

room with steam, the patient being kept in the dark and quiet, has aided the case in progressing favorably. In regard to the value of transillumination, the amount of evidence it conveys to one depends largely on how he may use it. One should take into consideration the darkness of the room and the intensity of the light. There should be a standard lamp. It is not infallible, but it helps us often to find out what is there. I do not believe that it is pus that causes much of the opacity, but that it is the thickened blood-filled tissues.

DR. G. McAULIFFE, New York—Two points have appealed to me in acute sinusitis, and they are the persistent application of cold instead of heat and also the benefit derived from a good nose bleed. Nature induces a depletion later by the exudation of serum and pus. In regard to the choice between heat and cold, we know that cold is infinitely better where the bacterial potentiality outweighs the tissue degeneration. Where the tissue degeneration outweighs the invasion of bacteria, heat is better. I find the application of the ice bag diminishes the risk of further implication. I believe the advantages from anterior turbinectomy result not so much from the enlargement of the middle meatus as from the depletion of the hypermia in the middle meatus.

DR. GEORGE L. RICHARDS, Fall River, Mass.—I have had some experience in acute sinusitis, and I would like to endorse Dr. Stucky's remarks as to the value of syringing with warm saline solution in these cases. It certainly gives very great relief and washes out much of the mucus. In reference to the treatment of acute empyema of the frontal sinus, difficult as it is to pass a probe or canula up into it, I have several times relieved a patient who came to my office suffering greatly, by the passage of a probe up into the sinus. The relief was not due to the cocain which preceded the use of the probe, for there was no relief until the probe was passed into the frontal sinus.

DR. EDWARD PYNCHON, Chicago—Considerable has been said about the use of fluids in the washing out of the sinuses, and nothing has been said about the use of air, which will clean the nasal passages as well as water. The railroad companies use compressed air to clean the upholstery in the coaches, and I have put the same principle in practice in the treatment of the nose. With the hand nebulizer, when provided with a suitable tip, I think I have succeeded in driving medicated nebulae into the sinuses just as well as I could a fluid. For acute sinusitis, the use of politization, with the external ears closed, so the air is forced to enter the sinuses, will often relieve the headache and sense of fullness. Of course intranasal deformities are most often responsible for sinus disease, and we might say that conditions of the nose that impair the ventilation of the attic are the causes thereof. When there is no impairment of the drainage and ventilation of the attic, there will be no sinus disease. One attack of sinus disease undoubtedly predisposes to a recurrence thereof. We should correct, as far as possible, the deformities of the nose which are instrumental in impairing the drainage and ventilation of the attic.

DR. L. C. CLINE, Indianapolis—I would like to endorse what the Doctor has said. I believe you can reach these cavities by nebulizing and stop the growth of these microbic agencies. Still, I do not believe we can wash out the cavities well with solutions. We can do something to stop the inflammation. I was struck especially, during the reading of the papers, by the fact that gentlemen will come to the meeting of this Association once a year from the Atlantic to the Pacific and from the Gulf to the Lakes and read papers on the prevention of disease, but did you ever hear of lawyers coming together and discussing how to prevent lawsuits? When a man gets hurt on the train or street car, some lawyer is immediately after him to try to induce him to bring suit. On the other hand, we are here to try to prevent disease.

DR. ALLEN DEVILBISS, Toledo, Ohio—In a case of acute sinusitis I would no more think of trying to wash it out than I would to wash out the gonococci in a case of urethritis. If you want to carry the infection back and produce a case of posterior urethritis, use a syringe. So it is in the cases of

acute sinusitis; you will carry the germs farther on by trying to wash them out. If you have pent-up secretion, secure complete drainage and, as a rule, it will take care of itself.

DR. PETER J. GIBBONS, Syracuse, N. Y.—The principal cause of acute synovitis is a congested mucous membrane, whether it is from hay fever or any other disease. I wish to call special attention to the fact that the principal cause is exactly the opposite to what we get relief from. If you use suprarenal extract you get a contraction of the vasomotor system. The principal cause mentioned here is influenza. To talk of influenza and the various colds as being local diseases I believe is wrong. Influenza is a constitutional disease; it is no more a local disease than is syphilis a local disease in chancre. Influenza is caused by electrolytic dissociation of inorganic salts in the body into ions. Take sodium chlorid in the body, and any electrolytic dissociation that may affect it will give sodium positive and chlorin negative. Its effect is local on the mucous membrane or on the dilatation of the vasomotor system of that part. Chlorin mixes with hydrogen in the ethmoid sinuses without combining until the patient is exposed to light. The actinic rays cause them to unite and form hydrochloric acid. The ethmoid cells have something to do with chlorin, iodine, hydrogen and other ions and hydrochloric acid. We will find the causes of hay fever, hives, and kindred diseases in the ethmoid sinuses. They are the safety valves of the human body. The germ of influenza, then, is the same as the trout in the spring brook; the trout comes to the spring brook, not the brook to the trout. I believe inside of five years the medical profession will make a marked advance in the study of the physiologic function of the sinuses. There is a physiologic function of the various sinuses. And do not forget the tonsil. The tonsil eliminates the substances that the sinuses throw down. For the next few years keep track of the functions of the sinuses, and you will find it will be the greatest subject before the medical profession. I think Dr. Cryer agrees with me, the more the sense of smell is developed the larger the sinuses are, and the smaller the sinuses the less the sense of smell.

