

Program for Our
**Monthly Physiotherapeutic
Lecture Clinic**

Monday, September 13th, 1926

H. M. HALL, M. D., *New Carlisle, Indiana*

"General Practitioner's Physiotherapy Problems," 10:00 to 11:00 A. M.

LLOYD M. OTIS, M. D., *Celina, Ohio*

"Diathermy in Treatment of Gynecological and Genitourinary Conditions," 11:00 to 12:00 A. M.

H. M. HALL, M. D., *New Carlisle, Indiana*

"Practical Applications of Physiotherapy," 1:30 to 2:30 P. M.

LLOYD M. OTIS, M. D., *Celina, Ohio*

"Low Wave Generator in the Treatment of Disease—Demonstration of Technic," 2:30 to 3:30 P. M.

IF YOU are one of the hundreds of physicians who have attended these monthly meetings during the past year, no doubt you know from experience how interesting and informative these two well-known speakers can make their talks and clinics.

A variety of physiotherapy is offered for this meeting, the subjects chosen being of general interest to the physician out in the field. Ample opportunity will be afforded for questions concerning your individual cases, so come prepared to take your part in the discussion.

There is no fee for these lecture clinics and no obligation is involved. The meetings are held at Northwest Hall, North and Western Avenues, with ample facilities for every visitor. Physicians are cordially invited.

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FISCHER'S MAGAZINE



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August, 1926

Never Explain

*Your Friends do not need it
and your enemies will not be-
lieve you anyway.*

Fischer's Magazine

*Devoted to the advancement of the Science of Electro-Physio-
therapy and to the interests of those earnest and enlightened
medical men who are practicing it.*

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Vol. V

AUGUST, 1926

No. 8

Another Step Forward for Fischer's Magazine

FOR the second time this year, it has been found necessary to increase the size of Fischer's Magazine, in order to make space for the ever-increasing volume of material that becomes available, month by month.

Those of our readers who have been "subscribers" to Fischer's Magazine from that first issue of October, 1922, will recall with interest the various steps that have led to the development of this publication from the little Magazine of those days to the larger publication of today. Paralleling the rapid development of the various branches of Physiotherapy, this Magazine has shown, almost month by month, a growth in size, in the amount of editorial material and in the value of that material to its readers.

We should like to hold, through the columns of this Magazine, a Reunion of those First Subscribers! It would be interesting, indeed, to record the progress they have made along the paths of the newer branches of Medical Science during

these four busy years. Write us, Doctor. Your message will be of real interest, not only to the editorial staff who have labored in your interest, but to your fellow physicians as well.

Give us your experiences with Physiotherapy, too.

This Magazine is made possible by the generous contributions of physicians who record here, for the benefit of others, the treatments and technics that have proved successful in their own practice.

You may have information, based on your own experience, that will be invaluable to many other readers. Let us have it!

Tell us, too, how you like this latest form of Fischer's Magazine, and what we can do to make it more and more useful to you. If you know of a topic of general interest that should be discussed here, suggest it to us. If you require a trained assistant, if you have a practice to dispose of, if you have a need or a message of any kind in which we can be of service, write to

—THE EDITOR.

**There's a Reminder
on Page Thirteen
Which Should
Be of Interest to
Every Reader
of
Fischer's Magazine!**

Diathermy as applied in Pneumonia Arthritis and Hypertension

By T. HOWARD PLANK, M. D.
CHICAGO, ILLINOIS

BEFORE starting on the subjects announced, I wish to show you a case of old X-ray burn with keratosis and malignancy. Diagnosed by the National Pathological Laboratory, Chicago. The keratosis was removed from the man's hands with the Oudin current. This treatment was immediately followed by visible-light and actinic-ray treatments. The hands were entirely healed within eight weeks, which shows what can be done with physiotherapy in cases of old X-ray burns.

Diathermy is of definite value in lobar pneumonia but must be used with care in advanced cases or those enfeebled from any other cause. If several lobes are already involved when the case is first seen, give your diathermy through the lobe first involved if this can be determined as this portion of the lung will be more easily affected as resolution is more nearly ready to take place. Subsequent treatments at twelve to twenty-four hour intervals should

be over the other affected lobes in regular order.

During the first treatment use electrodes about three by four inches in size placing one anterior and one posterior to the involved portion of the lung. The milliamperage should be from three hundred to six hundred and the time from fifteen to twenty minutes. A heavier current and longer time will produce too rapid liquidation and there is danger of the patient in his weakened condition being unable to raise this, thus you would be literally drowning him in his own secretions.

Subsequent treatments must likewise be gauged by the amount of resolution taking place.

After two or three treatments, if the case is progressing satisfactorily, the amount of current may be increased to one thousand milliamperes and the time to thirty or forty minutes. After the fourth or fifth day, if possible, use general visible-light and actinic-ray treatments over



*Application of Electrodes in
Diathermy Treatment of Pneumonia*

the entire torso front and back. This treatment is also of value in cases accompanied by pleurisy with effusion. Here again the length of the treatment must be gauged by the improvement which takes place or too rapid absorption of toxins may bring about a fatal issue.

In cases of unresolved pneumonia, general visible-light and actinic-ray treatments are superior to diathermy although diathermy may be needed to clear up adhesions and to hasten resolution of the thickened pleura. We use electrodes of 22 gauge composition metal with suitable connectors for our pneumonia cases. These are not wet or soaped. If for any reason the patient is unable to lie quietly while the treatment is given, the applicators should be strapped in place. Severe burns will thus be avoided which are a definite complication to any case.

Arthritic cases should be subjected to intense elimination with visible light or light bath cabinet treatments to the tolerance of the patient. This should be followed by actinic-ray treatments from the air-cooled lamp. If the arthritis involves but a few joints, diathermy is of value and this should be driven through the joint by placing one electrode anterior and one posterior to the limb above and below the joint then use sufficient milliamperage to be comfortable to the patient. The length of the treatments should not be less than thirty minutes and many times it is advisable to increase the time to forty-five or fifty minutes. They should be given daily.

In cases of endocarditis or myocarditis accompanying arthritis, it is well to use diathermy through the heart starting with a low milliamperage for a short time. Use about three hundred milliamperes for twenty minutes. The size of the applicators should be about four by

five inches. The milliamperage and time may be increased as the patient improves. Be careful about using too much heat through the heart. When giving a diathermy treatment the machine should be balanced to give a smooth even current without faradic sensation and a current that is comfortable to the patient.

Gonorrheal arthritis yields more readily than streptococcic or staphylococcic arthritis. In all cases we use composition-metal electrodes.

For hypertension cases particularly those accompanying nephritis, autocondensation is extremely valuable and should be given with the patient lying on a thick pad using about six hundred to nine hundred milliamperes of current from eight to twelve minutes, seldom longer. This should reduce the blood pressure from ten to twenty millimeters of mercury during the treatment half of which should be maintained during the following twenty-four hours if the case is one which will respond to autocondensation. These treatments should be given daily until there is definite improvement then every second or third day.

1612 Heyworth Building.

Trigeminal Neuralgia

From a letter

By W. B. CHAPMAN, M. D.
Carthage, Mo.

REGARDING this condition (Trigeminal Neuralgia) I have not as yet found a form of physical application that appears to help. I have used diathermy, galvanism, the X-ray, the lamps, and almost all forms of electrical apparatus in the treatment of this condition and none of them have ever helped a particle. Most of the patients think they are slightly benefited after the first one or two treatments. This has always proved to be psychological and the only treatment that promises any degree of success is the alcoholic injection severing the sensory root fibers as is done in the classic Trigeminal Nerve operation.

Physiotherapy in General Practice

By V. S. MANCUSO, M. D.
DETROIT, MICH.

PHYSIO-THERAPY means the use of natural forces such as light, heat, air, water and exercise in the treatment of diseases.

At present, however, physiotherapy has come largely to mean the treatment of diseases by mechanical methods. This definition permits of a wide latitude of application, but in my discussion tonight I shall limit myself to the use of the quartz lamp and diathermy which constitute only a limited portion of this broad field of therapeutics.

As you can readily see there is almost no phase of medicine in which physiotherapy is not applicable. One of its greatest values is in the treatment of what we formerly termed the incurable diseases. Contrary to the opinion of many who are not informed regarding physiotherapeutic appliances, there is no guess work about the application of the various measures and it requires training and skill as in all other scientific procedures.

