

SIMPLIFIED
ELECTRO-THERAPY

TREATMENT AND TECHNIQUE
WITH

HIGH FREQUENCY CURRENTS

IN 12 PRACTICAL LESSONS

BY
NOBLE M. EVERHART, M.D.

SIMPLIFIED

Electro-Therapy

INDEX

By Noble M. Eberhart, M. D.



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LESSON 1

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DR. NOBLE M. EBERHART
M. D., PH. D., D. C. L.
Author

SIMPLIFIED
Electro-Therapy

Treatment and Technique
WITH
High Frequency Currents

IN

TWELVE PRACTICAL LESSONS

A Treatise for the General Practitioner

BY

NOBLE M. EBERHART, M. D., Ph. D., D. C. L.

Formerly Head of the Department of Physiologic Therapeutics, Medical Department of Loyola University. Formerly Professor of High Frequency, Illinois School of Electrotherapeutics. Formerly Head of Department of Electrotherapy, Chicago College of Medicine and Surgery. Formerly Attending Physician Cook County Hospital. Formerly Professor of Electrophysics Post Graduate Medical School, Chicago; etc.

Member of Chicago and Illinois State Medical Societies; American Medical Association; American Medical Editors' Association; Victoria Institute or Philosophical Society of Great Britain; etc.

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LESSON ONE

Introduction

A simple and concise course in practical Electro Therapy compiled from the personal experience of the author.

The intention is to make these lessons practical for the busy practitioner who wishes to use the various modalities and to learn how to do so with as little "red tape" as possible.

The technique is given for the Aloe "Lightning" Electro Therapeutic Cabinet.

Electro-Therapy is the treatment of disease by electricity—"Nature's Great Vital Force".

This wonderful healing force is now at your command and control.

A great many conditions which we have called functional can be restored to normal long before organic changes take place by applying Electro Therapy.

You should use the Cabinet to the utmost to realize in every day practice the benefits of electricity in healing—to reap the rewards of the success the cabinet offers, to achieve the satisfaction, prestige and increased income of additional professional accomplishments.

You can quickly familiarize yourself with the Cabinet and the pleasure and fascination of

using it increases as you go from your first small success to greater and greater triumphs.

Apply yourself enthusiastically and with persistence and you will find that energizing interest which comes from a fond, eager and intelligent study of your cabinet, the lessons and your Book of Instructions.

The High-Frequency current is the only agent that we know of today that is capable of causing a natural adequate reaction in any part of the body desired.

There is no organ so hidden or so deep seated that it cannot be reached by the heat of this current and of course without practically any effect upon the skin, except that of warmth, redness and perspiration. The therapeutic application of the electro current in a scientifically selected modality produces an energizing and vitalizing effect on the body cells that enables them to overcome diseased conditions.

The practice of electro-therapy is an ideal specialty for the general practitioner, without the necessity of confinement thereto. The field of application is so large, indications for the use of electro-therapy so plentiful and the results so satisfactory, that once in the field the practitioner invariably stays with it.

Dr. Albert C. Geyser, at a scientific meeting of the Essex County Medical Society said in part: * * * * * "Medicine is fast ceasing to be an art. It is approaching the scientific stage. The rule of thumb and tradition has served a noble purpose, but is now a dead letter, and positive science has taken its place. We must revere and

respect but we must no longer be satisfied with the crude methods which were sufficient for our forefathers. The day has come when the practitioner must bring to his aid the wonderful therapeutic benefactions of nature's vital force—electricity." * * * * *



The Aloe "Lightning" Electro-Therapeutic Portable Outfit

The alert practitioner—the successful man who keeps in touch with the times—knows that electro-therapeutics is no longer an experiment but an exact science.

With the Lightning Cabinet certain special effects are produced as follows:

Increases blood supply to given area.
 Increases oxidization and local nutrition.
 Increases oxygenation of blood.
 Increases intake of oxygen.
 Increases output of carbon dioxide.
 Increases secretions.
 Increases elimination of waste products.

Liberates ozone with resultant benefit of more or less of this ozone being inhaled by the patient and also carried directly into the tissues.

Increases bodily heat without a corresponding rise in temperature.

Mild and medium sparks stimulate or soothe according to length and character of application.

Strong sparks are caustic.

Sparks to spine increase arterial tension, promote absorption of plastic exudates and adhesions.

The effects of vacuum tube applications while essentially local are not absolutely so. The current traverses the body in all directions from the point of entry, but is of course most intense and pronounced at the latter point.

Prolonged application of vacuum tubes will give systemic effects, but these are obtained more easily with auto-condensation. With the cabinet in front of you the Booklet of Instructions in your hand, it will take only a few minutes to familiarize yourself with the many useful electrodes included and to master the switches that produce at your will, the current desired.

"Know your Cabinet"—In other words spend

enough time to familiarize yourself with the mechanical features, so that the handling of it becomes almost second nature. Then you will find that the technique of the various currents presents no difficulties.

The Aloe Lightning Electro Therapeutic Cabinet affords these varied modalities.

High Frequency

The violet ray through the glass vacuum electrode produces therapeutic light, heat and muscular contraction, invaluable as a blood purifier, through the agency of ozone which is generated by the electric spray and inducted by the current into the veins and tissues.

Auto Condensation

A sovereign remedy for high blood pressure in arteriosclerosis, with correction of diet, it returns men young in years but old in physical condition to vigor and vitality.

Highly efficacious in many pathologic conditions.

D'Arsonval

The D'Arsonval current reduces calcerous deposits and is especially valuable in the relief of high blood pressure as well as for rheumatism, sciatica, neuralgia, lumbago, etc.

Sinusoidal

A valuable current for gastro-intestinal conditions, uterine diseases and loss of muscular tone.

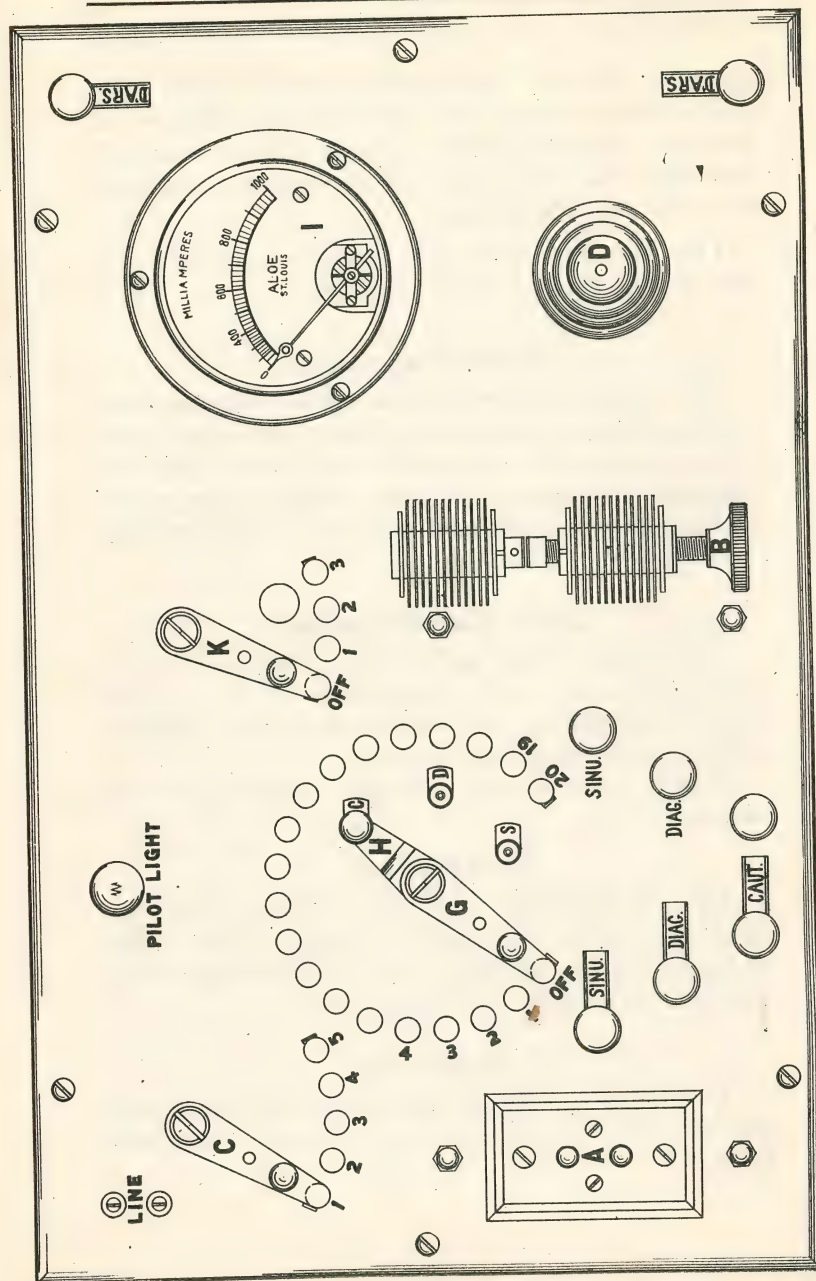


Diagram of "Lightning" Controls

Ozone

The induction of ozone into the tissues by means of the high-frequency current is highly germicidal and furnishes the best special treatment for gonorrhœa.

Direct Diathermy

Is germicidal and used by eminent practitioners with the most gratifying results in treatment of consumption. The ideal method of increasing body temperature where diseased condition is indicated. It is also a superior remedy for rheumatism.

Modified Diathermy

This current is indicated in the relief of neuralgia, congestion, neuritis, etc.

Cataphoresis

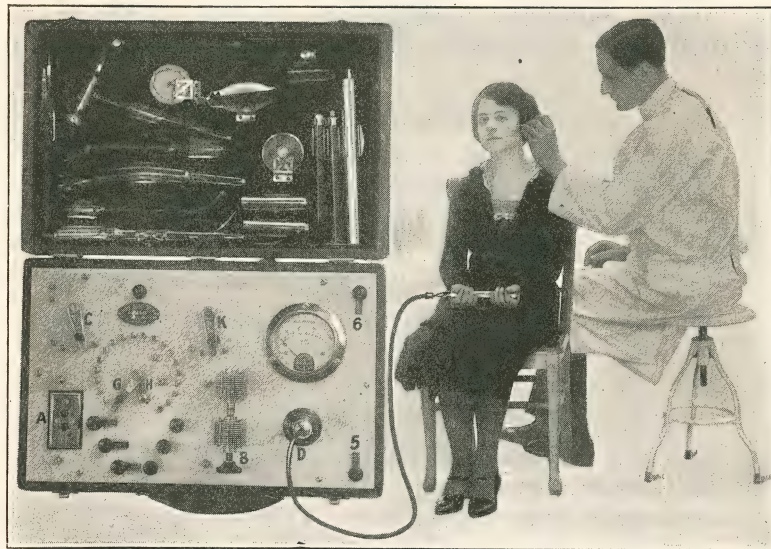
For cataphoresis a special electrode is employed (No. 25 illustrated and described in Book of Instructions for Lightning Cabinet). Especially valuable in the treatment of goitre, rheumatism or similar conditions requiring the application of medicaments which must be mechanically driven into the tissue, also of greatest value in pyorrhea.

In using the No. 25 cataphoric electrode attach the large high-frequency cord No. 51 into the small metal loop on electrode, slip the other end of cord into pole "D", set lever "C" on button No. 1 and lever "K" on button No. 3, have spark gap "B" slightly open, if more

current is desired advance "C" and also open spark gap "B".

The substance to be carried into the tissues is in solution, and cotton, gauze or felt is moistened in the solution and placed in the depression on the face of the electrode. The latter is then placed in contact with the desired area and the current passes for from five to ten minutes or more as required.

Caution is here noted against the use of solutions containing alcohol or other inflammable substances because of the danger of setting same on fire with the current.