DR. J. A. STUCKY, Lexington, Ky.—In regard to what Dr. Mayer says, I thought over the term sinusitis a good deal before using it, but I did not know what other term to use. I am sorry Dr. Mayer did not name it. I said nothing, you will notice, about washing out the sinuses. In the last clause I said that if suppuration results it becomes a surgical case and as such it must be handled. Dr. Randall I think misunderstood me. I have always used transillumination, but I believe it is unreliable. I am glad Dr. Myles called our attention to some matters in this connection that I neglected to mention.

THE X-RAY IN CANCER AND SKIN DISEASES.*

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Of all the recent advances in the treatment of skin diseases, none has attracted more widespread interest than that of phototherapy. The treatment by light, while not strictly a novelty, has received such an impetus since Finsen first brought out his treatment of smallpox by red light, that actinotherapy, as well as the more recent radiotherapy, can almost be considered a method introducing a new era in the therapy of many affections. While the reports from the application of the Finsen method abroad appear most encouraging, comparatively little of a positive nature is to be reported from this side of the Atlantic. Radiotherapy, on the other hand, although of much more recent development,

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has advanced with such rapid strides that already sufficient reports are available to justify certain definite conclusions. I can not attempt here to collect statistics from the scattered literature, but must content myself with a brief report of my personal experience during the past year.

At the present time I can make a report on 35 cases of cancer of various kinds in which radiotherapy has been employed. Of these 9 were carcinoma of the breast, 6 recurrent and 3 primary. Of these one has died, 3 have ceased treatment, 2 of their own volition and one by my advice, and 5 are still under treatment and all showing improvement. One cancer of the chest wall, with extensive involvement of the skin, extending on both sides of the line of incision, has been discharged apparently or symptomatically cured. The opposite breast is, however, suspected of being involved, and treatment may be resumed for this reason. Of the other, internal or deep-seated cancers, there has been one death in a recurrent cancer of the neck following operation for cancer of tongue; one case of cancer of the rectum, which had improved decidedly up to a certain point, has been forced for some time to interrupt treatment; a cancer of the pelvic organs following removal of the uterus is still under treatment. Three cases of sarcoma, or more properly speaking, 2 of supposed sarcoma, one of the jaw and one of the chest, and a small round celled sarcoma of the finger now involving the meninges of the cord and probably other internal organs, are still under treatment, no positive report of progress being warrantable. In the small cell sarcoma the very worst prognosis has been made and the rays are administered for the patient's mental comfort rather than from any expectation of lasting benefit.

Beside these cases, there are now under treatment 6 patients, one with a rodent ulcer of the lower third of the left arm of twenty years' duration, involving nearly the entire circumference, being nearly three and one-half inches in length and penetrating to the bones and tendons; an epithelioma of the lip in a woman; a recurrent cancer of the lip in a man, and a multiple epithelioma of the face, forehead and neck. This last patient has had the disease for about twenty years, and has lost his left eye by operation on account of the disease, which several years ago invaded the periorbital structures.

Fifteen cases in all have been discharged as cured. These include 6 lesions involving chiefly the nose and lip, 2 the nose and eyelid, one the cheek and eyelid, one the region of the cheek just beneath the eye, 2 the chin, one the forehead, one the chest wall, one the face and eyelid and one of the cheek. Of the cases remaining under treatment, 2 can be regarded as nearly well, and a third has apparently recovered, so far as the skin lesions are concerned, while the eyes, which are both affected by the cancerous process, are making decided progress, though the sight of one eye has been, in all probability, permanently destroyed.

This case is worthy of a moment's consideration, the subject being a boy of 15 years of age, afflicted with the rare dermatological condition of xeroderma pigmentosum, which first began to show itself three years ago. It is of interest to note that this affection, which probably depends in a measure on the effect of exposure to sunlight for its development, should be beneficially influenced by light in another form.