At the present time, physiotherapy has become largely electrotherapy. Electricity is not a cure-all and no sensible physician will consider it to be such or advocate its use in all cases that come to his attention, but neither are drugs or the knife infallible, therefore, we must use

**"At the present time,
Physiotherapy has
become largely
Electrotherapy."**

our judgment in prescribing and give our patients the same study and attention that we would give in other forms of treatment.

The Quartz Lamp

In dealing with the ultra-violet ray as generated by the standard quartz lamp, we must consider separately the action of the rays from the air-cooled and from the water-cooled lamp. The rays from the air-cooled lamp are long, that is, from 2600 to 4000 Angstrom units in length where the visible spectrum begins, and are tonic in effect. They are used for constitutional effects and in the treatment of skin diseases. The rays given off from the water-cooled lamp are shorter and more bactericidal in effect. They measure from 1,850 to approximately 3,000 Angstrom units.

Contrary to the statements of Pacini and others, who say that the arc of the air-cooled lamps should be placed forty inches from the surface of the patient, I have been using an eighteen inch F. S. D. and find that I secure very good therapeutic effects. It has been found that the air-cooled lamp affects markedly the alkalinity of the blood with an increase of the calcium fixation and phosphorus content. It is of special value in the treatment of the so-called deficiency diseases such as rickets, and tetany.

In over-doses, however, the ultra-violet ray causes a suppression rather than an increase in the chemical blood reaction just mentioned. It is also thought that these rays increase the blood platelets, and will raise a lowered hemoglobin percentage to the normal. Briefly, these rays are tonic to the body as a whole.

In combination, the ultra-violet and infra-red rays as given off by the air-cooled mercury quartz lamp are sedative in effect and are useful in relieving tender and painful conditions. The short ultra-violet rays of the water-cooled lamp and also to a slight degree, the shorter rays from the air-cooled lamp are thought to charge the blood with oxygen formaldehyde. This disinfectant kills germs, neutralizes toxins and aids in restoring normal metabolism to the blood and other cellular tissues.

LaGrasso states that in forty selected cases of a moderately advanced pulmonary tuberculosis where there was no tendency to improvement and the prognosis was not improved by rest and general medical measures, the physical signs decreased in seventy-eight per cent of these cases with no change in sixteen per cent and were increased in six per cent after the application of ultra-violet ray treatment. In this connection it is fair to say, however, that many observers state that general body irradiations do more harm than good in the treatment of pulmonary tuberculosis. This statement has been borne out by the great scientist, Rollier of Leysen, Switzerland.

I am personally acquainted with Dr. LaGrasso and I know him to be a close observer and an excellent clinician who has had a wide experience and a mass of material to

work with, therefore, I feel that his findings should have weight.

To date, I have treated three cases, two incipient and one moderately advanced case of pulmonary tuberculosis. Each of these cases showed the tubercle bacilli in the sputum. All of the cases have showed marked improvement. After twenty treatments, the advanced case is so improved that he is able to take long walks, his appetite is good, he sleeps well and is better in every way. Among the other cases that I have treated I will mention a case of chronic pleurisy in a man who was able to return to work in two weeks after beginning treatments with the quartz lamp and diathermy, whereas, he had been incapacitated over a period of six months. I have seen cases of acute bronchitis clear up after three treatments. One case with a temperature of 102° F., respiration 28, pulse 120, blood streaked sputum and a nasty cough was also relieved by three treatments. I have also employed this method with marked benefit in whooping-cough. As a tonic before and after operation and in debilitating diseases, the ultra-violet ray is certainly valuable. It is also used to advantage in skin diseases, such as psoriasis, eczema, tenia versicolor and to a less degree in acne.

In traumatic conditions it will keep the field sterile and shorten the time of healing. I have used it to an advantage in the treatment of both sterile and infected wounds and especially in old ulcers.

Diathermy

Diathermy is a term given to the production of heat within the body by the resistance of the tissues to the passage of an electrical current. By employing proper sized and shaped electrodes, we are able to

deliver heat to any part of the body that we desire.

For clinical reasons we see fit to divide diathermy into what we term medical or constructive diathermy, and surgical or destructive diathermy. The dividing line being where stimulation ceases and disin-tegration begins. In medical diathermy we have the treatment par-excellence for painful and infec-tious conditions; whereas, surgical diathermy is best adapted to the de-struction of neoplasms that are frankly or potentially malignant. By using a mild current as in medi-cal diathermy and warming the tis-sues to a degree not exceeding ap-proximately 115° F., we cause an increased metabolism, a vasodilata-tion of the blood and lymph chan-nels which as you will see would be of special value in building up the tissues or cause an absorption of in-flammatory products. This heat is also, of value in destroying or in-hibiting the growth of bacteria. It is also of value in softening and re-storing inflamed or fatigued muscles and in the treatment of all painful conditions. By attracting fresh blood to the part it will hasten or rather stimulate the healing of frac-tures and has marked reparative and analgesic properties.

Dr. Crile states that in bad risk cases he gives general ultra-violet treatments before operation, diathermy over the liver during opera-tion and, afterwards, diathermy over the base of the lungs in order to prevent pneumonia. Dr. Stewart claims that no case of pneumonia has died that had diathermy treat-ment during the onset.

Chronic kidney conditions, altho not cured, are helped by diathermy. I had one bad case of eclampsia wherein the patient went blind and was in a desperate condition, that I am convinced was saved by the

combined use of diathermy and the ultra-violet lamp. I have also ob-tained good results by these meth-ods in the treatment of high blood pressure, nephritis, and other seri-ous conditions. Diathermy is of special value in the treatment of myalgia, neuritis and in all rheuma-tic conditions. I have treated sev-eral cases of sciatic rheumatism with improvement. Its value in the treat-ment of gynecological conditions cannot be questioned. However, I am beginning to realize the vast possibilities of physiotherapy and to know that by its use I have been able to relieve or cure conditions that would have been hopeless other-wise. If I have left with you only a curiosity in regard to these mat-ters, I feel that I have done you and your patients a great service, as I am convinced that there is a great need for a more thorough knowl-edge and a wider use of physiother-apy in the practice of medicine and surgery.

515 Kresge Bldg.

Influence of Diathermy in Checking Glycosuria

BORDIER summarizes the results of Ghilarducci's research on guinea-pigs, given phlorhizin, or fed with sugar, or pancreatectomized. Diathermy was then applied to the animals and none of them developed glycosuria, while glyco-suria was pronounced in the controls. The influence of diathermy was also evi-dent in dogs with induced pancreatic dia-betes. While insulin tends to supplement the products secreted by Langerhans' islands, the diathermy current stimulates the internal secretion of the islands, thus accomplishing the same purpose. Unvoli has confirmed in the clinic the insulin-like action of diathermy in diabetics, and Bordier reports the case of a young man with 5.9 per cent glucose in the urine. It dropped to zero in the course of six diathermy exposures, and the cure has been complete to date.

(From J. A. M. A.)

Management of the Post Influenzal State

By CURRAN POPE, M. D., F. A. C. P. T.
LOUISVILLE, KY.

INFLUENZA

Is an ex-tremely common infection. I shall limit myself to the post-influenzal state. Influenza is apt to leave in its track sequelae in the lungs, the heart, the nervous sys-tem, the gall bladder and the in-testinal tract. I have found these to be the most frequently involved systems following influenza.

I am much inclined to accept Sajon's ideas of influenza, that it is an infection that is accompanied by minute necrotic changes in the lung. If we examine the patient who has had a genuine flu with the fluorescent screen or by plate, we will find that there are well defined changes in the structures of the chest. We may find general pul-monary fibrosis that will be shown by many streamers that pass out from the hilum toward the peri-phery of the lung. In the hilum and mediastinum itself there is oftentimes well marked para-bron-chial thickening. In my clinic we call this fibrosis, thickening, in the mediastinum of the bronchioles and the glandular enlargement, the "flu syndrome". An individual who has had flu has taxed rather se-verely two of the endocrine systems of the body, the thyroid and the adrenals. Nearly every one of these cases is suffering from thyroid and adrenal asthenia, and that is a con-dition requiring attention.

