familiar with carcinoma engrafted on lupus itself and on the scars left by x-ray treatment. Light therapy in psoriasis was of very occasional benefit, in acne very doubtful; he had known acne develop during actual light treatment. Cases of prurigo in general improved, and multiple subcutaneous abscesses in infants did very well indeed with it, but exfoliative dermatitis was sometimes produced. It was also most valuable in the septic complications of compound fractures in securing the separation of sequestra and the healing of troublesome sinuses.

Dr. J. GOODWIN TOMKINSON (Glasgow) said that his first acquaintance with heliotherapy dated from the Paris congress on tuberculosis in 1905, while his first case was that of a lady who began heliotherapy under his instructions for lupus in Egypt in 1908 and did very well indeed. Since then he had had other patients treated on the same lines at Darga in the Apennines, at Viareggio, and at Leysin. The value of heliotherapy was indisputable, and the various ultra-violet light lamps were very efficient substitutes for sunlight, though not for the invigorating atmospheric conditions of high altitudes. Most of the cases for which he prescribed the artificial sun bath were tuberculous. A noteworthy feature of these patients was their cheerfulness, due, no doubt, to their progress towards cure and to the absence of pain and discomfort in the treatment. He thought it was early to form a final judgement as to its exact limitations, but if it only removed some of the loathsome features of an extensive ulcerative tuberculous condition and assisted in controlling it, it would still be one of the most useful therapeutic agents that the present century had produced.

Dr. H. MACCORMAC (London) agreed with Dr. Dore that many extravagant claims had been made for treatment by ultra-violet rays, but admitted that it was a very valuable method of treatment, especially in lupus vulgaris, as shown by the high proportion of cures obtained by Reyn and others. His best results had been obtained in lupus, but he had also seen the rash of psoriasis completely fade. The effects of ultra-violet light were, however, very variable in psoriasis, and he remembered one case in which the disease extended rapidly all over the

body, except over an area covered by short trunks worn by the patient while undergoing treatment. He had also found the light bath a valuable adjunct in cases of tabes with debility when, owing to the patient's general condition, intensive antisyphilitic treatment had ceased to be efficacious, or had actually become harmful.

Dr. GILCHRIST (Baltimore, U.S.A.) described a new method of measuring the dosage of ultra-violet light by means of lithopane. He referred to attempts in the United States to ascertain whether it might be possible to desensitize individuals vulnerable to light by means of small doses, just as desensitization to proteins could be produced. He also mentioned the discovery of a new range of rays between the ultra-violet zone and x rays, which were called "border" rays. Investigations in haematoporphyria had revealed that the cause of death was the depression of blood pressure and dilatation of vessels. In lupus he had found diathermy the best method of treatment. He was optimistic about the treatment of psoriasis.

Sir NORMAN WALKER (Edinburgh) indulged in reminiscences. He said that the London Hospital lamp employed thirty years ago in Edinburgh did not then apparently give good results, but ultimately the patients did well. He asked whether strong lamps acting for a short time had as good an effect as weaker lamps acting for a longer time. His great recipe for the successful treatment of lupus was perseverance. Another indispensable factor was early and accurate diagnosis, which nowadays was far better than it used to be. He expressed optimistic views as to the prognosis and treatment of psoriasis.

Dr. W. MITCHELL (Bradford) preferred diathermy to any other treatment for lupus, owing to the excellent scars which were left. He also used it in the treatment of cancer of the tongue and tonsils. He mentioned an interesting case of a girl who developed menorrhagia after every exposure to ultra-violet light.

Dr. A. C. ROXBURGH (London) referred to the employment of ultra-violet light in the diagnosis of ringworm of the scalp. Infected hairs examined in a dark room by ultra-violet light passed through a piece of Wood's glass shone with a brilliant green fluorescence. They had been using this method at St. Bartholomew's Hospital for the past six months, both for detecting very early infections and for deciding whether cure had been attained after perhaps rather incomplete epilation with either thallium or x rays. He had found ultra-violet light very useful in tuberculosis of the skin as an adjunct to local treatment, but in one or two cases he had seen an unsuspected tuberculosis of the lungs light up. Other conditions which did well were multiple boils, superficial sepsis, and, in a few cases only, chronic dermatitis and eczema; the latter were very easily irritated by light, and treatment should commence with extremely small doses. He had found local applications by mercury vapour or the tungsten arc most useful in healing ulcers and sluggish wounds—as, for example, after mastoid operations—also in various forms of alopecia and impetigo contagiosa, but not in cases of premature baldness. In psoriasis progress was slow and uncertain. Acne vulgaris and rosacea sometimes benefited, but on the whole did better with x rays. Telangiectases following excessive x -ray treatment could be materially reduced by local treatment with the mercury vapour lamp.