Of the skin diseases proper subjected to the Roentgen ray there have been seven cases of lupus erythematosus, all of which have shown decided improvement, but only

one of which is considered cured. There have been four cases of lupus vulgaris; three can be regarded as cured and one is still under treatment very much improved. Eczema of various kinds is represented by ten cases, in which the ray appeared to assist, at times, other coincidentally employed methods. Five cases of inveterate psoriasis have been subjected to the rays with pronounced benefit in at least one of them. Eight cases of sycosis of inveterate form have all shown decided improvement, four having been symptomatically cured. In hypertrophic and rosaceous acne, 2 at least out of 5 cases have shown a marked effect beyond what could be expected from treatment coincidentally employed. Beside these there have been one case of leprosy, the patient claiming that improvement has taken place, and 3 cases of favus, in one of which at least the ray has appeared to be of decided benefit.

Taking, then, this series of cases as a basis for a personal estimate of the value of the *x*-ray as a therapeutic agent, my belief is that while it shows nothing especially brilliant, there are sufficient positive factors to enable us to state that in a class of obstinate and, in many instances practically incurable maladies, so far as other known methods are concerned, we possess in the *x*-ray an adjunct to treatment which bids fair to prove of incalculable benefit.

Care must be exercised in its employment, for it is an element of power which may be exerted for evil as well as for good. Severe cancer, I believe, must be treated with careful oversight, and not left to electricians and non-medical workers in *x*-ray laboratories, with occasional observation on the part of the physician. Symptoms may arise with great suddenness which require modification or entire withdrawal of the rays for a season with substitution of careful medical treatment.

30 East Thirty-third Street.

DISCUSSION.

DR. C. E. SKINNER, New Haven, Conn.—The paper deals with a field of therapy that is entirely new and with diseases that hitherto have been beyond help, such as cancer and other forms of malignant growth, which it had been found by ordinary means impossible to keep in check, and which, in spite of all efforts hitherto, have gone on in their course of destruction. The first question that is usually asked about a new treatment is about the permanency of the results. I would not regard the question of permanence as of so much importance as the actual fact of improvement itself. For instance, if we can succeed in stopping the course of a cancer so that it is cured for the time, it is a great gain, even if in the course of six months or a year the treatment has to be repeated. Even temporary improvement is a great advance, and patients would be willing to return at intervals for treatment that will arrest the disease, even if it does not definitely cure it. I have personally treated, during the last eight months, forty-five cases, most of which have been helped. Seven or eight were breast cases, all of them primary, and none broken down. In only two did I succeed in materially reducing the size of the lumps in the breast; all the others improved so slightly that I can not speak positively, except on one point: in all of the cases, the progress of the disease was checked.

Now, as regards the effect of the rays on metastasis, my opinion is that the metastasis would have occurred more frequently had the *x*-rays not been used. I believe that we are going to find a use for surgery, in the future, in connection with the *x*-rays, to an extent which can not now be anticipated. For instance, in a case of cancer of the breast, with involvement of the axillary glands, and some evidence of extension to the bronchial structures, I think that it would be the proper thing to remove the great mass of the disease by surgical operation, and then apply the *x*-rays until all evidence of the

disease disappears. I have seen several cases of lupus which did not improve, but I have also seen cases get much better.

With regard to the possible unfavorable influence of the *x*-rays, I have seen several cases give evidence of autointoxication while under treatment. One in particular, which had been doing very well, suddenly developed uremia and died in three or four days. It had given no signs of it before. The question, from the standpoint of scientific interest, of whether or not a toxin is developed or liberated and absorbed into the circulation during the treatment by *x*-rays is one of importance and deserving of consideration, especially in those cases where the growth is deeply seated. From a practical standpoint, however, I do not consider that it matters much, as almost any patient afflicted with inoperable cancer will accept nearly all risks from autointoxication or anything else, if, by so doing, he may secure a chance to get rid of the malignant process.

DR. A. W. BAER, Chicago—Dr. Allen spoke of metastasis possibly being excited by the rays. I hardly think there is much in that theory. The rays have been used for some length of time and perhaps a little stronger than necessary, but I have not seen anything that would warrant this opinion. Some patients take less kindly to the treatment than others, but I have never seen it cause metastasis. When cancer forms in the breast opposite from that which has been treated by the *x*-rays, it is because the germs were there also, before the treatment had been instituted. As regards autointoxication and death from uremia, it is possible that the *x*-rays had caused an increased discharge of toxic material into the circulation, which might set up uremic poisoning. In the case cited by the preceding speaker, I think the case would have died in a short time, anyhow. We can hardly blame the treatment for the unfavorable result. The question of sarcoma is a very interesting one. I was very much surprised to learn that any surgeon would recommend operation in osteosarcoma. I have yet to see a sarcoma of the bone which did not return in a very short time after operation. I think the surgeon referred to had carcinoma and sarcoma somewhat mixed. Surgeons do not, as a rule, care to operate on sarcoma of the bone. They will be very glad to be rid of this class of cases and turn them over to the *x*-ray operator. From what we have learned of the *x*-ray, I feel warranted in saying that where there is an inoperable case of carcinoma, or of sarcoma, after the surgeon has removed what he can of the diseased tissue, and has done all that he can, the patient should then be subjected to the *x*-rays. In a case which I supposed to be one of tuberculous ulcer I applied this treatment with striking result. I only made six applications, each lasting 15 or 20 minutes; the first application dried up the secretions and it commenced to heal rapidly, and a few more applications entirely healed it. In this case I used a mask and held the patient's face within 2 or 3 inches of the tube. The proper duration and distance depend on the patient and the kind of apparatus used: whether a static machine or a coil, as well as on the character of the tube. I have never yet seen a static machine that heated the platinum, but I have seen a coil apparatus heat the platinum in a quarter of a minute. Experience with each form is required in order to overcome difficulties and to obtain the most satisfactory results.