Medical Director,
The Pope Hospital;
Neurologist and Physical
Therapist to
St. Anthony's Hospital

In treatment we may first con-sider hydrology. Commence by giving the pa-tient an electric light bath until he perspires

moderately. Leaving the light bath, rub the chest, front and back, includ-ing the spine, thoroughly with coarse salt, and following this with the various showers, needles, and espe-cially what is known as the jet douche. The patient should be gradually trained to stand cold water. Preliminary heating proced-ures, warm water and tonic or cold water, being sure to obtain the *hy-driatic reaction*.

In the treatment of these cases unless reaction is established the aim of the treatment has been de-feated. By reaction we mean all of those intricate changes that take place in the general, and particularly in the nervous sys-tem. We want the rebound that comes from the cold application. The patient must feel warm, the body glow, the skin assumes a pink-ish or reddish hue under the fric-tion of the coarse towel. The physi-ological action of this treatment is to first bring the blood to the surface by heating the body surface from the electric light bath, the friction with salt and the application of hot water. Cold water is then applied. The column of blood turns from the skin where the blood vessels have been dilated and rushes toward the

center, most of it going into the splanchnic area only to return again to the surface when the blood vessels again dilate, this time tonically in the reaction.

The responses of the body to hydrology are manifold. Their influence is to rebuild strength, increase glandular activity, regulate the circulatory state of the individual, favor elimination, increase metabolism, especially of the destructive-constructive type, in which the waste material is removed and fresh pabulum taken up by the tissues.

All hydrotherapeutic treatment should be prescribed. The kind of treatment, extent of body surface, the temperature, the pressure and the duration are all very important elements in the question of the successful handling of the case.

Use of the X-Ray

The next measure that is of special value in these cases and particularly so in the condition within the chest is the X-ray. Here again I use a technic we have developed. We usually employ from twenty-five to fifty milliamperes minutes giving the treatment twice a week; once weekly to the anterior chest, and once weekly to the posterior chest.

The physiological action of the X-ray in these cases is brought about by its direct action upon the entire structures of the chest. It penetrates entirely through the body and, therefore, is brought in contact with each and every cell within the area upon which the radiation is

thrown. A certain amount of ionization takes place followed by very considerable stimulation with the result that fibrotic tissue within the lung is more or less resolved or if it is not resolved, it is softened to the extent that it is rendered more flexible and resilient.

Another action is the relief of any low grade infection that may be present. I do not think that the average physician realizes what a valuable factor he has in X-radiation in the treatment of low grade

chronic infective processes. Properly used, it is one of the best agents that we have at our command. I have seen the X-ray promote absorption in the lung deposits that were present, and I believe that in all cases where it is employed its physiological action is to promote absorption and to soften fibrotic structures.

Therefore, the employment of the X-Ray not only gives us its own physiological activity but it makes for an easier and better result in other measures that we may employ in conjunction with it.

Diathermy

I know of no better measure in the treatment of the post-influenzal conditions in the chest than diathermy. We use large electrodes, six by eight, or eight by ten inches, depending upon the size of the chest, using them anteriorly and posteriorly so as to get as much lung tissues as possible underneath the electrode. Use large dosage. By large dosage I mean a minimum of 1,000

milliamperes and all the way up to 1,200, 1,400 and 1,500 milliamperes. I am confident from no small experience that in the treatment of the post-influenzal involvement in the chest large doses of shorter duration will give better results than small dosage of longer duration. I give the heavy dosage for ten minutes.

The physiological action of diathermy in the chest under these conditions is that of a heating procedure. As a result of this heating procedure, we have an enormous vascular influx into the lung with the consequent hyperemia that takes place and, as we know, all really curative, all really helpful measures are based upon the question of whether the blood can reach the part. If the blood is of the proper character, quality and quantity, the patient will be able to overcome the condition and heal himself. The blood is the life; that is literally the truth.

Nearly all of these cases suffer more or less from nervous irritability and discomfort in the chest. Diathermy is a direct sedative. The individual feels better, is better. The little hacking cough gets better, expectoration increases because of the increased bronchial flow and increased elimination takes place.

Lastly, with this increased quantity of blood circulating in the part under favorable circumstances, absorption takes place. Thus we see how the X-radiation softening the glandular structures and the fibrosis, plus the intense hyperemia that we gain from diathermy, become synergists and reinforce one another, and in that way we can oftentimes completely clear up a lung. I believe there will always remain a certain amount of restricted fibrosis and a few glands that have become calcified, but enlarged glands, the soft

uncalcified glands will disappear.

Galvanism

The galvanic current is a very valuable aid in these cases. We employ large electrodes, well wet, warm, closely applied to the chest wall. I give large doses; forty, fifty, sixty milliamperes for ten minutes. The physiological action of this current is to soften, break down, absorb, to get rid of fibrosis. It will destroy fibrous tissue. If any one has a Dupuytren's contracture which you can see, feel and watch, use the negative pole of the galvanic current, place it upon the fibrosed Dupuytren's contracture, and giving nothing but galvanic current you will be able to see the fibrosis soften, you will see the party able to open the hand and you can with the galvanic current alone relieve almost any case of Dupuytren's contracture. I have relieved any number of them. Therein lies the proof, you can see it, you can feel it, you can touch it. It does the same thing in the pelvis of the female; softens the parametric, the metric and the cervical fibrosis that is present and renders the diathermy and the X-ray much more effective.

You will see in what I am telling you that I am trying to give you a system by which certain currents will do certain things, but each working along the same general way and yet not one of these currents alone can accomplish the results that will come from a combination of the three. We may confidently hope that with the use of the X-radiation, the galvanic current and the application of diathermy, we have three measures that are capable of getting rid, as far as human beings can get rid of, the post-influenzal conditions that remain in the chest. General upbuilding will be accomplished by your hydraulic treatment.

Static Current

The static offers a very good field in this condition. It is used with the pad upon the chest and the wave current is employed. It has a mechanical effect. With each spark that is with each discharge of the condenser, to put it more accurately, there is a mechanical, a chemical and a thermic condition brought about that aids rapidly in the absorption of the post-influenzal products, and for that reason it is an excellent aid but it will not do this by itself.

Other Measures

Actinic light is of help. It has no specific action whatsoever. It tends to bring about an increase in the calcium metabolism of the body.

Do not forget that you have to deal with a low grade infection. The use of non-specific protein and the prescription of endocrine substances will be found of considerable value. Employ very small doses of thyroid. The dose should be just enough to reactivate the thyroid gland.

The Results of Diathermy in Pelvic Infections

By THOMAS H. CHERRY, M. D.

NEW YORK CITY

THE intractable nature of gonorrheal intrapelvic infection is such that any form of therapy which holds out any hope of reaching and destroying the gonococci in these hidden recesses deserves investigation.

Dr. Cherry was spurred on to try the effect of diathermy in adnexal diseases of gonorrheal origin as a result largely of the favorable results reported by Corbus who employed the high frequency current in the treatment of gonorrheal urethritis and endocervicitis.

Dr. Cherry was placed in an unusual position for conducting an intensive investigation as he was able to select a large number of patients which he could keep under constant observation for a period of time and in that manner check up accurately on the results of his work.

The patients selected for investigation and treatment numbered 100

in all, being selected from the Gynecological Division of Harlem Hospital, New York City.

Rationale The principle underlying the use of diathermy in gonococcal infections depends upon the well known fact that the gonococcus will die if exposed for ten minutes to a temperature of 42 degrees Centigrade.

Diathermy consists of generating heat within the tissues by means of an electrical high frequency current passed between two electrodes placed externally.

Regulating Temperature Since tissue is definitely destroyed at a temperature of 60 degrees Centigrade and since the amount of heat which normal tissues will tolerate probably does not exceed a temperature of 55 to 58 degrees Centigrade it is vitally necessary to be in a position to control the heated diathermy within fairly

narrow limits. Fortunately this is possible as the temperature developed between the electrodes of a high frequency current directly depends upon the size of the electrodes, the amount of current utilized, the duration of the application and the density of the tissues treated.