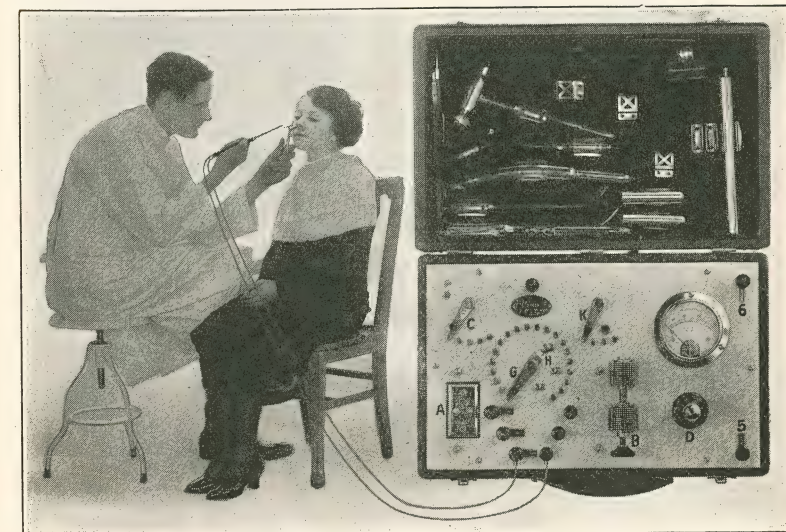
Indirect Fulguration

Fulguration

Fulguration is obtained in two distinct forms—Caustic and Dessiccation. From Pole "D" which has high voltage and low amperage giving considerable spark length, attach heavy cord No. 51 to fulguration electrode No. 20.

The above technique is advised for removing warts, moles, pimples, boils, carbuncles, nodular growths, etc. This is called caustic method.

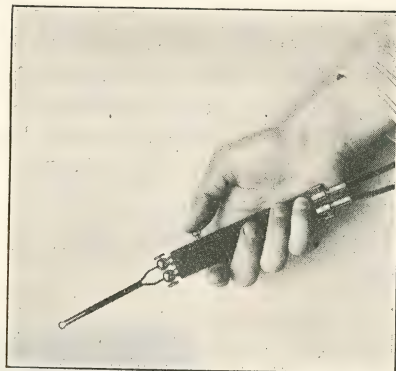
In employing dessiccation, which is a dehydrating process, connection is made with the D'Arsonval modality, giving low voltage but high amperage.



Application Cautery

This technique is advised in treating Bladder, Papilloma Lupus, Vulgaris, desiccation of ton-

sils, etc. and is a successful treatment for all accessible benign neoplasma of the skin and mucous membranes. It is curative in localized malignant lesions.



Cautery Technique

Cautery

Cautery is the most approved form of bloodless surgery for the removal of fibrous growths—instantly stops bleeding (Hemorrhage), for technique see Book of Instruction.

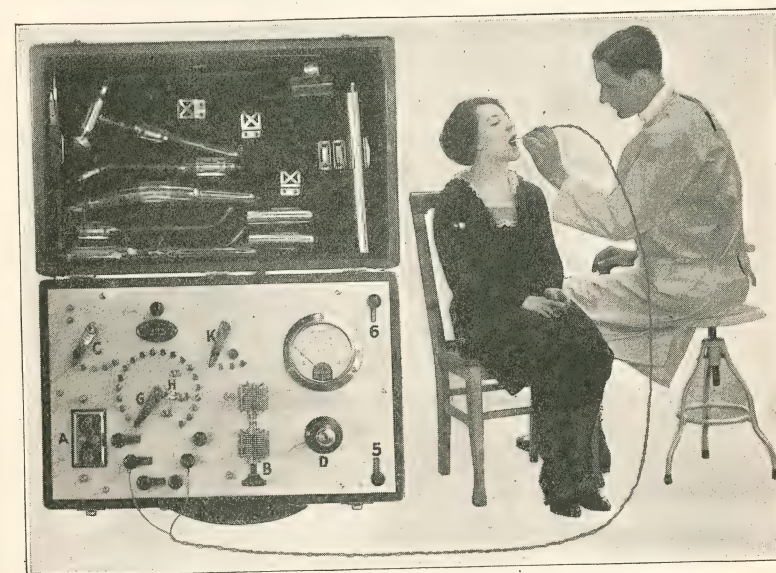
Diagnostic

An accurately regulated current which can be used safely to illumine the smallest light bulb for examination and diagnosis.

Set lever "H" in hole marked "D" (Diagnostic), lever "K" on off button, lever "G" on off button; connect cords on posts marked diagnostic, lever "C" on button No. 1; to increase current advance lever "G" carefully. Do not give lamps too much current or they will burn out.

Electricity is a remedial agent of very wide range. There is scarcely a condition of disease in which electricity may not be used in some form, either as an adjunct or as a remedy.

In view of the immense amount of reliable data at hand, showing its remarkably beneficial effects upon various pathologic conditions, the true practitioner would be lax in his duty to his patients did he not use it. This introduction is devoted principally to a description of the several therapeutic currents—what they are and what effects they produce.



Using Diagnostic Illuminator

The succeeding chapters will deal largely in detail and specific treatments of definite conditions and will show clearly, yet concisely, all

the many uses to which this cabinet can be put. The methods of treatment and other information given in these lessons, while in the main are founded on twenty years practical experience involving the daily use of High-Frequency currents and upon seventeen years experience in teaching the subject, reference has also been made to all available literature upon the subject.

Technique of Treatments

How To Prepare a Patient For Treatment

When no spark is desired the electrode must be in contact with the skin. This is also the case in diathermy. In these instances the clothing must be removed from area to be treated, using care that no metallic substance interferes with Electrode. All metal, such as chains, corset steels, wire hair pins, etc., should be removed from contact or within sparking distance, as they would be charged with the current, giving rise to sharp and disagreeable sensations.

Applications to the body calling for a mild spark may be given through thin underclothing, or the patient stripped and covered with a sheet through which the spark is employed.

When a sharp spark is required there is no especial need for removing the clothing, in fact a definite thickness insures a definite length of spark. When the tube sticks to the skin, dust the part to be treated with talcum powder or lay a very thin cloth over the surface.

In vaginal treatments no disrobing is necessary.

High frequency currents do not magnetize and therefore will not injuriously affect a patient's watch. (I state this because you will be asked this question very frequently).

How To Lubricate Electrodes

When vacuum electrodes are used in orificial treatments, vaseline will be found satisfactory,

although any of the lubricating jellies, unguents or cerates may be used; a very thin coating is all that is necessary.

Effect of High Frequency on Mucous Membrane

The mucous membrane of red skin lining the various cavities of the body is particularly susceptible to the high frequency spark and also to the heat produced in the tube by a long continued treatment.

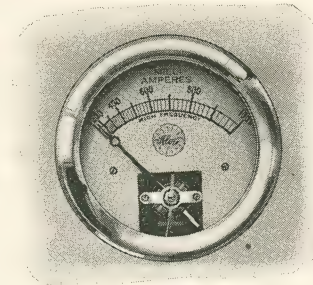
It is on this account that seven minutes is set as a limit to orificial treatments until the operator becomes thoroughly familiar with the current and technique. In diathermy, if the electrodes are not thoroughly moistened and do not make perfect electrical contact, or if the current is carried to too high a temperature (high Milliamperage) burns will result. High Frequency burn is not *serious* like the X-Ray burn, it is *purely* and *simply* a *heat* burn. It is the amperage of the current that produces the heat. The burns appear immediately.

There is no cumulative effect as in X-Ray and treatments may be repeated frequently *without danger*.

On the other hand, the use of the High-Frequency tend to prevent X-Ray burns. When an area is treated with X-Ray there is an increase in the epithel cells lining the arterioles so that the latter become gradually smaller in caliber and thereby transfer less blood with resulting Anemia.

High-Frequency has the effect of bringing

more blood to the surface treated and to this extent offsets the Anemia produced by the X-Ray.



Milliampere Meter

The milliampere meter is used on the Lightning Cabinet to measure the dosage on the D'Arsonval modality. It is not used in connection with any other modality on the cabinet such as high frequency current from pole "D", cautery, sinusoidal or diagnostic. It is necessary to measure the amount of milliamperage the patient is receiving in the auto-condensation and diathermic treatments.

In reference to milliamperage, or in other words, the heating effect from the D'Arsonval modality—

Theoretically the effects of heat currents vary as the square of the amperage.

For example—if we are giving a milliamperage of 200 and change to 400, we have doubled the meter reading, but quadrupled the heat effect and if we increase the milliamperage 200 to 800 or four times the milliamperage, we have increased the heat effect sixteen times. Note the following:

In Practice upon the living subject the principle does not hold true because when strong currents (high milliamperage) are employed, the reflexes are stimulated to such an extent that all the functions which regulate the heat in the body are stimulated to fight the heat from the outside *but* when the smaller current strength (lower milliamperage) is employed, the reflexes are not stimulated, thereby allowing the heat to penetrate.

It has been found by placing one electrode on the back and the other over the epigastrium that the temperature within the stomach is higher when a current of 300 milliamperes is employed than when one of 2000 milliamperes is employed.

If you desire a greater effect than the patient seems to tolerate, reduce the amperage and lengthen the time. Better results are usually obtained by low amperage and longer time than by high amperage and short time.

It is quite probable that there exists in your mind what time should be consumed in a treatment by diathermy. This question cannot be answered directly because so many elements have to be considered in each individual case, the resistance of the skin, the thickness of fat underneath the skin or anywhere between the electrodes, the moisture of the tissues, the density of all the tissues, the reflexes of the patient, etc. All enter into the consideration of time for each treatment. However the average is 10 or 12 minutes.

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Electro-Therapy

LESSON 2

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LESSON TWO

Spark Points

The spark interrupter points "B" are the most important regulating feature on the Lightning Cabinet.

In time carbon will collect on these points and prevent current from passing from one spark point to the other. This carbon must be cleaned off. To clean these points, wet the corner of a card with saliva and slide between points until both surfaces are thoroughly moistened. Then burn off the moisture with current by turning on switch "A". Do not have electrode in the circuit when cleaning points and do not have patient connected with auto-condensation pad. Repeat the cleaning process two or three times and you will find a considerable quantity of carbon adhering to the card. Work regulating screw "B" back and forth during this process. This will serve to take up most all foreign matter which may be present in the form of carbon. Should your points become exceedingly rough at any time use the sand paper method of cleaning as follows:

Take a small piece of very fine sand paper and fold same back to back so that you have a rough surface exposed on both sides. Insert this carefully between the points, close adjusting screw "B" gently and slightly withdraw the

paper. Do not use this method more often than absolutely necessary as it wears down the points and is liable to make them uneven.

How to Relieve Pain

The general method is the same only in headaches, neuralgias, etc. Part of the effect seems to be that of counter-irritation and it is necessary to treat until skin is well reddened or pain is definitely relieved, which will average seven to ten minutes.

In neuritis or some acute inflammatory conditions, the pain may be increased temporarily by the use of the vacuum electrode and it is often advisable to treat moderately at first and explain to the patient so the latter will understand and not give up the treatments should they at the start prove aggravating. If a very sharp spark is used in any case cauterization (Fulguration) may be the effect. This is especially so if the spark is applied to a mucous membrane. In treating the latter, great care should be exercised. Where cauterization is desired it is better to use the regular fulguration method.

Method of Using Fulguration

In fulguration, a handle number 20 or electrode carrying point is attached to the same cord that the vacuum electrode has been connected to. This has the effect of concentrating the current coming from the point to such a degree that its intensity (amperage) is sufficient to burn or cauterize. This method of fulguration is called the caustic or hot spark method.

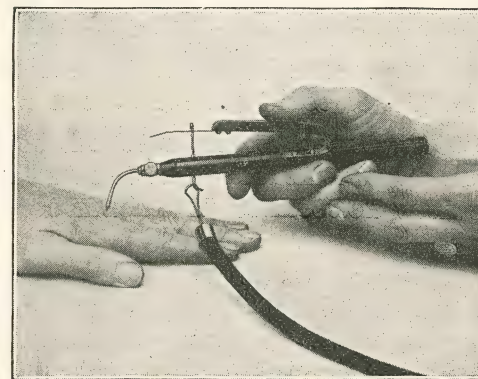
I usually test the strength and length of the

spark coming from the point by bringing the latter close to a coin or any other piece of metal. It is a good plan and I advise the use of a local anaesthetic on the part to be treated.

Lever "C" should be on button No. 1 or No. 2.

