

Before closing, I wish to enter a plea for the more general appointment of eye and ear surgeons on the different roads and the investing in them of broader responsibilities. I feel confident that if more roads and their general surgeons sought the intimate counsel of skillful and conservative eye and ear surgeons, both as to accidents, examinations and advice concerning the policy of the road in matters about which they are supposed to be especially interested, it would be better for all parties concerned; or in other words, to use the language of Mr. R. C. Richards, the experienced and efficient general claim agent of the Chicago & Northwestern Railway: "Why would it not be a good plan to spend a small portion of the money that is paid out every year for safety appliances in getting some safety employes?"

92 State Street.

THE BLUE LIGHT TREATMENT IN DISEASES OF THE SKIN.

LOUIS E. SCHMIDT, M.Sc., M.D.
CHICAGO.

Roswell Park has but recently stated that the *x*-ray treatment is in its infancy and that its true value cannot be estimated at the present time, but that it is a matter of the future. The entire field of light therapy is still in an experimental stage and necessarily the results of treatment are open to criticism. Certainly with so many careful and earnest workers as are in the field at present, the evidence as to their value is just a question of time. Because there is a variance of opinion,¹ due to variance in the results of different workers in the same class of cases, it is not courteous nor scientific to accuse individuals who have the spirit of investigation and scientific interest at heart, of dishonesty whenever the results are not as good as those of others. Neither should it be done if the results are better. This will also hold true of phototherapy. Certain forms of the latter mode of treatment have been in use for a much longer time than radiotherapy. However, not any one method has been taken up with the same zest and interest as the *x*-ray method of treatment. Hence, as regards the number of cases treated there are but few compared to it, though the time which has elapsed is not sufficient to permit of final judgment as regards their value. On account of the similarity in action and results it may be pardonable to make some slight comparison. Other methods of phototherapy than the one mentioned in the title of this paper have been resurrected, others, devised but recently, have been brought forward into the field of therapeutics.

The red light treatment of Finsen was introduced almost fifteen years ago, but is now again in the experimental stage. Brilliant results were recorded in the first cases, but the latest investigators have failed to corroborate them, yet it is necessary to wait until further work has been done in this particular line. The red rays with which Finsen experimented undoubtedly have a tonic action on the nervous system; however, this form of treatment, in the diseases of the skin, depends on the exclusion of the chemical rays of the solar spectrum. Finsen, to be more exact, has shown in his studies of the acute exanthemata, good results. Yet numerous investigators have failed in the same class of cases to observe good results with the method. These red rays can pene-

trate deeper into the tissue than the blue rays, as shown by many workers. The blue rays show a decided action on the vasomotor system, and apparently have a soothing effect on individuals suffering from excitement, just opposite to the action of the red rays.

There are certain recognized facts, for instance, antagonism between the colors of both ends of the spectrum, and demonstrated by the following: The phosphorescence caused by the blue rays are overcome by those of the red light. Here the extremes have the opposite action. It can not be expected that this remains true in every instance, but that their peculiar action shows gradual differences. Finsen was the first to investigate the value of the light treatment and it was in connection with variola red light was used. Gen. Pleasanton, however, in an empirical manner, used blue light. The other colors of the spectrum have as yet not been used in phototherapy; certainly not in the field we are interested in.

Now as regards the topic under consideration. It was Minin who first used blue light, by using blue incandescent lamps and reflectors. Later it was modified until it attained its present form. Minin's, Marcus', and my own results have been obtained with the apparatus which I will describe. This consists of an arc lamp, back of which a reflector is placed. It is best to have a resistance box on whenever using the street current, in order to regulate the constancy of the light, which in our case is 5,000 candle-power. The reflector concentrates and throws the light on a screen, which consists of blue glass. The height of the screen can be regulated so that the desired parts of the patient, who is placed behind it, can be readily exposed. As the screen is of large size, large surfaces may be treated at the same time. In this it differs distinctly from the Finsen light treatment. The mode of treatment is as follows: It is not necessary to protect the healthy parts with metal sheets, as in *x*-ray work, when treating localized areas. Up to the present time no untoward effects have been noticed, though the entire body has been exposed. The parts exposed should be unprotected from clothing, etc. The distance from the screen should vary as to the case, depending on whether the heat rays should be used. The distance from the screen varies, therefore, from a few inches to a foot. As regards the length of time, this varies, depending on the distance, from a few minutes to thirty minutes, or even longer. The number of treatments differ, as in all other forms of light treatment. Some cases react readily, others react more slowly. Treatments may be given daily or twice daily for long periods of time. Here again it is not necessary to fear accumulative action as in the *x*-rays.

As regards the action of these particular rays after they have passed through the screen, they depend both on the heat and the color rays. The spectroscope shows the absorption of the red and yellow bands by the cobalt glass screen, while the blue and violet rays pass through. The ultraviolet also pass. The actinic action which accompanies the blue rays is much less than those accompanying the ultraviolet rays. Now as regards the action of the blue light. Are the blue rays of the spectrum bactericidal? Experiments of Bie and Finsen have shown that the action of the blue, violet and ultraviolet are the most powerful in the order named, hence this form of treatment should be considered favorably from this standpoint.

Which rays are accompanied by inflammatory reaction? According to the same investigators, they are the same rays that have a bactericidal reaction.

1. For these various views as to the relative merits and shortcomings of the various forms of phototherapy and radiotherapy the current literature will be found to give the ideas of the many investigators.