Focusing the Heat on the Affected Part

The depth of heat penetration can readily be regulated by varying the comparative sizes of the two electrodes. Where two electrodes of equal size are used maximum temperature developed will be equidistant from each. When electrodes of different sizes are employed the greatest degree of heat will be near the small one.

In order to concentrate the desired degree of heat on the affected adnexa preliminary experimental work was carried out on the cadaver, using different types of electrode.

Without going into detail, it was found, experimentally, that with an abdominal electrode measuring 18 x 12.5 cm. and a vaginal electrode, the active surface of which measured 5 x 3 cm., it was possible to heat the adnexal region to 46 degrees Centigrade. The actual vaginal temperature recorded on the thermometer attached to the vaginal electrode registered 44 degrees Centigrade.

Results of Clinical Application of Diathermy

Realizing that electrotherapists and authorities on physiotherapy have objected to the principle of employing diathermy in cavities containing pus, in which no outlet is present for drainage, Dr. Cherry feels constrained to give his reasons for employing the method on some of his patients who presented large pyosalpinges or tubo-ovarian abscesses.

Dr. Cherry argues that if the gonococcus is the inciting factor producing such pelvic lesions and if the penetration of the diseased structure by heat could be maintained the causal agent would be destroyed with an incidental reduction of the inflammation.

Furthermore he argues the active hyperemia produced should aid in the rapid absorption of the products of infection and should promote resolution.

In this series of 100 patients presenting adnexal disease the gonococcus was identified as the causal factor of the trouble. All patients had an accompanying endocervicitis—some had urethritis, Skene's duct involvement or Bartholinitis which, in Dr. Cherry's opinion, classed them as of gonorrheal origin.

Among the series of 100 patients, 77 presented pelvic or abdominopelvic masses while the remaining 23 patients without masses nevertheless presented thickened and tender adnexa.

Methods of Administering Diathermy

In the course of the series of treatments three methods of applying the electrodes were tried, namely abdominopelvic, abdominorectal and abdominosacral. Of these the abdominopelvic appears the most practical. It was attended with less discomfort to the patient than the rectal route and it required less time and less current to produce the desired pelvic temperature than in the case of the sacro-abdominal route.

Abdominopelvic Technique Abdominopelvic applications consisted of applying an abdominal electrode above the pubes and in contact with the skin while the vaginal electrode, through which the thermometer was inserted, was placed behind the cervix and in contact with the vagi-

nal vault. The current was regulated so that the vaginal temperature was raised to 42 or 43 degrees Centigrade. This required 1500 to 2500 milliamperes. The maximum temperature in the inflamed adnexa was estimated at around 44 or 45 degrees Centigrade. When this point was reached the current was stabilized and a uniform temperature maintained for 15 to 30 minutes. Treatments were repeated at three to five day intervals.

As all these patients had a co-existing endocervicitis, the cervix was also treated, either at the same sitting or at another time, administering diathermy by means of the Corbus thermophore. Where patients had an associated urethritis the urethra was treated in the same manner as the cervix. In the case of the cervix or urethra the amount of current utilized varied from 500 to 1000 milliamperes.

Results of Treatment In the endocervicitis group 48 patients were treated, of which 24 were cured or markedly improved, and 24 showed no improvement at all.

Dr. Cherry considers that the application of low degrees of heat (from 42 to 43 degrees Centigrade) to the cervical canal is efficacious only in acute or subacute inflammation of the endocervix. In the chronic type of case it is preferable to entirely destroy the infected area by coagulation from the internal to the external os.

In the urethritis group out of 13 patients treated 6 were cured, 6 improved and 1 not improved.

Dr. Cherry lays great emphasis on the importance of clearing up the lower genital tract infection as a means of preventing reinfection of the adnexa.

In Patients with Adnexal Masses

Among the 77 patients who had pelvic masses

there was complete disappearance in 18 instances, reduction in size in 14. The complete disappearance of the pelvic masses seemed more apt to occur in those having an initial attack of adnexal infection.

Of the 77 patients having adnexal disease with masses, 49 were entirely relieved of symptoms, operation being unnecessary or refused by the patient.

The Pre-Operative Effect of Diathermy

Of the 28 patients whose adnexal masses persisted, operative removal was carried out. It is interesting to compare findings in these patients with others of a similar nature who did not receive pre-operative diathermy. It was found at the time of operation that the pelvic structures appeared more hyperemic. They were soft, edematous and smooth. The adhesions were vascular and thin and quite unlike the thickened fibrous structures usually seen. As a result rapid removal of the masses was facilitated.

On examination of the contents of the masses following removal it was found that instead of the usual thick, creamy, purulent exudate, the contents consisted of a thin, watery, straw-colored fluid.

It is interesting to note that the post-operative convalescence of these patients was remarkably free from abdominal discomfort, pain, vomiting and distention. Throughout all the cases receiving diathermy applications almost instant relief of pain was observed.

In pelvic infections, not of gonorrheal origin, Dr. Cherry's clinical experience has been limited. The few cases coming under his notice have been postpartum infections in which the specific bacteria responsible were the streptococcus, staphylococcus and the colon bacillus. Since

these bacteria required from 58 to 60 degrees Centigrade to render them inert a lower degree of heat would not only fail to inhibit the pyogenic processes but also produce a suitable cultural environment for their growth.

It is possible diathermy would exercise a beneficial effect in the chronic rather than the acute type of postpartum exudate but the subject is open to question through failure of clinical evidence one way or the other.

Summarizing Dr. Cherry concludes by asserting that diathermy is probably the most satisfactory available agent for the conservative treatment of pelvic infections due to the gonococcus. In

this type of case diathermy relieves pain, diminishes the size of the pelvic masses and aids in complete resolution.

As a pre-operative therapeutic measure, diathermy will eliminate many of the technical difficulties of operative removal, thereby contributing to a smoother convalescence.

Dr. Cherry further emphasizes that the results of diathermy can be greatly improved in private practice. His own clinical experiments were carried out in an institution where it was only possible as a rule to give 15 minute applications. In private work 35 minutes is the minimum duration of each application.

(Digest of an article in J. A. M. A., Vol. 86, No. 23, June, 5, 1926.)

A Reminder



THE October Clinical Congress on Physical Therapy, under the auspices of the American College of Physical Therapy, will be held at the Drake Hotel, Chicago, October 18th to 23rd, 1926.

As originally planned, the program will be divided into two sections; the first, purely instructive; the second, consisting of papers, chalk talks, and clinics.

Accordingly, physicians who wish to attend the instruction classes are requested to make their reservations beginning October 18th. Monday and Tuesday, the 18th and 19th, will be devoted entirely to classes, under some of the country's foremost physiotherapists.

October 20, 21 and 22 will be given over to a well-rounded program of lectures and clinics, for which there have already been secured enough famous speakers to warrant a record attendance by interested physicians. On Saturday, October 23, clinics will be held at various Chicago hospitals.

Inquiries and requests for information should be addressed to

A. R. HOLLENDER, M. D., *Chm. Program Committee*
30 North Michigan Avenue, Chicago, Ill.

Physiotherapy in Industrial Surgery

By LLOYD M. OTIS, M. D.
CELINA, OHIO

THE real value of this line of work can not be appreciated until the physician has actually employed it or observed the results achieved. In order to gain a working knowledge of physiotherapy's possibilities one must bear in mind the physiological reactions that take place when the various modalities are employed.

Three Valuable Modalities

There are three modalities that the industrial surgeons find indispensable, namely: Diathermy, Ultra-violet Ray and the Sine Wave Currents. A brief explanation of their physiological reactions will enable the physician to employ them judiciously.

Diathermy is a means of employing internal heat within the tissues. Thus metabolism is increased by opening the lymph and blood channels, increasing lymphocytes, phagocytes and enzymes, hence removing stasis and tissue deposits. As pain is due to pressure it is relieved by the removal of the stasis and inflammatory products. The high temperatures that are generated within the tissues serve to inhibit bacterial growth.



Fig. 1—Hand before treatment. (Case No. 1.)

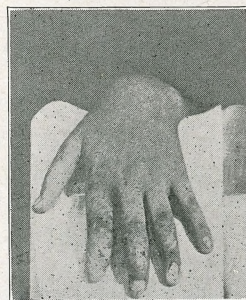


Fig. 2—Final result of hand.