Lever "K" should be on button No. 1.

Further regulation made by opening and closing spark gap "B".



Application Fulguration

In fulgurating a small growth such as a raised mole, first go around the margin of it with a succession of sparks. Do not let the spark be a continuous one, but keep rapidly tapping the skin with the point holding the spring lever on No. 20 handle down, making the spark and then drawing it away again. The spark must be sharp enough to burn the skin, which becomes brown and the odor of burning flesh noticeable.

After going around the margin fulgurate thoroughly the balance of the mole, etc. It forms a

brown crust and by pressing on it with the finger you will soon learn to judge whether you have burned deeply enough or not. At first it will be well to keep on the safe side, because if you do not get it all off the first time you can treat it again, but if you burn too deep, a pit may result. It does not take long to learn to accurately estimate the amount of fulguration required. No after treatment is applied. The patient is told to leave the scab alone and to be careful not to rub it off until thorough healing has taken place underneath. The average time will be seven or eight days.

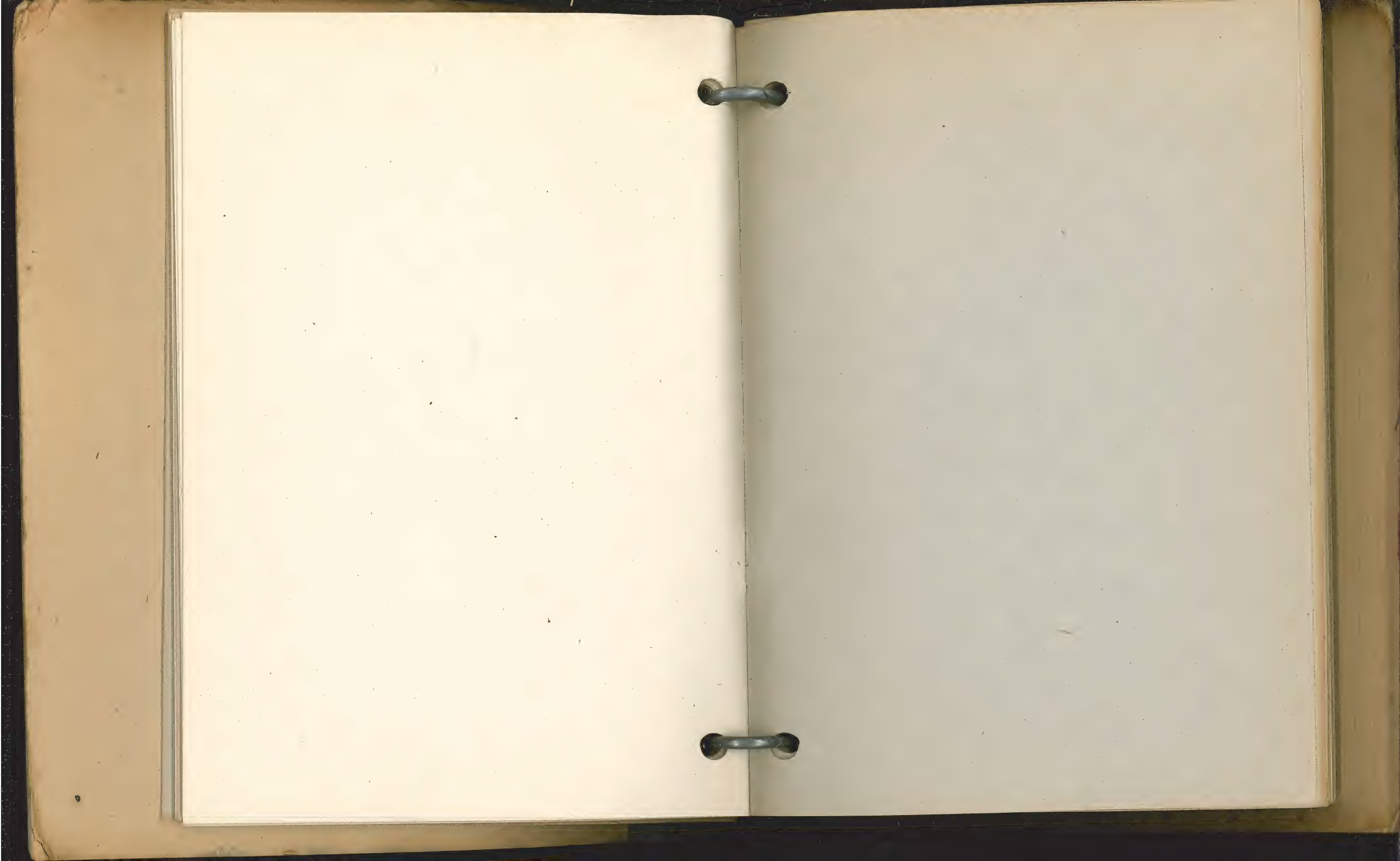
After the crust has come off wait a few days and if there still remains some of the mole, etc. fulgurate again. Two other ways of using the fulguration point are employed.

First—holding the point a little away from the skin and making the spark by pressing down on the spring lever. Second—Placing the point on the skin, then closing the spring lever and drawing the point away beyond sparking distance. The strength may be increased by placing lever "C" on button No. 3 and lever "K" on button No. 2 keeping spark points "B" well closed and current off when shifting lever "C" and "K", then turn current on and gradually open spark points "B" by turning knob to the left until required intensity of spark from fulguration point has been produced.

There is still another very simple method of fulguration which is called indirect fulguration. Patient is seated on auto-condensation chair pad, large high-frequency cord No. 51 is

attached to chair pad and pole "D". Lever "C" on button No. 1 or any button up to No. 5 depending on strength desired and lever "K" on No. 1, spark gap "B" almost closed; to increase intensity turn knob on spark gap "B" to left. See Book of Instructions.

Fulguration is used to remove naevi, warts, moles, boils, pimples, carbuncles and hypodermokeratosis or nodular growths, especially on the face.



SIMPLIFIED

Electro-Therapy

LESSON 3

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LESSON THREE

Sterlizing of Electrodes

They should be kept clean and where there is a possibility of infection they should be sterilized. It is true that the spark from the electrode is germicidal in character as is also the ozone which is generated. If the electrode is to be used over a surface where no infection exists, ordinary cleanliness is sufficient, but if used over an infectious area or within any of the body cavities it should be sterilized.

Wiping off the tubes on a cloth or towel or simply rinsing in water is not enough. Tubes can be sterilized by immersion in crethol, lysol or alcohol and should be thoroughly rinsed in water before using. The tube is more easily cleaned and sterilized immediately after using than it is when the secretions or discharges have dried upon it.



No. 9-D Electrode

Asthma

In bronchial asthma use a sharp stimulating

at any one sitting, a low milliamperage applied for 10 or 12 minutes will heat the parts more satisfactorily than a heavy current or high milliamperage for a shorter period of time.

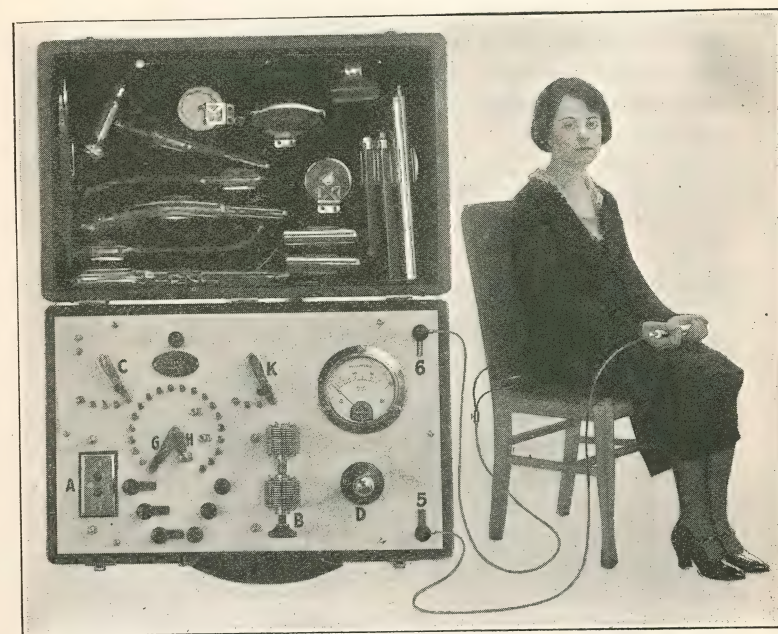
Start with 500 milliamperes at the first sitting and increase at subsequent sittings to the desired maximum which is very seldom over 700 or 800 milliamperes and then taper off gradually.

The following technique is used for giving auto-condensation:

Place the number 410 chair-pad on a comfortable wooden chair and seat patient on it. Connect the chair pad to the bifurcated cord and then connect this cord to one of the heavy maroon cords and the latter to one of the D'Arsonval binding posts at the right end of cabinet, connect the other heavy maroon cord to the other D'Arsonval binding post and to the long metal handle No. 52. Let the patient hold this handle firmly with both hands, set lever "C" on button No. 1 and lever "K" on No. 2 spark gap points "B" nearly closed. Now press down the red button on switch "A" to turn the current on and note the meter reading. An average dose would be about 500 to 700 milliamperes. If the meter does not show this amount, turn off the current by pressing down the black button on switch "A" and advance lever "C" to No. 2, No. 3, No. 4 or No. 5 as may be necessary. If this is insufficient advance lever "K" to No. 3 and still further increase by opening the spark points "B". Treat for 10 or 15 minutes. If the meter needle fluctuates the points "B" are open too wide at spark gap "B" and should be closed

down until needle becomes stationary.

The chair pad may be used in the reclining position on a wooden table or couch (not metal) as well as a chair. Just bear in mind that the best results are obtained when the patient is fully relaxed and made as comfortable as possible. The position will depend a great deal on



Auto Condensation

the physical condition of the patient. The cords should not touch each other or the patient. It is well to place the patient's hands on a pillow or a large book, in that way supporting them away from the body so that there will be no

danger whatever of sparking. The current must always be shut off by pressing black button on switch "A" down before the patient is allowed to drop the handle. Never permit the patient to drop the handle with the current on (indicated by Pilot light). The principal uses made of auto-condensation is for the reduction of high blood pressure (Hypertension), diabetes, anemia, chlorosis, insomnia, muscular rheumatism, etc. and wherever it is desirable to build up nutrition and metabolism. Do not give auto-condensation or diathermy to a patient who has a high temperature.

Do not touch patient with your hand when auto-condensation is being given. Do not give auto-condensation when blood pressure is low or when pulse pressure is below 20.

Do not give sharp sparks to spine when high blood pressure exists.

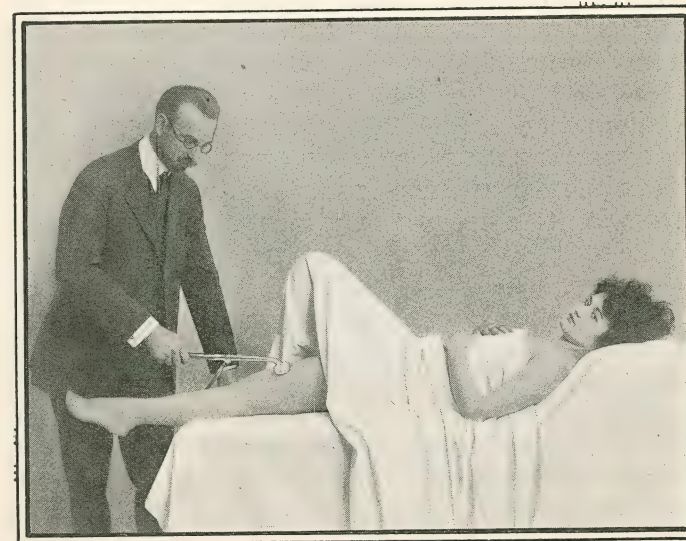
When reducing high blood pressure the important thing to watch is pulse pressure. Under thoroughly normal conditions the diastolic averages about two-thirds of the systolic pressure and the pulse pressure one-third. Thus systolic pressure 120, diastolic 80, pulse 40.