Dr. HOWITT (London) said that the action of the sympathetic nervous system was an important factor in ultra-violet light therapy. He also emphasized the necessity of perseverance if good results were to be expected.

Dr. KERR RUSSELL (Newcastle-on-Tyne) said that there was no difference between the results obtained at Dr. Rollier's clinic at Leysin, where natural ultra-violet light radiations were used, and those obtained at the Finsen Institute, Copenhagen, where carbon arcs were solely used. Those who thought sunlight superior to artificially produced radiation should ask themselves, How could sunlight be used for the treatment of a case, say, of port wine stain? For these cases a lamp of the Kromayer type was essential. He deprecated the allusions to the psychical effects of the treatment.

Dr. CHRISTINA BARROWMAN (Newcastle-on-Tyne) said that ultra-violet light had a very wide application in the treatment of burns; the relief of pain, the prevention and cure of sepsis, the healing of fairly extensive areas without grafting and with little evidence of cicatrization, and the general appearance of well-being of the patient were important features. On the Continent the ultra-violet rays had been successfully applied through cellophane dressings; use of this artificial silk fabric avoided frequent change of dressings and allowed very easy application of ultra-violet rays. Recent infections of *tinea capitis* yielded to the action of the rays; she had cured a baby aged 2 months with two applications. In more chronic cases, although some of the recently infected areas disappeared, examination under Wood's glass showed that infection was still present.

The PRESIDENT emphasized the frequency of carcinoma following x -ray treatment of lupus, and sounded a note of warning as to the possible risk of a similar danger after the use of ultra-violet rays. An attempt should be made to find out the general principles which underlay the treatment. He suggested that in lupus there was always a positive skin reaction; this indicated that in lupus the antibody to tubercle was anchored in the skin. When the skin was exposed to ultra-violet rays an erythema was produced that caused congestion of the skin and absorption of those antibodies which were carried by the circulation to the tuberculous lesions. In all infective diseases where a positive skin reaction was present the ultra-violet ray treatment was likely to do good.

Dr. DORE, in reply, agreed that in lupus vulgaris other methods, such as diathermy and the use of salicylic acid, should be combined with light treatment. Continuous daily applications were required, but excessive exposure might have the opposite effect to that desired. Eidinow had recently stated that there was a period of immunity, lasting fourteen days, following the exposure of a given area to ultra-violet light, and suggested that better results would be obtained if that interval of time were allowed to elapse between the exposures. In the case of children it had been shown that too long or too frequent exposures had a detrimental action. He had tried the treatment of ringworm by ultra-violet light without success. Although it was possible that a superficial infection in an infant might respond (as it would to antiseptic applications), ordinary ringworm of the scalp in children could not be healed successfully in this manner.

THE TREATMENT OF LUPUS ERYTHEMATOSUS BY KRYSOLGAN.*

BY

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THE etiology of lupus erythematosus is still a matter of conjecture, and no decisive facts have emerged since Dr. A. M. H. Gray summarized the position in a paper read before the British Association of Dermatology and Syphilology at Manchester in 1925. Two theories of causation are favoured—the tuberculous, mainly in France and Germany, and the streptococcal, which finds its chief adherents in this country.

The results of the gold therapy of the disease, which were not considered at Manchester, seem to me, so far as they go, to support the tuberculous theory, and I am further inclined to that assumption by a consideration of the facts elicited by Jörgen Schaumann from three *post-mortem* examinations of patients who died as a result of, or in the course of, the disease. This author's brilliant work on certain sarcoids, which he has renamed the benign lymphogranulomata, is well known, and entitles his present pronouncement in the case of lupus erythematosus to more than a cursory perusal. In these three fatal cases Schaumann demonstrated a "special granulomatous process in the lymphatic system, combined in the third case with classical tuberculous lesions, in which necrotic phenomena were conspicuous. . . ."

* Read in the Section of Dermatology at the Annual Meeting of the British Medical Association, Edinburgh, 1927.