Ultra-violet Ray (also known as Actinic and Quartz Ray) used locally on open wounds is without doubt one of the most powerful germicidal agents if not the greatest.

Used as general radiations to the body it increases resistance and is a big systemic booster. The erythrocytes are increased, the calcium and phosphorus content of the blood raised.

The Sine Wave is employed as a muscular massage and stimulator to hasten the return to function of muscles that have weakened from disuse such as we have after splints have been employed, or following stiffness after inflammatory conditions.

Thus a combination of the three modalities is of great value in industrial surgery. Diathermy to reduce pain, promote and keep up circulation; Ultra-violet Ray as a bactericidal agent; the Sine Wave to hasten the return of muscular function.

Today, as a result of this work, we are saving 90% more fingers and having 50% less permanent deformities. A few case histories will perhaps better convey the idea.

Case Reports. Case No. 1: A boy, aged 17, had a box of dynamite caps explode literally riddling his left hand and leg. They had the appearance of a honeycomb. The bone in the first two fingers was extensively fragmented and numerous suppurating sinuses followed. The hand throughout was filled with brass. The leg half way up the thigh and extending an equal distance below the knee was a mass of devitalized tissue. The sinuses were filled with clothing and tissue debris.

I received the case one week after the accident. He was brought to my hospital for amputation of the first two fingers. I told the physician much to his surprise that I thought the fingers might be saved. At least I was not satisfied to amputate until Diathermy and Ultra-violet had been given a trial.

The first illustration shows the hand upon entrance (Fig. 1). The first is the photographer's view, the second the X-ray. This shows the amount of brass in the hand, and the fragmenting of bone.

The hand and fingers were given diathermy by placing a strip of block tin about the wrist, holding it in place with a piece of rubber tubing. The hand was then placed in a basin of water in which the other cord generally fastened to a small piece of block tin is placed. The current is turned on slowly until you reach the patient's tolerance of

heat. If you desire to treat the fingers alone, then the hand is raised from the water and the entire current concentrated on the fingers. The patient may form his own rheostat; if the heat is too intense, he may drop another finger in the water or slide the entire hand in.

Ultra-violet was given with the water cooled machine, following each diathermy treatment. We began with a 5 minute exposure increasing to 10 minutes. Quartz rods were also inserted into the sinuses.

In a few days the purulent discharge stopped and by the end of six days healthy granulations appeared. In 26 days the hand was cleared up. The final result showing healing of hand and flexion of the fingers is shown in Fig. 2.

The leg was treated by placing a strip of block tin half way around the calf, and another half way around the middle of the thigh. By this method the current is conducted along the surface through the macerated tissue.

Ultra-violet was administered as given to the hand. It cleared up with the same rapidity. Illustrations 3 and 4 show the leg on entrance and 26 days after when he was discharged.

Sine wave in this case greatly assisted the ligaments in breaking up adhesions and function was returned at a much earlier date.

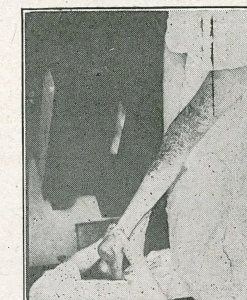


Fig. 3—Leg before treatment. (Case No. 1.)

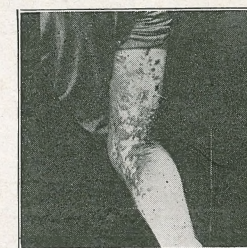


Fig. 4—Leg after 26 days.

Case No. 2. To show what is possible in a compound infected fracture I am going to present a case of subacute Osteomyelitis. This will give you an idea of the germicidal action of quartz light, and how, combined with diathermy, it assists in depositing calcium and phosphorus in bone conditions.

This was a boy aged 12 years, contracting acute osteomyelitis in the femur in April. In spite of numerous surgical procedures the disease had not been influenced but was steadily becoming worse.

In July Ultra-violet light was administered in the form of a general radiation, and quartz rods with the water cooled machine inserted into the sinuses. Diathermy was given with the through and through method.

Fig. 5 shows the condition when this treatment was started. The sinuses rapidly healed and bone proliferation started at an astonishing rate. Pound after pound of weight was added and Fig. 6 will show what has been accomplished after four months of treatment. You see, if such a result has been accomplished in a

disease as severe as this, what you can expect in compound infected fractures.

Case No. 3. In the spring of 1925 a man, while helping to place a steam boiler, had his wrist caught between the boiler and its support.

The wrist was badly crushed. After the process was healed he was left with a stiff wrist and immobile fingers. These had been stiffened for 8 months before physiotherapy was started. Diathermy was given through and through the wrist, followed by the sine current giving about 55 contractions a minute. After the first treatment he was able to show some motion. The treatment was given daily and after 12 treatments 90% flexion and extension had returned. He returned to work 2 weeks after treatment was begun. This shows the economic factor that is possible with this line of work.

Case after case could be cited, showing that not only is the patient relieved and his injuries cleared up at an earlier date with less permanent sequelae, but the employer is likewise relieved of an unnecessary financial burden.

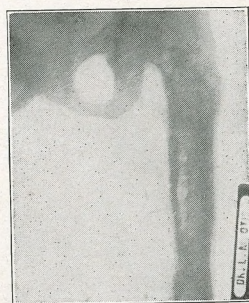


Fig. 5 — Case No. 2. Femur early stages of treatment.



Fig. 6 — Final results of femur.

Proper Method of Cleaning Mesh Electrodes

So many inquiries have come to this office concerning the best method of cleaning mesh electrodes that we decided to publish a general answer. According to the method approved by our chemist, the following are the steps in this process:

1. Immerse the electrode in hot lye solution for five minutes.
2. Dip several times in a mixture of 65% Sulphuric Acid and 35% Nitric Acid.
3. Rinse thoroughly in cold water, then in hot water.
4. Rinse in salt water solution to prevent tarnish.

Tuberculosis of the Cervical Lymph Glands

(Continued from last issue of Fischer's Magazine)

By W. B. CHAPMAN, M. D.

CHAPMAN CLINIC, CARTHAGE, MO.

PREVIOUS to the advent of physical agents in the treatment of tuberculosis of the cervical lymphatic glands, the physician had his choice of three standardized methods of treatment. First, what we might term the palliative treatment, which consisted of the application of external antiseptics, of which Tr. Iodine was the standard, in an effort to absorb the glands; secondly, the application of poultices and hot fomentations in an effort to break down the glands with pus formation, and lastly, radical surgery.

In the majority of these cases the patient passed through several weeks or months of more or less acute suffering until the glands became necrotic, sinuses formed, and the pus was discharged through the skin. This always meant a more or less protracted period during which the necrotic glands were discharging; and where healing took place, there always remained the unsightly scars which invariably followed conditions of this kind. Fortunately many of these patients consulted the surgeon early, and the process was incised as soon as pus formed, thereby evacuating the pus with a minimum amount of skin involvement which greatly limited the formation of scars. In many instances, however, these glands did not become necrotic, but the process spread along the entire cervical chain with the formation of a huge

irregular mass, sometimes extending from the temporal region to well down into the mediastinal space. Such conditions required radical surgery, and often resulted fatally. Physicians who have performed this operation, or who have seen it done, will appreciate the absolute futility of attempting to remove all the lymphatic glands by operation. The only thing that the physician can hope to accomplish is to remove the majority of the larger diseased glands and establish drainage, hoping that the remaining lymphatics will either be absorbed or necrose and discharge through the incision.

Before taking up the use of physical agents in the treatment of tuberculosis I performed a number of these operations. I invariably found that the large vessels of the neck, as well as important nerves, were firmly embedded within the mass and that it was impossible to make a block dissection such as is described in text-books. I was never able to remove all of the glands and seldom found the operation entirely satisfactory either from the surgeon's or patient's viewpoint. In one or two instances some of the larger vessels were so embedded within the tuberculous mass that extensive ligations were required. In another instance a temporary post-operative aphonia was caused by traumatism of the recurrent laryngeal nerve; and in all cases, a secondary infection with

sloughing and prolonged drainage resulted from the traumatism of the tissues and a dissemination of the infection from the diseased glands. In one instance a terrific hemorrhage occurring several days after the operation was caused by a sloughing of diseased glandular tissue which was so firmly embedded within the wall of the jugular vein that its complete removal was not possible at the time of the operation.