It is well to remember that there is an ever increasing hardening of the arteries as one grows older and a person of 65 or over can very easily have a blood pressure of 160 and still be a comparatively healthy individual. At the same time, if these changes were not taking place, the blood pressure would remain the same no matter what the age of the patient might be. Female pres-

sure is 10 m.m. lower than that of male. An easy method of keeping the range of blood pressure in mind is as follows:

Low	Normal	High	
—	—	—	
—	120	—	
—	—	—	
—	—	—	
80	100	140	160
Danger Point	Warning	Warning	Danger Point

In many cases when you know what the blood pressure is, it aids in the differential diagnosis of a disease.



Application High Frequency to Limb

is employed with a meter reading of about two hundred and followed by high frequency treatment with No. 9D condensor electrode attached to pole "D". Give spinal sparks to raise the blood pressure. It is necessary to apply sharp stimulating sparks up and down the spine. It is also desirable to use sharp sparks over the stomach to influence the solar plexus. This treatment should be given every day at first, length of each treatment about 8 or 10 minutes.

In giving auto-condensation treatments never use metal table. Any plain wooden table will answer or a plain couch or ordinary Morris chair may be used and will be more comfortable for the patient, giving complete relaxation. Have patient drink plenty of water. In taking blood pressure, the principle involved is that of applying pressure to the Brachial artery until it is so thoroughly compressed that the pulse at the wrist can no longer be detected. At the same time a hand on scale indicates the equivalent of this pressure in millimeters of mercury or in short the actual equivalent systolic blood pressure of the patient.

The systolic pressure is that maintained when the heart is contracting and the diastolic pressure that which exists when the heart is dilating. The difference between the two is pulse pressure. Whether you use the finger on the pulse or use the stethoscope in determining the pressure is immaterial in our work, in connection with high blood pressure.

The Auscultatory method is more accurate but not sufficiently so to matter. What does count is that you always take the pressure in the same way and with the same general conditions prevailing. That is, if you start taking the pressure with the patient sitting, always take it with the patient that way. Do not take it with him sitting one time and standing the next and possibly lying down the third time. Why? Because blood pressure like the pulse varies with the position of the patient, so also as to exercise.

Relative to eating time etc. If you wish to convince yourself of this, try it by taking it in different position, also after having subject go through vigorous exercise. Try it before and again ten minutes after a bowl of beef broth is taken and see how much the broth has raised the systolic pressure.

When treating blood-pressure the test of it is always made before giving a treatment. Try it again afterward to prove to yourself that it is changed by the treatment.

When you have a case under regular treatment, you will infer from what has been said that it is not desirable to take the pressure too often because the fluctuations that may take place from trivial causes are apt to deceive you.

Once a week is often enough unless some critical stage has been reached. Taking the pressure once a week before treating and under the same conditions (Posture; time before meal, not just from active exercise, etc.) will give you a good

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LESSON 4

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LESSON FOUR

Anemia Chlorosis

As high frequency currents increase the circulation of the blood, thereby increasing both the reduction of oxyhemoglobin and also increasing the number of red corpuscles and the percentage of hemoglobin, their employment in anemia, especially of the chlorotic type, is quite as effective as iron tonics and at the same time does not interfere with the joint use of the latter.

The method of administering the current is by auto-condensation. If the blood pressure is normal or above give it with five or six hundred milliamperes, three to six times per week. If the blood pressure is below normal give two hundred milliamperes and follow with sparks to spine and over abdomen.

Ozone inhalations are clearly indicated and are of the utmost value in these cases. Technique for auto-condensation you will find given in previous chapter and also in Lightning Instruction Book.

Angina Pectoris

Use diathermy with two large even sized felt electrodes, these electrodes thoroughly saturated with warm salt water and both pads connected to the large maroon cords and these cords attached to D'Arsonval posts and place one pad over the heart and the other pad to back, lever

"C" set on No. 1 or No. 2, lever "K" on No. 1, spark gap "B" fairly closed. The current should be turned on gradually until a comfortable tolerance is reached and then held at this point for 8 or 10 minutes. Current should be slowly reduced to "O". This regulation of current is made by turning knob of spark gap "B" to left to increase and to the right to decrease. This method of diathermy should give relief.

Atonic Dilatation of the Stomach

In this disease we have complete relaxation of the motor fibres of the stomach and the treatment must be that which will cause them to actually contract and regain their normal tone. Use the No. 9D condensor electrode attached to pole "D" for five minutes locally over the stomach, followed by auto-condensation for ten minutes. This treatment repeated daily. Another method that has been used in treating this disease has been to localize the effects of auto-condensation by using the metal electrode No. 609 on handle No. 606 R and this electrode attached to heavy maroon cord, other end of this cord attached to one of the D'Arsonval Posts, the other maroon cord attached to D'Arsonval post and chair pad, patient lying on chair pad. A piece of plate glass is placed between the electrode and the stomach area. The plate glass is the di-electric. The electrode corresponds to one layer of condensor and the gastric area to the other, thus obtaining the effect of auto-condensation. This is also called indirect diathermy. I have found general auto-condensa-

tion treatments were entirely satisfactory for this disease.

The sinusoidal current has proved of essentially equal value. The foregoing treatment is equally as effective in atony of the stomach when dilatation is not present.

Auto Condensation

(Refer to Blood Pressure).

Alopecia or Loss of Hair

Where baldness occurs as a result of faulty nutrition, the high frequency current is the ideal remedy. Use the following technique:

Attach condensor electrode No. 9D to heavy cord, slip other end of cord in pole "D", set lever "C" on button No. 1 and lever "K" on button No. 1, spark gap "B" almost closed, lever "G" on *off*—place electrode in light contact with the scalp and turn on current at switch "A". The electrode can be raised occasionally. It is to be kept moving about over the scalp for from five to ten minutes at a treatment. A mild spark is desired.

If too sharp a spark is employed the scalp will become sore and tiny little places will appear where it has exerted an escharotic effect. Special comb electrode No. 11 illustrated in the Book of Instruction will be found very satisfactory and can be used in place of No. 9D.

To get the best results a daily treatment is advised and two short treatments per day would not be too much. In connection with the high

frequency treatment a few minutes use of the vibrator is advised if you have one. Care must be exercised in using the high frequency currents on scalp especially after the application of lotions with a considerable amount of alcohol in them. If the spark comes in contact with anything that is inflammable it will set fire to it. Therefore, it is necessary to be sure that the hair and scalp is free from inflammable lotions.

Asthenopia

Use the high frequency current by attaching condensor electrode No. 9D to large cord and slip other end of cord in pole "D"; set levers "C" and "K" on button No. 1, lever "G" on off button, spark gap "B" almost closed. Apply electrode and turn on current at switch "A" to increase amount of current, open gap "B" if still more current is desired. Turn off current at switch "A" and advance lever "C" to next button, then turn on current again at switch "A". The strength of current or spark will be according to the sensitiveness of the patient. Keep the tube a full sparking distance, pass it rapidly up and down the spine for three minutes. This treatment is satisfactorily applied through some layers of clothing as the latter insure a definite spark length. In women the corset should be removed, if any steels are where they will be charged by the current. If a chain is worn around the neck it should be taken off. Follow the spinal treatment by an application to the back of the head and neck for three minutes longer, then over the eyes for two or three

minutes, keeping it in contact with the skin and moving. Double eye electrode No. 8 will be found very satisfactory for eye treatments. Ozone inhalations with generator No. 22 illustrated in Book of Instructions is a useful adjunct.



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LESSON FIVE

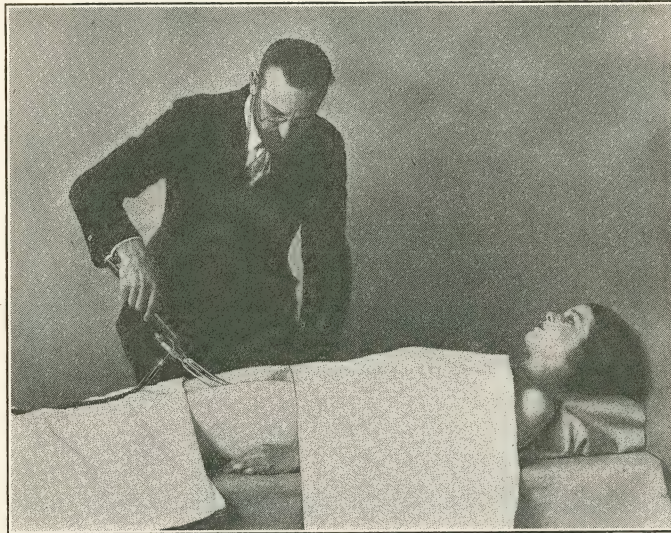
Amenorrhea.

That the high frequency current when applied through the vagina sometimes has an emmenagogue effect has been noted by several authors, as a current determines an increased amount of blood to the area treated, its employment in absence of the menses would appear reasonable.

Technique: Use indirect method by having patient recline on chair pad, this pad connected to pole "D" by means of large high frequency cord, set lever "C" on button No. 1 and lever "K" on No. 1, lever "G" on *off* button, spark gap "B" almost closed. Lubricate with a little vaseline the insulated vaginal electrode and insert same in vagina. No cord or handle is attached to electrode, then turn on current at switch "A" and place your fingers on exposed part of electrode. Give seven minute treatment, three to six times a week and in connection therewith the application of a spark to the lower part of the spine for from three to six minutes using the following technique:

Remove chair pad. Attach condensor electrode No. 9D to large high frequency cord and other end of cord to pole "D", set lever "C" on No. 3 and lever "K" on No. 2, lever "G" on *off* button, spark gap "B" almost closed; to increase

power open spark gap "B" also advance lever "C", but before changing setting of lever "C" and "K" turn off current, after setting has been changed turn on current at switch "A".



Vaginal Treatments with High Frequency—Valuable in Pyosalpinx, Leucorrhea, Cervicitis, Pelvic, Adhesions, Etc.

In cases that result from Anemia, the general effect on metabolism of auto-condensation will call for its employment 500 to 600 milliamperes, three to six times per week, using the following technique: Patient either sitting or reclining on chair pad. This pad connected by means of one large maroon cord to one D'Arsonval post, other maroon cord attached to large D'Arsonval handle and the other D'Arsonval post, have patient hold the handle with both hands firmly

and resting upon a pillow; set lever "C" on No. 5 and lever "K" on No. 3, lever "G" on *off* button, spark gap "B" almost closed, turn on current at switch "A" regulate spark gap "B" until meter shows 500 milliamperes, treat 10 or 12 minutes.

In virgins where the menstrual function is irregular, a small tube such as the nasal vacuum electrode No. 4 may be employed using same connections as for indirect method, or the treatment may be given through the rectum with the insulated tube No. 12 by indirect method.

Albuminuria (Nephritis; Bright's Disease)

Benefit in these diseases has been obtained from the application of high frequency currents. The best method is the use of auto-condensation five to six hundred milliamperes per day, average length of treatment 10 to 12 minutes in connection with the use of the surface vacuum electrode over the region of the kidneys.

There have been many reports of the disappearance of the albumen following this method of treatment. I have myself seen both albumen and casts disappear, but do not wish to be understood as making the statement that this treatment will cure Bright's Disease. That it is of sufficient value to warrant its employment, if possible in every case, is my firm belief, particularly in cases where high blood pressure exists. This is always the case in chronic interstitial nephritis, as high pressure in the renal

frequency current, use No. 9D condensor electrode, attach to pole "D" with large high frequency cord. A sharp spark is applied over the patient's chest and back for ten minutes. This may be repeated every hour until the congestion moderates. There is no danger in giving too many treatments.



Application of High Frequency to Chest for Chest Congestion, Pneumonia, Etc.

In giving ozone, use the ozone generator No. 22 which you will find illustrated in Book of Instructions, attach large high-frequency cord to generator and pole "D", levers "C" and "K" set according to the intensity of current desired.

Diathermy can also be used with large maroon cords attached to D'Arsonval posts and other end of cords attached to felt pads thoroughly moistened with warm salt water. Place one electrode on back in good contact with skin and other pad on chest for 8 or 10 minutes at 600 milliamperes. This treatment is very satisfactory.