Both in the blue light and Finsen light treatment one other question must be considered, and it is, "how is it possible, in the easiest and best manner, to free the rays from the undesirable heat rays without destroying at the same time the bactericidal and inflammation-causing action of the light rays?" This question is answered, in both instances, in different ways. In the Finsen method, whether or not glass or quartz lenses are used, again whether electric or sun light and again whether in the cooling of the rays distilled water or colored water is used, which also considers the absorption of some of the colors of the spectrum. In the mode of treatment under consideration the distance of the screen from the reflector and again the distance of the part treated from the screen, play a part in answering the question. As to the clinical action of the rays in the blue light treatment it has been possible for me to observe, immediately after the commencement of treatment, the appearance of oozing serum from ulcers, which in some cases becomes copious, stimulation of surfaces of ulcers causing rapid cicatrization, analgesic effects to painful skin diseases,

for presenting the same, but on account of the excellent improvement that I have seen in the cases treated, I have thought it advisable to bring this subject to the attention of those that are inclined to look into the subject, as I am made to believe that it may be of true value in a limited number of cases. The kind and details of the cases that I have treated can be seen from the following table.

A few words in regard to the possibilities. Holz knecht maintains that these rays can have no penetrating and curative power, unless when involving or destroying the uppermost or outer part of the body, or its integument. It is a fact, however, that with the Finsen method deep-seated tubercular nodules are favorably influenced, without involving the superficial strata.

Whenever taking up new methods there must be some ground for the same. The violet and ultraviolet rays were known to be anti-bacterial in action, but it was thought that the rays scarcely penetrated the epidermis. As authorities differ on this point it will be best to state that in all probability the blue and ultraviolet rays are

Number.	Name, Age, Sex.	Disease.	Treatment.			Space of Time.	Course.
			Kind.	No.	Length of Each.		
1	H. H., 32, M.	Lupus vulgaris faciei et colli.	X-ray	105	3 to 15 minutes.		For first few months apparent improvement, then but slight changes, for the new nodules constantly appearing, old areas however cicatrizing.
1	" " "	Same as above	Blue light	15	15 "	27 days.	Immediate effect for the better, no new nodules at the periphery stopping of the progress, cicatrization.
2	I. M., 60, M.	Lupus vulgaris aciei	X-ray	114	3 to 20 "		Dark bluish-red in color, distinct lupus nodules at periphery, much infiltration, great improvement but very slow.
2	" " "	Same as above	Blue light	17	10 to 30 "	30 days	Since commencement marked reduction of infiltrated condition, appearance much lighter in color, scarcely any scaling, no nodules at edges.
3	Miss W., 27, F.	Acne vulgaris faciei	X-ray	10	5 to 15 "	9 weeks	Slight dermatitis, but after a period of rest, increase of acne pustules, when treatment was again taken up; no appreciable change.
3	" " "	Same as above	Blue light	12	10 to 20 "	3 weeks	Patient felt immediate improvement, lessening of congestion, but few fresh acne pustules appearing after commencement of treatment.
4	F. B., 21, M.	Ulcer phagadenicus	" "	4	15 to 30 "	7 days	During course of first treatment pain lessened, appearance of ulcer immediately changed. Base granulating and healthy edges filling and healing.
5	D. H., 47, M.	Ulcer cruris	" "	6	15 to 30 "	2 weeks	Case of long standing. Treated antiseptically for months. After commencement of treatment almost immediate improvement. At end of two weeks seat of ulcer covered with epidermis.
6	A. K., 19, M.	Chron. vesicular papular eczema, both hands.	" "	15	10 to 20 "	3 weeks	Gradual but marked improvement. Vesicles after bursting apparently commenced to dry; scaling set in.
7	A. L., 30, M.	Carbuncle of neck	" "	21	10 to 20 "	4 weeks	Carbuncle size of silver dollar, marked lessening of pain, oozing of serum from broken-down tissue, rapid absorption of infiltration.
8	E. H., 22, F.	Acne vulgaris faciei	" "	14	10 to 15 "	5 weeks	During first few weeks, but few new pustules. Absorption of nodules.
9	A. B., 31, M.	Acute eczema of the face.	" "	3	30 "	4 days	Lessening of edema, decrease of burning sensation and appearance of scaling.

and in some cases the allaying of severe itching, resorption of pustular and non-pustular nodules of the skin.

Minin reports favorable results in the treatment of painful bruises, hematmata, infiltrations, acute and chronic eczema, ulcers and burns. A large percentage were cured, in others he noticed great improvement. In addition, cases are cited where local anesthesia to the parts treated was produced, and later he used this as a method of local anesthesia, so that minor operations were made painless. Marcus has not been able to report such wonderful results as Minin, but nevertheless has found satisfaction with the method in numerous instances. On account of these reports the blue light treatment was instituted by myself in a number of cases which had been treated for an excessively long time with the x-ray, without any appreciable change, especially after the first few months of treatment. The changes after the first treatments were so marked that I can not fail to mention them here. These and other cases which I have treated in this manner will again be reported at a later date. On account of the limited work which has been done by myself in this field, I wish to be pardoned

absorbed in the true derma. If this is true, and I am inclined to believe that it is, the penetration of the rays can account, by the action on the tissue, for the results attained.

To sum up blue light therapy it is necessary to consider:

1. Simplicity in the mode of application.
2. Large or small surfaces may be treated.
3. No untoward effects, especially no deep-seated burns, as in case of x-ray therapy
4. Results, comparing with other forms of light treatment.
5. Expense of apparatus.

Reading in Bed.—Almost every English medical journal has had its say on the subject of reading in bed, and the discussion has been mentioned in a few journals on this side of the water. The consensus of opinion is as follows: Under proper restrictions one may indulge in reading in bed without harm, the position of the reader should be upright, or nearly so, the subject matter should be not too exciting or absorbing, the light should be bright and properly placed, and every one who indulges in the habit should use moderation.