By reading the brilliant reports of a few surgeons who consider operative work entirely from the technical point of view and do not take into consideration the after effects or the condition in which the patient is left; and also by a study of diagrammatic operations as outlined in text-books, the novice may readily be lead to believe that an operation for cervical tuberculosis is a very simple matter, but a little experience would certainly dampen the ardor of the most enthusiastic internist or conscientious surgeon and cause him to exhaust all other measures before attempting such surgical procedures. Even where the patient survives the operation, the least that can be hoped for is a more or less extensive scarring. (See Fig. 8, which shows the site of operation of a case of cervical lymphatic tuberculosis wherein the operation was as nearly successful as usually occurs in such cases.)

This case is of interest because it was diagnosed Hodgkin's disease by various surgeons and also by the pathologist of one of the leading medical universities of this state. The history of the case is as follows:

CASE HISTORIES

C. E. S.—Female. White. Age, 30 years, two healthy children, husband in perfect health. Following a spell of influenza the patient com-

plained of more or less, "throat trouble" for a period of three or four months, during which time the lymphatic glands were palpable in the anterior carotid triangle. It was naturally supposed that the glands were caused by the infected tonsils, consequently the patient had the tonsils removed. The lymphatic glands, however, continued to swell until the patient presented an indurated mass which extended from about the level of the ear to the infraclavicular space. This mass was tender to the touch and caused the patient considerable pain.

She was taken to one of the large hospitals in Kansas City where a piece of the gland was removed for microscopical examination. A diag-



Fig. 8—Showing scar following operation for tuberculous cervical lymph glands.

nosis of Hodgkin's disease was made. She was even taken before a class of physicians and demonstrated as a typical case of Hodgkin's disease. Her husband was a dentist, a very intelligent man, and desiring that no stone be left unturned, he attempted to call in men who were considered authorities in the medical world; but in the end, the patient was returned to her home to die, being told that she had an incurable malady, and that it had already advanced to the point where nothing could be done for her. At this time the patient was having chills and running a high temperature. The incision where the gland had been removed was discharging a thin watery pus and the patient

had all of the symptoms of acute inflammatory disease. I still held to my previous diagnosis of tuberculosis of the cervical lymph glands and advised operative procedure. A slide was sent me by the pathological laboratory in Kansas City which further confirmed my diagnosis. This slide was devoid of the typical Hodgkin's cells and showed areas of caseation. As it was plain that the patient would die unless something radical was done, both she and her husband consented to the operation. The operation was performed with an apparently complete recovery.

As mentioned above, it was impossible to remove all of the glands surgically and it was some months before the process ceased to drain. Furthermore, certain nerves were involved, producing an atrophy of muscles of the neck. By referring to (Fig. 8), one may get some idea of the unsightly scarring which results from operations of this kind.

In contrast to this, I present Fig. 9, which shows the unbroken skin and perfect contour of the neck wherein the glands have been reduced by physical agents of which the X-Ray is perhaps the most important and demonstrates very plainly the advantage of these modern physical methods over the time honored operative procedures.

During the past few years, I have discontinued operating for conditions of this kind and have had no cases wherein they failed to respond to these physical measures, which any layman can see are distinctly superior in all respects to either the palliative or radical medical and surgical treatment. The patient is not only saved a very dangerous and unsatisfactory operative procedure with its long drawn out dressings and unsightly scarring, but is also entirely relieved of subsequent



Fig. 9—Showing advantages of physical measures over operative measures. No scarring.

symptoms. It is my hope that a more extensive knowledge of the value and application of these physical agents will soon entirely eliminate what is now considered the standard treatment. Had I known the value of physiotherapy at the time that this operation was undertaken, I could have saved myself a great deal of work and anxiety as well as the patient a vast amount of suffering and the unsightly scar that she will carry through life.

Summary

In concluding this series of articles on tuberculosis of the cervical lymph glands I wish to again call attention to the advantage of physiotherapy over other forms of applied treatment.

1. The condition is eliminated by a natural process and without pain or discomfort to the patient.
2. The process most usually dis-

appears by absorption and requires no surgical procedure.

3. In late cases, where necrosis and sloughing has already taken place, it is possible to sterilize the field and limit the infection more quickly and effectively than by any other method of treatment.
4. It shortens the duration of the disease.
5. Radical surgery is eliminated.
6. Scarring is prevented or reduced to a minimum.
7. The recovery is complete.

It is hoped that with a better understanding of the indications and advantages of physical measures by physicians and its application in the early stages of such conditions as cervical tuberculosis that all indications for surgery will be eliminated and many thousands of sufferers will be restored to health and saved the humiliation of carrying unsightly scars or discharging sinuses throughout life.

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Diathermy in Teno-Synovitis

By J. U. GIESY, M. D.

SALT LAKE CITY, UTAH

LIKE synovitis teno-synovitis is an inflammatory condition attacking the paratendinous structures of the ligaments or tendons affected. It is an actual synovitis indeed, since frequently the synovial sheath of the joint is continued for some distance along the tendon, and a synovial process of the joint may well result in an extension along this synovial sac.

Like synovitis—teno-synovitis is generally the result of trauma, and is characterized by pain accentuated on motion, swelling, rise of temperature locally in the acute stage, and limited motion of course. There is an acute stage, and a chronic stage developing from those cases not properly or completely cleared up in the acute period. There is in the chronic stage, generally a serous exudate in the affected region, resulting in a continued and at times slowly increasing swelling of the zones involved. Fibrous tissue hyperplasia may or may not result. Limited motion becomes greater as time passes if it does.

It makes little difference, however, just how we discuss these points of nature, cause, and stage. The main idea of this paper is to emphasize the

availability of diathermy to the relief of the condition once it exists. Personally, I know of no one means of attack on a condition formerly amenable to practically nothing save surgical intervention, which offers any real or definite hope. But at least in the case where one wins the patient's co-operation, diathermy does hold out such a hope and result in complete cures without any use of the knife. I have taken cases of months' duration and cases of a few

days—and I have seen them restored to perfect comfort and function without the loss of even a day's work. Pain subsides, swelling decreases, motion increases—and if fluid exudate exists it gradually recedes. And the technic is simplicity itself. As employed by myself it is about as simple as anything imaginable could be.

One needs a good diathermic or high frequency machine giving a current up to say 2000 m.a., though it is seldom that 200 m.a. are required or will be tolerated. Then one needs the ability to apply electrodes over the affected zone smoothly. One of the best means of gaining this end is the use of

*"In the case where
one wins the pa-
tient's co-operation,
Diathermy does
hold out a hope and
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use of the knife."*

the apparatus put out by the Fischer people, consisting of two rubber sponges covered with mesh metal gauze and mounted in a clamp frame enabling the irregular surface of the affected region to be firmly and evenly grasped. Block tin electrodes may be also used if properly cut out and applied. With the sponges well moistened or the other electrodes properly in contact with the skin, treatment is begun with a current of five to eight hundred m.a. and gradually stepped up to the point of the patient's tolerance—care being taken not to cause pain, burning, or aching of the tissues involved. When this point is reached it is taken as the patient's dosage, and used at subsequent treatment periods. Treatments are timed at from twenty to thirty minutes, repeated daily in acute stages or at second day intervals in the chronic

type. Relief is rapid in the early cases, slower in the chronic, but satisfactory as a rule in both.

I am quite aware that all I have said is common knowledge to day, to those men using this type of current in their work. But in an age when trauma is so constant, when loss of efficiency in the industrial world is so large a factor, I cannot refrain from stressing the fact that here we have a means of shortening recovery—time in practically all simple traumatic joint or tendon injuries and of restoring function in cases which would either be subjected to surgery or would be rendered largely inefficient as a result of the injury received.

The method is safe and simple, can do no least harm in competent hands in non-infectious conditions, and should rapidly win for itself a wider and wider use.

Diathermy in Fractures

From a letter written

By C. M. WESTERMAN, M. D.

ST. LOUIS, MO.