In chronic bronchitis the treatment is similar only not so frequent. Always be sure in using felt pads that they are thoroughly moistened with the warm salt water and that they are in firm contact with the skin. Cords must not touch each other.

Bruises

A mild application with the vacuum electrode over the swollen and painful area for a few moments aids in nature's reparative processes.

Brain Fag

Brain Fag has come to represent just one step from complete nervous prostration. It is common in business men, especially where too close attention to business has been accompanied by too little exercise. The favorable prescription has been a complete change of scene. This treatment is not always possible and much may be accomplished by the use of high frequency currents. The nature of the high frequency treatment should be in accordance with the patient's blood pressure. If the blood pressure is high auto-condensation is clearly indicated. Use the following technique:

Place the patient on the chair-pad either in a

sitting or reclining position, attach one large maroon cord to the bifurcated cord and chair pad and other end of cord to one of the D'Arsonval posts, attach the other large maroon cord to long auto-condensation handle, attaching other end of cord to D'Arsonval post. Have patient hold handle firmly with both hands and resting on a pillow so that the hands or cords will not come in contact with the patient's body. Set lever "C" on button No. 5 and lever "K" on button No. 3, lever "G" on *off* button, spark gap "B" open slightly, turn on current at switch "A" open spark gap "B" until meter shows five hundred milliamperes. If meter needle is not steady this can be overcome by adjusting the regulations of spark gap "B". This treatment should be applied daily or even twice a day if the case is urgent. Length of treatment ten or twelve minutes. Following this the condensor electrode No. 9D should be applied by attaching the electrode to large high-frequency cord and slipping other end of cord in pole "D" chair pad is not used in giving this treatment) set lever "C" on any button from 1 to 5 depending upon the intensity of current desired, button No. 1 weakest and No. 5 strongest, set lever "K" on button No. 1, spark gap "B" slightly open, the electrode is then applied to the forehead and current turned on at switch "A". Treatment should be just long enough to have a good tonic effect. Keep electrode moving, also apply over eyes using mild current, (button No. 1 on lever "C") and to the back of the head and neck.

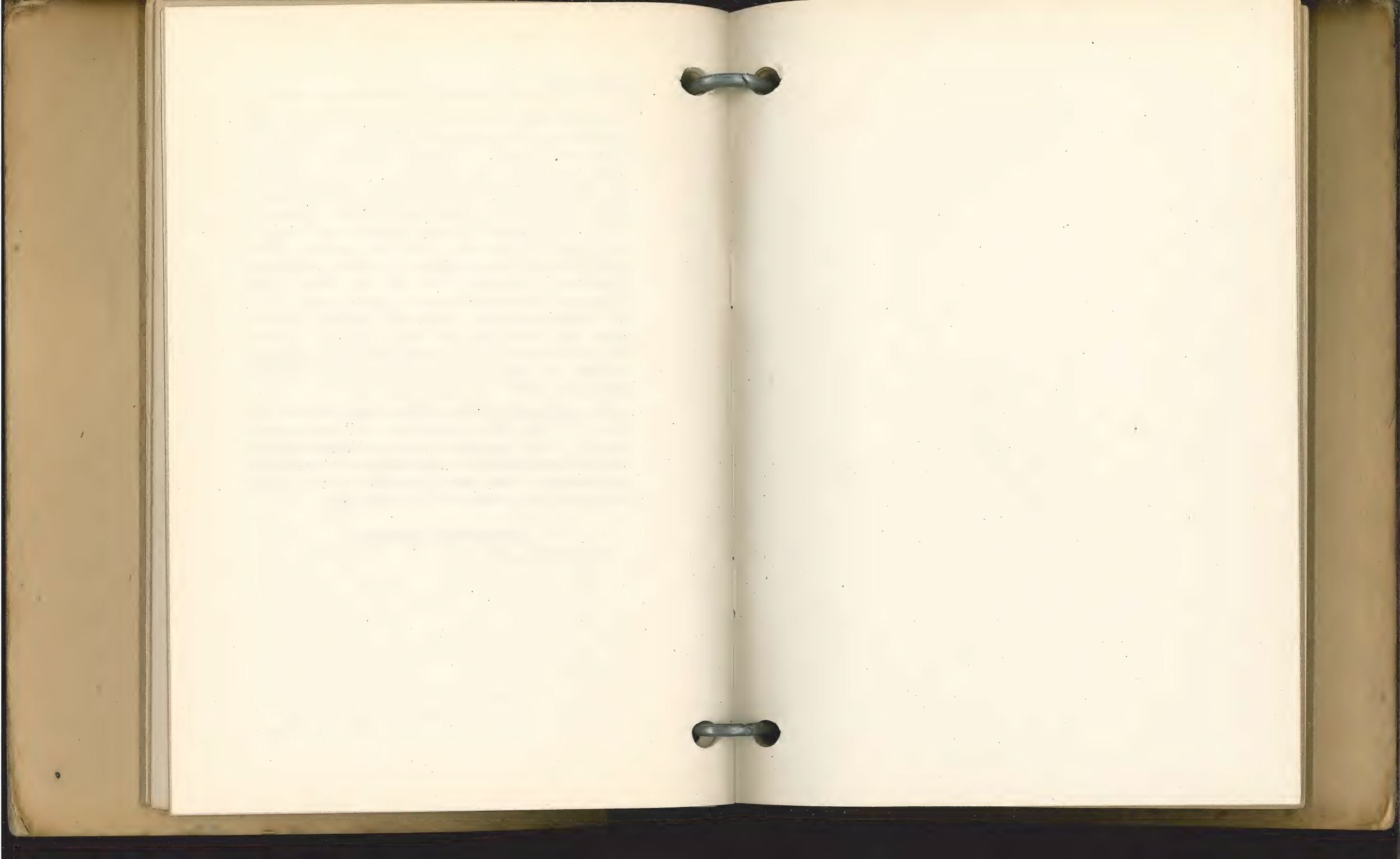
The patient will nearly always complain of pain in the back of neck, the pain so common in

neurasthenia. In many of these cases the blood pressure is below normal and in these the use of auto-condensation is contra-indicated. Instead there should be the application of sharp sparks up and down the spine for four or five minutes then over the abdominal region for three minutes more, finishing with the application over the eyes and back of the neck as outlined above. The application of sharp sparks is made by attaching condensor electrode No. 9D to large high frequency cord and this cord slipped in pole "D" to obtain the sparks. Raise the electrode a little from the body, also set lever "K" on button No. 3 and lever "C," advance but do not change setting of either lever until the switch "A" is first turned off.

In application to eyes always use mild current lever "C" on No. 1 and lever "K" on button No. 1. In all cases two or three minutes inhalation of ozone after the high frequency treatment is desirable. The ozone generator you will find illustrated in the Book of Instructions.

Bronchial Asthma

(See Asthma).





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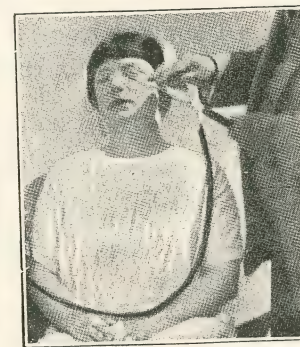
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LESSON SIX

Blepharitis (Granulated Eye-lids)

This disease appears to be thoroughly amenable to high frequency treatments. In a series of one hundred cases Fox was successful in curing every case. I had one case that was unusually difficult requiring over sixty treatments, but finally yielding.



Placing Electrode on Eyelid

A small electrode of such a shape that you can treat along the margins of the lids is necessary. I use the nasal vacuum electrode with just enough current to produce a stinging sensation when applied to my own eye-lid. The fine spark from it being from one thirty-second to one-sixteenth of an inch in length. I raise the

upper lid by pressure with the thumb and apply this fine spark along the edge for two minutes and then pull the lower lid down and do the same. Then while the patient closes the eye, I pass the electrode over the whole surface of the lids for two or three minutes longer. A daily treatment is preferable but three times a week will suffice.

Blindness From Intra-Ocular Hemorrhage

This is a serious and important condition in which remarkable results have followed the use of the high-frequency current. The object is to promote absorption. In this trouble, the blood pressure is always high, therefore auto-condensation is indicated; giving treatments daily with a meter reading of six or seven hundred, each treatment about ten minutes.

Also treat over the closed lid with the small nasal electrode by indirect method using a mildly stimulating spark. Take in with this treatment the temple and supra-orbital region as well as the eye itself.

Bright's Disease

(See Albuminuria; Nephritis).

Boils

(See Skin Diseases; also see Furunculosis).

Callouses

Callouses of all kinds including corns are best treated by fulguration. The hard, dry callous will be found quite resistant and will not

fulgurate as easily as tissues containing a higher percentage of fluids. See Book of Instruction for technique, the cord fastened to Pole "D".

Convalescence

The tonic effect of auto-condensation is very satisfactory, using the following technique: The patient is placed on the chair pad in a reclining position, attach one end of large maroon cord to one post on the D'Arsonval modality and attach the other end of cord to chair pad using the bifurcated cord. Take the other large maroon cord and attach the large auto-condensation handle, connect other end of cord with remaining post on the D'Arsonval. Have patient hold the handle firmly with both hands and resting upon a pillow. Set lever "C" on button No. 5 and lever "K" on No. 3, lever "G" on off button, spark gap "B" partly open, turn on current at switch "A" and open or close spark gap "B" until you have a meter reading of four hundred milliamperes. Give ten minutes treatment daily. Also use a mildly stimulating application of the vacuum electrode No. 9D to the spine, abdomen and extremities. Connections are made as follows: Attach condensor electrode No. 9D to large high frequency cord, slip other end of cord in pole "D", set lever "C" on button No. 4, lever "K" on button No. 2, spark gap "B" partly open, if more current is desired open spark gap "B"; 10 minutes every day.

The above method of treatment will be found of decided aid to assist patient in regaining strength.

use diathermy with steel sound for active electrode.

For diathermy connect the sound to metal tip of one heavy maroon cord using adhesive tape to hold tip, attach the other maroon cord to chair pad and both cords attached to D'Arsonval posts, set lever "C" on button No. 2 and lever "K" on button No. 3 regulate intensity by opening and closing spark gap "B".



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LESSON 7

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LESSON SEVEN

Chilblains

The vacuum electrode applied with good stimulating spark over the surface for about seven to ten minutes is advised, or use diathermy, four hundred milliamperes for ten minutes at a treatment. Repeat either method daily.

Cystitis

The effect of vacuum electrode treatment through the rectum or urethra is remarkable in inflammation of the bladder. In one case where many clots of blood were passing in the urine, and had been doing so for some days, it was greatly lessened after the first treatment and entirely disappeared after the second. The urethra was too sensitive to admit the sound and the treatment was administered through rectum. A seven minute treatment is given daily at first and then every other day. Two treatments per day may be employed if the operator thinks best. It is remarkable how fast the urine clears up in nearly all of these cases. In acute cases I always use the rectal technique but in old chronic cases I alternate with the urethral method. In women the vaginal technique is used. Local treatment over the bladder with the body or condensor electrode No. 9D

is also beneficial, or diathermic currents with the electrode in the rectum and the pad over the bladder.

Constipation

Use high frequency currents also sinusoidal in the treatment of constipation. High frequency application is given as follows: Attach condensor electrode No. 9D to large high frequency cord, slip other end of cord in pole "D", set lever "C" on button No. 5 and lever "K" on button No. 3, lever "G" on *off* button, spark gap "B" almost closed. Apply electrode to the abdomen and turn on current at switch "A". Keep electrode moving and in close contact with the abdomen and thereby avoid any sparking; to increase current open spark gap "B" a little by turning the knob to left. Ten minutes daily treatment is advised at first, later dropping to two or three treatments a week.

Sinusoidal treatment should also be used by placing one of the felt pads on abdomen and other at back both pads connected to sinusoidal posts by means of the small maroon cords. Set lever "C" on button No. 3 and *lever* "K" on *off* button, lever "H" in hole marked "S", lever "G" on *off* button, pads must be thoroughly saturated with warm salt water before applying and in good contact with skin; when all adjustments are made turn on current at switch "A", advance lever "G" to point of tolerance, treat ten minutes every other day.