DR. HENRY VARNEY, Detroit—I have worked with both the static and coil. I have found—as has just been stated—that the coil will heat the platinum point very rapidly, because of its high amperage, compared with the static. On this account, one can not make a very long exposure with the coil, even with the mildest ray. That variety of machine is expensive to operate and dangerous to the patient. I do the greater part of my work with a static machine, and find it most satisfactory.

With a highly interrupted small static exciter, exposures may be given every day, bringing about a gradual stimulation which is less liable to destroy new tissue. I do not say that it will not cause a burn, because in the treatment of sarcoma and carcinoma, I have found it necessary to burn into the true skin before the condition was influenced, but with it the extent of the burn can be gauged from an erythema days before a dermatitis or destruction of the true skin occurs.

With regard to cases of uremia or, more likely, ray-toxemia, from overloading of the eliminative system, as would be caused from an extensive burn, a great amount of interest is excited. Within the past month patients have complained of rheumatism weeks after exposures have been given, where large areas were exposed, and it was the first time they had had an attack. I think there is need of further investigation in this direction, and I suggest that Drs. Allen and Skinner and other operators study the excretions of patients before, during and after treatment, and see if more light can not be thrown on this condition resembling rheumatism.

Referring to the penetrating power of the static apparatus as compared with the coil, I believe that with a hard tube great penetration may be had. Six months ago it was thought that we could get any penetration or stimulation. I had a case of epithelioma that involved the whole breast, axilla and two inches on the back, measuring seven and three-quarter inches in length by eight and three-quarters in width. In exposing the ulcer anteriorly, the back healed almost as rapidly as the anterior surface, by the rays passing through the patient's body, showing clearly the penetrating power of the static apparatus. I have many cases of osteosarcoma and carcinoma that have been operated on, the rays being given to prevent a recurrence. My experience warrants the statement that every case of malignant nature that has been operated on should subsequently be treated with the rays, in order to prevent recurrence, because of the influence of the rays in restoring normal cell action.

DR. CHARLES W. ALLEN, New York—I am very glad to hear the remarks concerning sarcoma and surgical operation. This is a tender point with me, because a reputable surgeon must know that most sarcomata ordinarily do not do well after surgical operation, and the interest of the profession is now excited by the favorable reports of the effects of the *x*-rays on this class of cases. In view of these reports, I think such patients should have the benefit of this treatment.

As regards the occurrence of toxic symptoms, I have observed joint and muscular pains of rheumatic character during treatment. This suggested to my mind the possibility of a poison being given off into the general system from the growth, and being thrown off so suddenly that the eliminating organs had not been able to take care of it. The source is the mass of broken down organic elements resulting from destruction of the growth. This is what I meant by saying that the *x*-rays are capable of doing harm, and that their application should not be left in the hands of inexperienced and non-medical men. Dr. Varney has said that you will have a warning before a serious burn occurs, by the appearance of an erythema. A burning sensation is at times the earliest warning. When the erythema appears the warning is usually too late, because burning has already taken place.

As to the kind of machine to employ, my preference is for the static for therapeutic effects. It has been claimed by some that the whole effect of radiation is due to electric action on the tissues. This may possibly be true; we can not say positively yet to what the action is due. When the rays pass through the body, some of the effects may be due to electricity. Different methods may be combined with the *x*-ray treatment, internal remedies may be given at the same time and caustic pastes may be at times employed to hasten the process. A preliminary course of treatment before cutting might be of advantage, as well as the post-operative. I am treating a tumor in the breast of a young woman, and holding the question of operation in reserve while watching the effect on the growth. It would be of advantage, it would seem, to have the progress of the disease checked previous to operation. After all operations, however, I would use the *x*-rays for a considerable time, perhaps a number of months subsequently, in order to prevent the return of the disease. I have had no experience as to the value of *x*-rays in the treatment of cancer of the stomach, or, at least, none that will warrant any deductions as to the value of this treatment, though I have treated cancer of intestinal, rectal and pelvic organ origin with evidence of decided effect.