I HANDLE a great number of industrial accidents that will perhaps average thirty-five to forty per cent fractures. It is my opinion, based on past experience that the use of diathermy in all fractures reduces the time of disability 50 per cent by causing a quicker and more satisfactory union. It is my routine practice to never permanently mobilize a fracture. I use suitable perforated aluminum splints which can be readily removed daily, that I may diathermatize the site of injury. In this way I never am troubled by fibrosis or ankylosis by this method.

Patients are X-rayed weekly and I have several hundreds of plates to prove my contention that diathermy is absolutely essential in fracture work if you desire quick recovery with permanent calcification.

My technic in fractures of the long bones is to use No. 40 gauge lead as a

cuff above and below the fracture, tightly applied with a bandage, as I do not use a contact jelly. I push my amperage up to the point of toleration for twenty minutes. This is alternated daily with a suitable square electrode about four inches square on opposite sides of the fracture with the same amperage and same length of time. I also use the Zoalite radiation and the air cooled Quartz light, as I am convinced that these two modalities are absolutely essential in connection with diathermy.

I am very glad to take your side of the argument and can assure you that if you will get in touch with the Ocean Accident and Guaranty Corporation in this city, they will back up my statement that I have been able to save them 50 per cent disability in all fractures by the aid of physiotherapy.

Arcade Building.

Electrothermic Methods in the Treatment of Neoplasms and Other Lesions

With Clinical and Histologic Observations

IT is quite obvious, say William L. Clark, J. Douglas Morgan and Eugene J. Asnis, that one who depends on a single method in the treatment of malignant diseases may not hope to obtain anything but a limited degree of success. Experience over a period of many years has definitely demonstrated to the authors the extreme importance of the electrothermic methods. They consider them as second to none and, in many emergencies superior to all.

The desiccation method is one by means of which benign or malignant growths of small or moderate size may be destroyed by the utilization of heat of just sufficient intensity to desiccate, or dehydrate, the tissues. The heat is produced by a monopolar high frequency current, the current being conducted to the lesion by means of a steel needle, or other pointed metallic applicator. The desiccation method is used advantageously when the lesion is localized and when good cosmetic results are not only desirable but essential. It is subject to such perfect control that an exceedingly small growth even on the cornea may be successfully treated without impairment of vision by the subsequent formation of scar tissue; a small growth on the vocal cords may, likewise, be destroyed without impairing phonation. Other condi-

tions successfully treated by the desiccation method are localized benign growths of the larynx, bladder or rectum. Equally good results are obtained in lesions as refractory as corneal ulcers, pterygium and trachoma. Minor gynecologic conditions, such as cervical erosions, urethral caruncles, etc., yield readily to desiccation treatment. Moles, papillomas, angiomas, nevus pigmentosus, leukoplakia, lupus vulgaris and erythematosis further exemplify the great variety of pathologic conditions where this method may be successfully used.

The desiccation method is also an important factor in the treatment of malignant lesions of the skin and mucous membranes. Special mention of this method should be made in the treatment of hemorrhoids and infected tonsils. Surgical tonsils in adults, in which there is some constitutional contraindication to surgical enucleation, can be very satisfactorily treated by the desiccation method.

Unlike the heat generated by these high frequency currents, that produced by the actual cautery is comparatively superficial in action. The former is generated within the tissues by their resistance to the current, while the latter is merely transmitted by contact. In dealing with localized, benign or malignant lesions, the superiority of the electro-

thermic methods over radiation treatment is shown by definite histologic changes, and by comparison of permanent clinical results. With electrothermic methods the diseased tissue, only, is destroyed, conserving the vitality of the surrounding normal structures. On the other hand, with radiation treatment of sufficient intensity to influence a malignant growth, it is impossible not to lower the vitality of the surrounding normal tissue, to a certain extent, and, in case of recurrence, little more can be hoped for from further radiation treatment, owing to the resulting fibrous changes. Owing to these resulting changes, radiation treatment should not be used in conjunction with electrothermic methods in localized benign or malignant lesions.

High frequency machines, as devised by different manufacturers, vary greatly in construction; hence, there is a corresponding variety in the equality of the currents produced. The thermic intensity is often too great or too little, and an undesirable faradic effect producing shocks and contraction of the tissues is experienced when improperly constructed machines are used. This want of standardization is unfortunate, since, to produce the desiccation or coagulation effect under the best conditions, a very accurate balance must be maintained between the voltage and the amperage, and also between the capacity, inductance and the resistance. Thus, different operators, employing dif-

"Electrothermic methods are peculiarly adapted to the treatment of localized malignant growths occurring in any part of the oral cavity."

ferent types of apparatus, may obtain different results. Electrothermic methods can be best practiced only by those who have had surgical training and experience. The probable reasons for the apathy that exists in regard to these methods are that surgeons do not realize their potency and that those who use them without surgical accomplishments frequently fail in their practical application.

The electrothermic methods should be used alone, only in localized tumors of a type which do not tend to metastasize. The basal cell type of epithelioma occurring on cutaneous surfaces, such as the face, eyelids, etc., even though extensive and with involvement of bone, may be so thoroughly treated by the desiccation or coagulation method that recurrences are infre-

quent. In localized squamous cell epitheliomas on cutaneous surfaces, or mucous membranes, the results obtained are almost as good as in the basal cell type. However, when the growth is no longer localized and metastasis has occurred, other methods must be used in addition. Electrothermic methods are peculiarly adapted to the treatment of localized malignant growths occurring in any part of the oral cavity. In the treatment of growths of the urinary bladder, larynx, etc., suitable endoscopes must be employed to render the growth accessible for treatment. The success obtained in the treatment of malignant disease by the desiccation and coagulation

methods is explained by the fact that all the malignant tissue was, when possible, destroyed with one radical treatment. The practice of intentionally treating a malignant lesion by a series of desiccation or coagulation operations is, however, reprehensible and must be discouraged.

In order to correlate the histologic findings with the clinical results obtained, microscopic examination of tissues submitted to desiccation and coagulation treatment were undertaken. The cells submitted to desiccation treatment were shrunken and shrivelled, and their nuclei condensed and elongated, with a suggestion of cell outline, the whole assuming a mummified appearance (mummification necrosis). The blood vessels were thrombosed and there were no evidences of hemorrhage. In the case of coagulation, the cell outline was entirely lost, the affected tissue elements fused into a structureless homogeneous mass presenting an appearance not unlike that of hyalinization. Experimental studies were made on animals to determine the cell reaction likely to occur in the zone adjacent to the area treated. Sections revealed practically the same tissue changes already noted, but in addition there

was round cell infiltration in the outlying zones, and in certain areas this infiltration was localized around the blood vessels.

The electrothermic methods are dependent for their results on the resistance of the tissues to the current which manifests itself in the formation of heat. In the case of desiccation, the current being of comparatively low amperage, only a moderate degree of heat is produced, of sufficient intensity, however, to cause complete evaporation of the water content of the cells, hence their mummified appearance. Since the mode of cell death is associated with very little degenerative change and scant disintegrated material, there is but a small amount of fibrous tissue as an end-result, hence the good cosmetic results, and incidentally, the neighboring healthy tissues are spared the devitalization resulting from the formation of abundant contractile fibrous tissue. The coagulation method, requiring a higher amperage, induces a more intense heat, so that it not only dehydrates the tissues but causes coagulation of the cell protoplasm. This greater degree of destruction results in a proportionately greater amount of fibrous tissue formation.

(Abstracted from Radiology, 2:233, April, 1924)

Annual Fischer Picnic Has Record Attendance

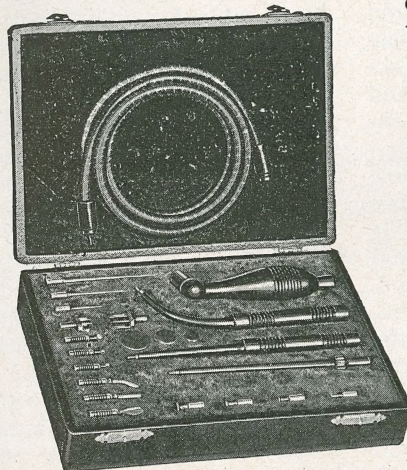
More than six hundred merrymakers, including quite a number of physicians, attended the Annual Fischer Picnic, held at Northwestern Park on July 14, 1926. Races, contests, games and the Fischer Follies of 1926 featured the program, providing fun and entertainment for all throughout an ideal July day. As one visitor phrased it, "You people certainly are a happy business family!"