Colitis

Many cases of colitis have yielded to high frequency treatment even by the simple method of using the vacuum electrode in light contact over the whole length of the colon for twelve minutes daily.

Diathermy, with one large electrode over the abdomen and the other to the back for 10 or 12 minutes with a meter reading five to six hundred milliamperes. The diathermic is obtained from the D'Arsonval terminals, using the heavy maroon cords, the high frequency from pole "D" either direct or indirect method.

Congestion of the Viscera

(See Muscular Atony; many forms of Paralysis; Atrophied Condition of the Muscles, Nerves, etc.).

Climacterie

(See Menopause).

Nasal Catarrh

For this condition the nasal electrode is used within the nose by indirect method. Patient is seated on chair-pad, this pad connected to Pole "D" by the large high frequency cord No. 51, the nasal tube is used without any connection to machine (see page 16 Book of Instructions, on Lightning Cabinet). A mild current is used treating for three or four minutes on each side followed by an application to the nose externally with one of the surface electrodes. Inhalation of ozone is of the greatest importance (see Book of Instructions).

Cold Extremities

I have included this symptom because it is so common and because the high frequency is really an ideal treatment for the condition. Vacuum tube No. 9D applications to the extremities to the production of redness give an immediate result. In order that it may have a permanent effect, a tonic dose along the spine and over the abdomen is advised, the treatments to be repeated three times a week. Diathermy is also indicated.

Carbuncle

In treating carbuncle, the high frequency currents are used, enough current should be sent through the tube to produce a one-fourth inch spark and the tube should be kept in loose contact with the inflamed area and passed back and forth over it for eight or ten minutes. This should make an appreciable difference in the pain and promote an early ripening of the carbuncle. In cases where suppuration has already occurred, the progress of the case may be hastened by the same technique.

Diathermy

Diathermy is a term which means heating through. It is produced by the D'Arsonval current and is also known as thermo-penetration. As long ago as 1899 Prof. D'Arsonval noticed that passing the D'Arsonval current through certain tissues of the body produced a higher temperature in these tissues and the name "Diathermy" was applied to this method of increasing the temperature of the internal

tissues of the body. It really amounts to the application of *electrically generated heat*. You will find several methods of applying this modality in the Book of Instructions.

Remember that some tissues (fatty tissues) heat more rapidly than others, but that others (bones) retain their heat longer. Muscular tissues are slower to heat than either fat or bones.

Dyspepsia

The technique to be followed is essentially that outlined under atonic dilatation of the stomach. The best treatment is auto-condensation, 400 to 600 milliamperes 10 to 12 minutes daily, patient laying on chair-pad and this pad connected with one post of the D'Arsonval, the other cord attached to felt pad and this pad placed on stomach. See Book of Instruction for further instructions. Felt pad must be salt moistened. Another method for treatment is to apply the No. D9 condensor electrode on stomach, keep it moving. If it sticks, dust it with talcum powder. In applying the condensor electrode the regular high frequency method is used by attaching electrode to pole "D" and regulating intensity of current by advancing lever "C" and "K" and also opening and closing spark gap "B". Time of treatment 8 or 10 minutes. Sinusoidal current can also be used by placing one electrode (felt pad) on the back at the eighth dorsal vertebra and another moistened pad over the epigastric region. This treatment should be used one hour after meals.

Diabetes

The treatment is by auto-condensation, using five or six hundred milliamperes for 10 to 12 minutes every day. Diathermy with one electrode over the liver and the other to the back, using five hundred milliamperes for 10 to 12 minutes is also very useful in connection with auto-condensation. In the earlier use of high frequency currents we were confronted by a variety of reports regarding the effectiveness of this treatment in diabetes, but even those who gave adverse opinions concerning the disappearance of sugar, admitted that there was improvement in the patient's "sense of well-being". I am willing to put myself squarely on record as believing auto-condensation to be the best single remedy we have for diabetes, and best of all, it does not prevent us from using at the same time all of the other measures which experience has shown us to be valuable.

In my first cases I used auto-condensation without altering patient's diet or prescribing any internal treatment, in order to determine exactly how much reliance might be placed on this method. All specimens of urine were sent to a reputable laboratory for examination so that no personal wish might influence my judgment of results. One of my worst cases where the patient could scarcely get to the office for treatment made such a steady improvement that in five months the sugar had dropped from seven and a half per cent to one and three-tenths per cent. He had resumed work and was gaining rapidly in weight and I was absolutely sure a

complete cure would result when he died suddenly. The cause was apparently the result of excessive drinking (which had been forbidden) raising the blood pressure to the point of rupturing one of the arteries in the brain.

Treatments should be given daily at first with a meter reading of five hundred milliamperes for ten minutes and if improvement is not manifest within a week, increase to seven hundred milliamperes. The only exception is where there is an advanced case of arteriosclerosis with marked hypertrophy of the heart muscle, when the blood pressure should not be diminished too rapidly, when improvement is pronounced, decrease the dose and treat three times a week.

In examining the urine the total amount for twenty-four hours must be collected and measured and a specimen from this examined, otherwise a test for the percentage of sugar will be valueless, for if half a dozen separate specimens are examined in a day, there will be given an equal variety of percentages. As diabetes is apparently a disease resulting from disturbed or impaired metabolism it is entirely reasonable to expect benefit from the administration of auto-condensation. I do not enforce a rigid diet but a regulated one. Other operators have employed in place of the auto-condensation a vacuum tube spark over the abdominal area.

Deafness

In catarrhal deafness, the high frequency current in connection with mechanical vibration will yield remarkable results in ninety per cent

of the cases treated. Indirect method of high-frequency currents can be used by placing the patient on the chair pad and the heavy H. F. cord No. 51 is attached to pad and pole "D", set lever "C" on any button from 1 to 5 and lever "K" on button No. 1; regulate intensity of current by opening and closing spark gap "B", the electrode is not connected in any manner to machine but is simply held in the hand of the operator, the duration of the treatment being from two to seven minutes, according to the toleration of the patient. The current must not be too sharp. The sensation of heat will become so marked that the patient will tell you when to stop. If the patient does not, do not carry it beyond seven minutes for either ear. Two treatments a day are not too many in the start, but this is seldom practicable and we must content ourselves with from three to six per week.

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Electro-Therapy

LESSON 8

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LESSON EIGHT

Diarrhoea

One author says "after preliminary treatment of the canal or being assured that no foreign matter remains in it, apply tonic dosage of high frequency current over the region of the solar plexus, stomach, intestines, liver and spinal nerves, essentially the same method of treatment is used as in Dyspepsia. As few cases of diarrhea come under the treatment of the electro-therapist, I am not able to give a definite opinion but would think a soothing treatment over the abdominal organs preferable."

Dental Trauma

Where the jaw is inflamed or swollen after extraction of teeth, the use of diathermy is very advantageous and obtained from the D'Arsonval modality.

Eczema

(See Skin Diseases).

Eye Treatment

For general application, treating both eyes at the same time, the double eye electrode No. 8 is employed. It is inserted in the handle and light but firm contact with the closed eyelids. Lever "C" on 1 or 2 and lever "K" on No. 1; seven minute treatments. If only one eye is to

be treated, one part of the double electrode may be used, the other extending out to one side of the head and not in contact, or you can use any one of the small electrodes either held in contact with the lid or moved slowly back and forth over it, and in a case of blepharitis, raise slightly to get the effect of a fine spark on the edges of the lids—Iritis, retonitis, glaucoma, atrophy of optic nerve, conjunctivitis, etc.

Ear Treatments

Use the urethral electrode No. 6, hold it with the point of the electrode carefully inserted in the ear. Lever "C" on No. 1 and "K" on No. 1, very little current at first, increasing slowly by opening the spark gap at points "B" to increase current to the point that the patient will tolerate. Treat five to seven minutes or until the heat of the current makes it uncomfortable for the patient. Then treat the other ear if affected in the same manner. This treatment will be found useful in catarrhal deafness, ear ache, tinnitus, aurium and practically all chronic ear diseases.

Endocervicitis

Use sinusoidal modality by applying one pad on abdomen and patient holding metal handle for about 10 minutes. Also use diathermy, patient seated on chair pad or lying down, apply felt pad thoroughly moistened with warm salt water over the womb connections made to posts marked D'Arsonval, when hot shut off current and repeat over each ovary, use high frequency current as in the treatment of cervicitis.

Eclampsia

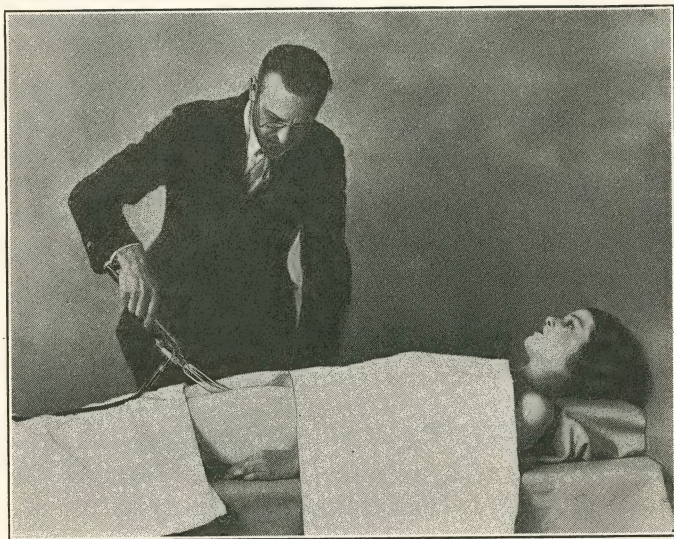
Eclampsia is a term denoting a sudden convulsive seizure in a woman prior to or during labor, or during puerpium. Therapy—the treatment of eclampsia is prophylactic, medical and surgical. One of the earliest and most constant signs of a toxic condition is a gradual increase in the systolic blood pressure and will be noted for a month or more before albumin can be detected in the urine.

When the systolic blood-pressure reaches 145 in a pregnant woman, otherwise normal, eclampsia is to be expected. The blood pressure of every pregnant woman should be taken at least once in two weeks during the period of gestation. If the pressure is found to be gradually rising do not wait for albumin to appear in the urine but give the patient the benefit of all doubts by instituting treatment by auto-condensation 300 to 400 milliamperes for 12 minutes at such intervals necessary to keep the systolic pressure near to normal. The saying "An ounce of prevention is worth a pound of cure" was never more pertinent than in eclampsia (Dr. B. B. Grover).

Endometritis

Endometritis is inflammation or hyperphasia of the uterine mucous membrane involving to a greater or less extent the uterine parenchyma. There are two forms, the acute and chronic. The acute form may be so mild as to be overlooked. The chronic form supervenes the acute form in a gradual manner. A differential

diagnosis between endometritis, carcinoma, sarcoma and fibroid should be made before treatment is instituted. Therapy—the acute form resulting from suppressed menstruation, over exertion, etc., is promptly relieved by diathermy with one electrode over the hypogastrium, the other over the 1st to 4th lumbar vertebrae. A



Vaginal Treatments with High Frequency—Valuable in Pyosalpinx, Leucorrhea, Cervicitis, Pelvic, Adhesions, Etc.

more pronounced effect may be induced with a well insulated vaginal or prostatic electrode in the vaginal formix, the other electrode of metal over the hypo-gastrium, current strength of toleration for 7 minutes daily. The uterus may be reached also with active prostatic electrode in the rectum with opposite electrode over the

hypogastrium as in diathermy of the prostate. Uterine reflex of contraction may be induced by a strong unipolar current (H. F. from Pole "D") over the 1st, 2nd and 3rd lumbar vertebrae for a period of 5 minutes. This is of special value if there be uterine bleeding. (Dr. B. B. Grover).

Epilepsy

Cruikshank says "Some cases have been cured and scores of others relieved to a greater or lesser degree by the high-frequency currents." Use condensor electrode No. 9D attached to pole "D" over the brain and along the spine from 5 to 10 minutes daily or every other day.

Enuresis (Incontinence of Urine)

Use a sharp tonic spark to the lower part of the spine and over the bladder area. Ten minutes daily. In many cases treatments to reach the neck of the bladder may be accomplished with electrode used through the rectum.