Group of Picnickers—Annual Fischer Picnic.

Surgical Diathermy Electrode Set

A HANDSOME set, every electrode of finest quality, made of hard alloy and *gold plated*. Handles are of hard rubber, highly polished. With this set, the surgeon is fully equipped for any ordinary surgical diathermy operation. Included are the following:



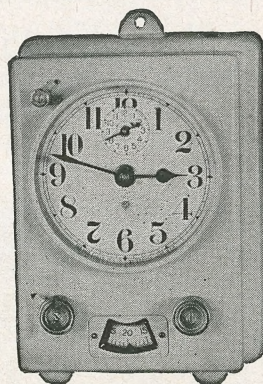
Pharyngeal Electrode Handle, Pharyngeal Electrode Holder, Curved Handle, Straight Handle. High Tension Cable—6' length, Single Needle Electrode (short), Single Needle Electrode (medium), Single Needle Electrode (long), Multiple Needle Electrode (short), Multiple Needle Electrode (long), Knife Electrode (Cumberbatch), Blunt Knife Electrode (curved), Blunt Knife Electrode (straight), Button Electrode (small), Button Electrode (medium), Button Electrode (large), Disc Electrode— $\frac{1}{8}$ " diameter, Disc Electrode— $\frac{3}{8}$ " diameter, Disc Electrode— $\frac{1}{2}$ " diameter, Disc Electrode— $\frac{3}{4}$ " diameter, Disc Electrode—1" diameter.

Complete in beautiful plush lined leatherette covered case as illustrated. No. 1300. CODE MACABE. Price.....\$65.00

The Hawkeye Timer

REGISTERS the length of any treatment exactly. A wonderful aid to accurate timing, particularly valuable when the physician is treating more than one patient at a time. The Hawkeye rings an alarm at the exact moment treatment should end. Should be in every diathermy and quartz light treatment room.

Catalog No. 469—Hawkeye Timer. Code, VESTRY. Price.....\$7.50



The Newest Fischer Diathermy Outfit

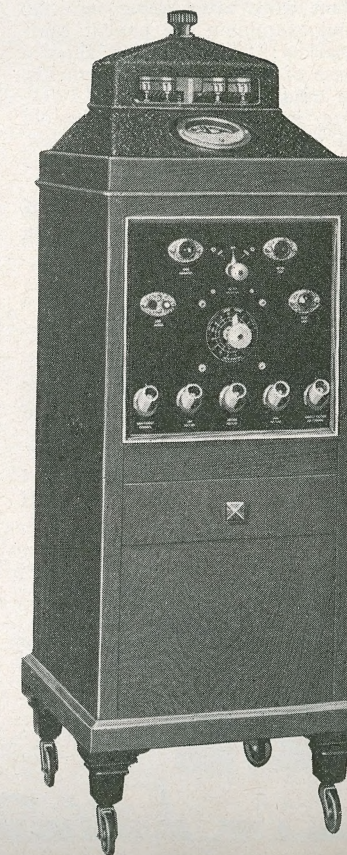
Intermediate Model "V"

THIS latest triumph of the skill of Fischer engineers is a fully efficient, powerful, modern Diathermy Outfit. Because of its up-to-the-minute design and broad capacity, combined with the intermediate price, it is achieving tremendous popularity with physicians in the field.

Embodies in one handsome cabinet every modality required in medical and surgical diathermy:

- Autocondensation
- Desiccation
- Electrocoagulation
- High Frequency
- Medical Diathermy
- Surgical Diathermy
- Fulguration.

Physicians who are planning to install Diathermy Apparatus are invited to correspond with H. G. Fischer & Company concerning this new Outfit. Demonstrations arranged to suit your convenience.



WRITE FOR DESCRIPTIVE PAMPHLET

A PAGE OF FUN

"Children," said the teacher, "you should not attempt any flights of fancy; simply be yourselves, and write what is in you."

Accordingly one bright boy turned in the following:

"We should not attempt any flights of fancy, but write what is in us. In me there is my stummick, lungs, hart, liver, two apples, one piece of pie, and my dinner."

An old country doctor had a patient with a case of "rheumatism" which he seemed unable to control, and called in a consultant who, after going into the history and examining the patient carefully, remarked: "This, Doctor, appears to be a case of acute traumatic arthritis. Have you tried diathermy?"

"Oh, yes, indeed," responded the old doctor, "I gave him two bottles of that, but it didn't do him a particle of good."

Bees don't whine, they hum while working. And they co-operate! Result, honey.

"A little bird told me what kind of a lawyer your father was."

"What did the bird say?"

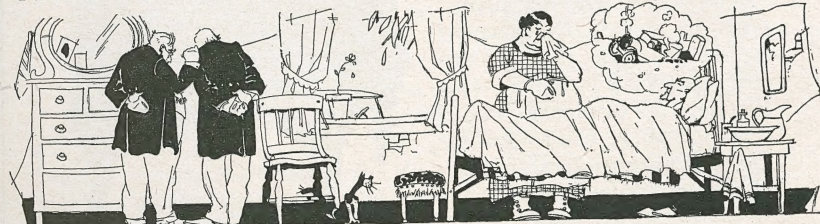
"Cheep, cheep."

"Well, a duck told me what kind of a doctor your old man was."—*Cornell Widow.*

Milligan—If I be a fter lavin' security equal to what I take away, will yez trust me till next week?

Sands (the grocer)—Certainly.

"Well, thin, sell me two av thim hams an' kape wan av thim till I come agin."—*Tit-Bits.*



Ebenezer (Moribund): "Mandy, promise to bury that old Ford in the same grave with me."

Mandy: "Y-yes, Ebenezer. But w-why?"

Ebenezer: "'Cause it's been in many a hole with me before, and always got me out!"

Tobacconist (to new boy): "I'm starting you in at five dollars a week, but you'll get more as soon as you know the ropes."

One afternoon a stranger debarked from a train at a hustling town in the west and headed up the street. Finally he met a man who looked like a native.

"Pardon me," said the stranger, "are you a resident of this town?"

"Yes sir," was the ready rejoinder of the other, "I have been here something like fifty years. What can I do for you?"

"I am looking for a criminal lawyer," responded the stranger, "Have you one here?"

"Well," said the native reflectively, "we think we have, but we can't prove it on him."

Mary: Jack married? Why how did he ever get a wife?

Jane: He just sobered up and there she was.

Police Chief: What! You mean to say this fellow choked a woman to death in a cabaret in front of two hundred people and nobody interfered?

Cop: Yes Cap, everybody thought they were dancing.—*Bottles.*

A young lady from the city making her first visit to the country was very much amused by some calves running across the pasture and exclaimed:

"Oh, what pretty cowlets!"

"Yes, miss," drawled the farmer, "they are pretty, but them's bullets."

Program for Our

Monthly Physiotherapeutic Lecture Clinic

Monday, August 9th, 1926

W. F. ENGLISH, M. D., Saginaw, Michigan

"A New Era in the Treatment of Disease," 10:00 to 11:00 A. M.

A. R. HOLLENDER, M. D., Chicago, Illinois

"Clinical Demonstration of Treatment Methods for Nasal Accessory Sinus Disease," 11:00 to 12:00 A. M.

E. C. DUVAL, M. D., Chicago, Illinois

"General Principles for the Use of Diathermy"—A Demonstration of Technic, 1:30 to 2:30 P. M.

W. B. WALLACE, M. D., Detroit, Michigan

"Physiotherapy in the Office of a General Practitioner," 2:30 to 3:30 P. M.

THE SPECIALIST as well as the general practitioner may well set aside August 9, to be devoted to attendance at this unusually interesting lecture clinic.

The physicians on the program are well known to our readers, and visitors may be sure that the subjects will be handled in a manner to aid and inspire the physiotherapist.

Ample space has been provided at Northwest Hall, at the corner of North and Western Avenues, so that each physician may be sure of a seat at these lecture clinics. The program is offered, as always, without fee or obligation.

H. G. FISCHER & CO., Inc.

Physiotherapy Headquarters

2333-43 Wabansia Avenue, Chicago

Phone Armitage 0323