Enteritis

In enteritis of a chronic character high frequency currents may be expected to benefit in the same way that they benefit all catarrhal conditions. In acute forms there is a question whether the current is of sufficient value to warrant its employment when there are so many other agencies of equal or greater effectiveness that are more easily resorted to. The treatment advised would be tonic applications over the abdomen with the vacuum electrode and a mild spark or auto-condensation locally, three to six treatments per week of ten minutes each.

Epididymitis

The early treatment of epididymitis by diathermy will limit the deposit of inflammatory products and will also hasten their elimination after they are formed. Owing to the peculiar anatomical contour of the parts it is advisable to employ several layers of gauze saturated with hot salt solution underneath the flexible metal electrode which is shaped to cover the inflamed area. The other electrode may be held in the hands of the patient and the D'Arsonval current turned on gradually to point of tolerance. The amperage should then be reduced slightly. Daily treatments until satisfactory results are obtained. Acute cases should be aborted within four days. Physiology-Circulation of blood and lymph is hastened and tissues drained. (Dr. Burton B. Grover).

Fractures

The time required for healing fractures may be shortened one-third to one-half, better results obtained and many deformities obviated by timely employment of electro-therapeutic measures. Atrophied muscles, adherent tendon sheaths and ankylosed joints result from improper after-treatment of fractures and dislocations. The too common practice of allowing splints to remain from one to four weeks without removal is to be condemned. In nearly all cases the splint should be removed not later than the third day and at least twice a week thereafter, and diathermy applied for the purpose of maintaining nutrition. Diathermy will hasten the formation of callus by increasing the metabo-

lism of the part, thus shortening the time of disability. If muscular activity be maintained the muscles will be able to do their part as soon as sufficient union of the bone has taken place. In cases where it is inadvisable to remove the splint (Potts fracture) a little ingenuity on the part of the surgeon will enable him to apply the electrodes above and below the splint in such a manner as to flood the parts with new blood. (Dr. B. B. Grover).

Fissure (Anal)

So many reports of successful results in anal fissure have been made that there seems to be no doubt of its efficacy. It has always been my opinion that as much benefit was derived from the stretching of the parts as from the healing effect of the current. The rectal vacuum tube is employed and a seven minute treatment is given from three to six times per week.

Furunculosis or Boils

In treating boils, a mild spark from the vacuum electrode is employed over the affected area for ten or twelve minutes. The treatment may be repeated two or three times a day if operator finds it advisable. It is well to cover a reasonable area surrounding the boil in order to prevent recurrences. If the boil is discharging another method is to use the indirect fulguration. Patient is seated on chair pad and this pad is connected to pole "D" with large high-frequency cord. The operator simply holds the little metal fulguration tip in hand without any connection with machine. Treat for a few

seconds. This frequently aborts a boil if employed in the early stages.

Goitre

Simple Goitre—In simple goitre use condensor electrode No. 9D attached to large cord, slip this cord in pole "D", set lever "C" on button No. 1 and lever "K" on button No. 1, lever "G" on off button, spark gap "B" almost closed; apply electrode in light contact over the goitre and also over the sides of the neck. Do this for five minutes and then raise the electrode and give as sharp a spark as the patient will tolerate; two or three minutes. If more current is desired open spark gap "B" or advance lever "C" but first turn off current at switch "A" before changing setting at lever "C" to avoid sparking from buttons to lever. Any other measures may be used at the same time without conflicting with electrical treatment.

Gastritis

In catarrh of the stomach use auto-condensation five hundred milliamperes for ten or twelve minutes daily or with patient on chair pad use modified diathermy with the hand electrode over the stomach for ten minutes, employing four or five hundred milliamperes; connect chair pad and hand electrode with heavy maroon cords attached to D'Arsonval posts set lever "C" on any point from 1 to 5 and lever "K" on No. 3.

Glaucoma

This is practically always associated with high blood pressure and therefore calls for auto-

condensation ten to twelve minutes daily, the meter reading five or six hundred milliamperes. This should be followed by the use of the vacuum electrode over the closed lid and to the eye brow and temple. Use the single eye electrode for five to eight minutes with a very mild current, lever "C" on 1 and lever "K" on 1 with spark gap "B" fairly closed. The indirect method of high frequency can be used with patient on chair pad and this pad connected by large H. F. cord No. 51 with pole "D", the flat nasal electrode can be used in place of the regular eye electrode. This electrode is held in the hand of the operator without any connection to machine (indirect method).

Dr. Grover states as follows: "The essential characteristic of glaucoma is increased intra-ocular pressure. It is common disease constituting about one per cent of all ocular diseases. Its early recognition by the general practitioner is important because prompt treatment is essential in preventing disastrous results. Glaucoma is often confounded with iritis and sometimes with commencing cataract." Dr. Grover further states that non-treatment or wrong treatment of this affection inevitably leads to blindness. The first indication is to correct the constitutional condition. Hypertension is promptly reduced by mild auto-condensation treatment. If hypotension be present auto-condensation should not be employed. Myotics should be used in conjunction with the electric treatment. Quinine will not cure all cases of malaria, neither will electricity cure all cases of glaucoma but in recent cases much can be done toward relief.

In cases far advanced little can be done with high-frequency currents except to alleviate pain. Some cases can be kept in a state of quiescence. In late cases when blindness has occurred there is no benefit to be expected from any electric modality. (Dr. Burton B. Grover.)

Gonorrhoea

In acute gonorrhoea in the male the high frequency current is markedly beneficial. The method in vogue is to wrap the penis in wet cotton or gauze and then wrap lead or tin-foil around it and connect to one D'Arsonval binding post as the active diathermy electrode, the patient sitting on the connected chair pad. This chair pad is connected by heavy maroon cord to the other D'Arsonval binding post, lever "C" on No. 1, lever "K" on No. 1, lever "G" on *off* button, spark gap "B" partly open. A daily treatment should be given and I have not hesitated to give as many as three in one day in some instances. In the female the vaginal electrode is used or the vagina may be packed with moist gauze with a metallic electrode within the gauze with diathermy treatment as above. Usual methods of treatment may be carried out in connection with the high frequency.

In sub-acute or chronic forms the vacuum electrode method is preferable in either sex. In men treatment through the rectum is effective.

Gout

Auto-condensation is the treatment for gout, as in all diseases resulting from disturbed

metabolism. The urine is found to have immediately an increased amount of urea. While the excessive uric acid rapidly decreases to normal, five or six hundred milliamperes for ten or twelve minutes daily or three times a week is a proper dosage. A slight aggravation of pain may be present after the first few treatments for which reason I sometimes start with a smaller dose and gradually increase. No treatment should be given during an acute stage. High candle power or electric light baths are beneficial in any stage. Where the vacuum electrode is applied in these cases use the following technique. Attach condensor electrode No. 9D to large cord, slip other end of this cord in pole "D". Set lever "C" on button No. 3 and lever "K" on button No. 1. Lever "G" on *off* button, spark gap "B" partly open; apply electrode and turn on current at switch "A". Electrode should be kept in close contact with the skin and kept moving. Avoid all sparking from electrode. If more current is desired open spark gap "B", if still more current is necessary turn off current at switch "A", close spark gap "B" a little and advance lever "C" to button No. 4 or No. 5, then apply electrode and turn on current, also open spark gap "B".

Grippe and Influenza

In connection with the usual medicinal treatment, great benefit will be derived from the general application of high frequency current and the inhalation of ozone.

Technique for high frequency as follows: Attach one end of large high-frequency cord to the

No. 9D condensor electrode, slip other end of cord in pole "D", set lever "C" on button No. 1 and lever "K" on button No. 1, lever "G" on off button, open spark gap "B" about a quarter turn. To increase current widen gap "B" by turning knob to left, to decrease turn knob to right; the electrode is held near the nose and kept moving. If still more current is desired shut off current at switch "A" and advance lever "C" to button No. 2 then turn on current at switch "A". A mild treatment should be given over the eyes, being careful to avoid sparks.

The general treatment is by tonic sparks to spine and solar plexus, using the No. 9D condensor electrode attached to pole "D" Intranasal treatment is also advised by using the nasal electrode in place of the condensor electrode.

Technique for ozone inhalation: Attach ozone inhaler No. 22 to large high-frequency cord, slip other end of cord in pole "D". Let the patient or an assistant hold inhaler; set levers the same as for high frequency, press rubber bulb to force out the ozone. You will find the ozone generator illustrated in Book of Instruction which can be supplied on request.

Gleet

There are two methods that I have found equally satisfactory in the treatment of chronic posterior urethritis. The first is by employment of the urethral tube within the male urethra. The patient is placed upon his back on a wooden table. Whether the knees are to be flexed and the legs to be drawn up depends somewhat upon

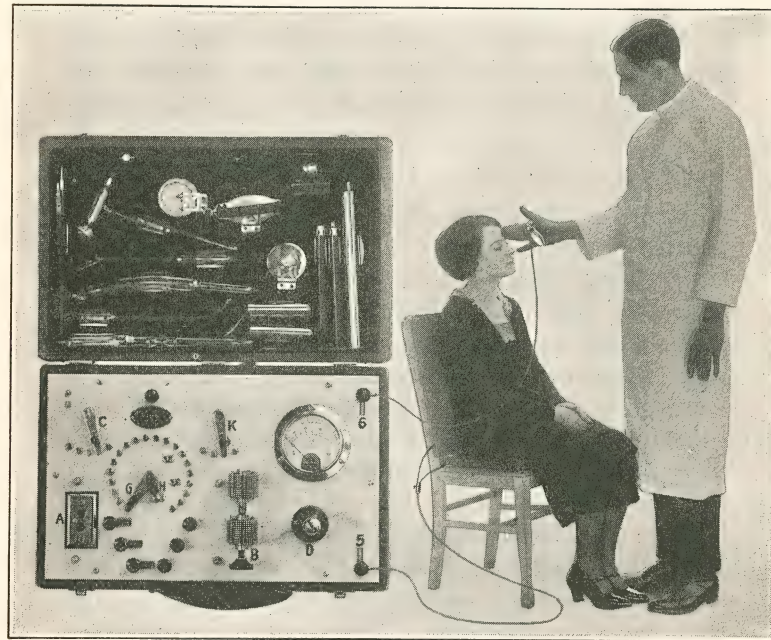
the individual case; ordinarily the legs are kept straight, but slightly separated. The sterilized electrode is lubricated and introduced in the same manner that a steel sound would be used, *taking care however not to use much force on account of the possibility of breaking the tube.* This has happened occasionally through a prying or sidewise motion, or thorough a sudden jerk. If the canal is too small to admit of the easy passage of the glass electrode, steel sounds are first used to dilate the urethra to sufficient size.

In case of stricture where the whole canal cannot be dilated sufficiently to allow the glass tube to pass the stricture, then it is introduced as far as the stricture and the treatment given. On subsequent days it will be found that the stricture gradually disappears until finally the glass tube will pass by it. When the urethral tube has been properly inserted, the socket of the holder is slipped over it and the handle bent back over the patient's abdomen. Metal parts of handle or cord must not come in contact with any part of patient. The patient takes hold of handle and thus steadies the tube. In stricture he is instructed to make steady downward pressure to keep the point of the tube firmly in contact with the stricture. The handle is connected to the machine at pole "D" using the large high frequency cord lever "C" on No. 1 and lever "K" on No. 1, open spark gap "B" very little at first and turn current on at switch "A". If more current is desired open spark gap "B". Duration of treatment, seven minutes. Current is then turned off and tube removed. Do not

forget that the posterior urethra may be treated almost as thoroughly and with much less pain by introducing a tube into the rectum.

Headache

Frontal or congestive headaches are relieved by using the condensor electrode No. 9D



Indirect Diathermy

attached to large high frequency cord and this cord attached to pole "D", regulating the current by advancing lever "C" and lever "K". However, start with lowest setting which is button No. 1 on lever "C" and button No. 1 on lever

"K"; opening and closing spark gap "B" will also increase and decrease intensity of current. We want to call your attention to the fact spark gap "B" is one of the most important regulating features on the cabinet and must be kept clean.



Sinusoidal Treatment for Headache.

Pass the electrode back and forth over the seat of pain. Keep the electrode in close contact and prolong the treatment five, eight and occasionally ten minutes, until relief takes place. Only temporary relief may be expected in toxic headaches or in reflex headaches from organic diseases, unless underlying causes are ascertained and treated.

nasal vacuum electrode attached to high frequency handle and large high frequency cord, slip other end of cord in pole "D", set lever "C" on button No. 1 and lever "K" on button No. 1, lever "G" on *off* button, spark gap "B" open about one-eighth turn, insert tube in nose and turn on current at switch "A".

The nose should also be treated externally by attaching any suitable electrode. The rectal electrode will be found very convenient to use. Keep the tube moving. Same technique can be used in nasal catarrh. Spinal applications of current should be given. Use the technique same as you do for grippe and influenza. Ozone inhalation should be given. The technique for giving ozone will be found in lesson on grippe and influenza.

The patient should be examined for enlarged turbinates or nasal polypi and if found they should be removed. The hyperesthetic areas in the mucous membrane should be destroyed. Fulguration may be used for this purpose.

Herpes Zoster or Shinlges

Application of the No. 9D condensor electrode discharge to the eruption in herpes is almost uniformly serviceable in hastening a cure. The electrode should be used in loose contact with the surface or through a layer or two of gauze. Treatment should be applied to the nerves supplying the area. Repeat the application daily. Two to four treatments are ordinarily sufficient.

Influenza

(See Grippe).

Indirect Method of High Frequency

See Book of Instructions for indirect method of high frequency. This is a very simple method and can be used in connection with your rectal, vaginal, eye, ear, nose and throat; also with fulguration as shown in Book of Instructions. In using this method for rectal, vaginal, etc. you will notice no handle is used and electrode is not connected to machine. Patient is seated on chair pad, and this pad connected to post "D" by large high frequency cord; set levers "C", "K" and spark gap for the desired strength of current. Lever "C" controls current entering machine. Button No. 1 minimum and No. 5 maximum. "Lever "K" controls frequency. Button No. 1 highest frequency (smoothest current), button No. 3 lowest frequency (coarse current).

Indirect Method of Fulguration

(See Indirect Method of High Frequency).

Insomnia

"Insomnia is not a disease but a symptom common to many diseases and dysfunctions. The amount of sleep required varies greatly in individuals, some requiring but five hours sleep while others require nine to ten to be able to perform the same amount of work. Etiologically insomnia is divided into three groups: (1) Insomnia due to faulty habits and hygiene, (2) Insomnia due to chronic diseases." (Dr. B. B. Grover.)

I wish to lay particular stress on the value of auto-condensation in combination with mild spark over supra-orbital region. The technique which I have found to be most satisfactory has been the use of the No. 9D condensor electrode attached to pole "D" with large high frequency cord, lever "C" on button No. 3 and lever "K" on button No. 1, spark gap "B" opened about one-eighth turn; electrode is kept in light contact with back of head and neck for about five minutes, keeping electrode moving. This treatment to be followed by three or four minutes application over the eyebrows. After this give an auto-condensation treatment using the technique as given in Book of Instruction; dosage, 400 milliamperes for 10 minutes.

Ozone can also be used. You will find an ozone generator No. 22 illustrated in Book of Instructions; this can be attached to large high-frequency cord and this cord to pole "D". Set lever "C" on No. 5 and lever "K" on No. 1, spark gap "B" open a quarter turn. Press the rubber bulb to force out the ozone. Two glass tips are supplied. One for the nose and another for mouth.

Patients often fall asleep while taking auto-condensation. In fact when using this method for other conditions you will often find your patients asking what it is that makes them so sleepy. I have cured so many aggravated and severe cases of insomnia with these measures that I am inclined to believe there should be no failures.

SIMPLIFIED
Electro-Therapy

LESSON 9

By Noble M. Eberhart, M. D.



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LESSON NINE

Impotence

The method of treating this condition is by means of the vacuum electrode. Use the body or prostatic tube with enough current to produce spark one-quarter inch long or more. Keep the tube in loose contact with the surface while it is passed back and forth over the genitals, inguinal and bladder region and to the lower half of the spine. With the spinal application raise the electrode to get reasonably stimulating sparks. Another method is to immerse the genitals in boric acid solution in a porcelain vessel and on pole of the D'Arsonval current (diathermy) in contact with the fluid, while the other electrode is in the patient's hand or applied to his back. Ten minute treatments daily, four or five hundred milliamperes. Rectal applications for seven minutes are often beneficial.

Incontinence of Urine

(See Enuresis).

Infantile Paralysis (*Anterior Poliomyelitis*)

(See Sinusoidal).

Intestinal Indigestion

Recognized by the presence of indican in the urine. The treatment is with auto-condensation using six hundred milliamperes for ten minutes daily. The sinusoidal current is also curative. Combine electric treatments with suitable dietetic and medicinal measures.

Inflammation of Joints

Cruikshank says: "In inflammation of the joints due to gonococcus, streptococcus, Pneumococcus or tubercle bacillus, the germs of infection are destroyed by auto-condensation followed by the high frequency treatment."

Intestinal Stasis

(See Muscular Atony, Congestion of Viscera Etc.).

Lupus Vulgaris

(See Skin Diseases).

Lumbago

We can scarcely believe the rapidity with which a patient may receive relief and since relief in this malady is so frequently a cure, electro-therapy seems magical for such cases. Immediate relief follows the use of high frequency in this form of muscular rheumatism. With the muscles (on the stretch) apply sharp sparks over the painful area, by attaching large high-frequency cord to condenser, electrode No. 9D and other end to pole "D"; set lever "C" on button No. 3 and lever "K" on button No. 2, spark pts "B" slightly closed. If more current is desired, open spark gap "B". If still

more current is required, turn off switch "A" and advance lever "C" and "K". As the pain eases have the patient assume a different position in order to again excite pain and proceed as before until any posture may be assumed. In an acute case the treatment may be repeated every three or four hours if necessary. In chronic cases three to six treatments per week. The length of each treatment is regulated by the time required to afford relief. This may be on an average of ten minutes. Diathermy current from the D'Arsonval modality is very effective. This current produces heat and can be applied in the same way as for rheumatism.

Laryngitis and Pharyngitis

In acute laryngitis, use the condensor electrode No. 9D over the outside of the throat for five or ten minutes, in conjunction with customary medical treatments. I am in favor of diathermy in all acute inflammatory conditions because of the heart being involved. In laryngitis, the modified form of diathermy treatment with the patient on chair pad and hand diathermy electrode No. 614 used to stroke over the throat will commend itself. See Book of Instructions. In pharyngitis the method of treatment is the same as for laryngitis.

Leucorrhea or (Whites)

Use the vaginal electrode by indirect method, patient lying on chair pad and this pad connected to post "D" with large H. F. cord No. 51; no handle or cord is attached to electrode. Lubricate the electrode with vaseline and insert

same in vagina. Set lever "C" on any button from 1 to 5 depending on the strength of current desired. Set lever "K" on No. 1 with spark gap "B" partly open. By widening gap "B" the current is increased. Turn off current at switch "A" to increase the strength in electrode. The operator places his fingers on the end of electrode. Three to six treatments a week; usual methods such as astringent and anti-septic douches may be used in connection with the electrical treatment.

Leukema

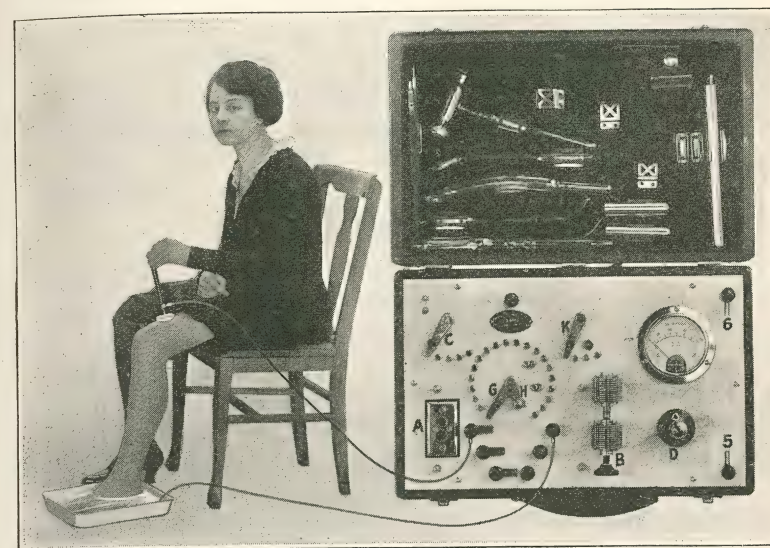
Dr. Grover says: "Leukema is a disease characterized by an increase of lymphatic tissue in the body and an excess of white corpuscles in the blood. High frequency currents in the forms of auto-condensation and diathermy increase metabolism and have a tendency to increase the proportion of red cells, consequently are indicated in this disease."

Locomotor Ataxia (Tabes Dorsalis)

Relief of pain and improvement in gait is accomplished in many cases in locomotor ataxia. I always employ spinal vibration in connection with high frequency. Apparent cures in occasional cases where even the pupillary reflex has returned has caused me to believe that we sometimes diagnose cases of multiple neuritis as tabes.

In multiple neuritis, we have absence of the knee jerk, and if the nerves of the eye were involved, loss of pupillary reflex and diplopia might be present, which would apparently indicate locomotor ataxia, as the latter is more

frequently met with. This would also account for cases in which no evidence of syphilitic infection are obtained. In genuine cases of tabes a cure need not be looked for by this or any other method that we are at present acquainted with, but marked relief is not unusual. I use as sharp a spark as the patient will tolerate along



Sinusoidal Application

the spine over the buttock, abdomen and to the back of the legs, followed by ten minutes on the auto-condensation pad; five or six hundred milliamperes. Anesthetic areas call for a short stimulating application of the spark and also mechanical vibration, while hyperesthetic places will call for a prolonged application of mild

sparks and vibration. Daily treatments at first, gradually decreasing to three times a week. Diathermy advised for the severe pains.

Lichen Planus

Use a vacuum tube in loose contact with the lesion, following the general technique outlined under skin diseases.

Lichen Rubra

Has yielded to the same treatment as that for lichen planus.

Migraine

Temporary relief in "sick headache" may be obtained by treatment over the seat of the pain which usually involves one half of the head. Use the No. 9D Condensor electrode and attach heavy high frequency cord to small metal loop on electrode. Set lever "C" on any button from 1 to 5, depending on strength of current desired. Set lever "K" on button No. 1 and regulate spark gap "B" turning it to left to increase and to right to decrease. Keep electrode in light contact with the surface. When treating through the hair in women it may be necessary to let the hair down or to reduce the strength of the current because the thickness of the hair may cause too sharp a spark. Migraine is probably a toxic headache due to imperfect metabolism. This clearly indicates the advisability of auto-condensation treatments; dose, five or six hundred milliamperes.

Myocarditis

The late Doctor Dodge of Indianapolis claimed that auto-condensation not only lowered blood-pressure and lightened the load on the heart, but that it had a positive tonic effect on the heart muscle.

Menorrhagia or Metrorrhagia

Use diathermy with large electrode on abdomen and active electrode in vagina or in some cases within the cavity of the womb. The active electrode may be a metallic one or one of the vaginal electrodes may be used. Treat daily until relieved, twice a day would not be too much in severe cases.

Metrorrhagia

(See Menorrhagia).

Menopause or Climacteric

High frequency currents are particularly suited to alleviating the various nervous symptoms that accompany "Change of Life". The most satisfactory method is auto-condensation employing six hundred milliamperes from ten to twelve minutes daily or every other day. Special symptoms that are present call for the treatment outlined under the appropriate heading such as constipation, headache, etc.

Muscular Atony

(See Paralysis, Congestion of Viscera, Intestinal Stasis).

Neuralgia

Applications for the relief of neuralgia are made with the condensor electrode No. 9D connected to cord No. 51 and used on high frequency pole "D", lever "C" on 1 or any point up to No. 5 depending on the amount of current desired and lever "K" on 1, 2, or 3 depending on the length and oscillations of spark points "B" almost closed. Their function is to regulate the discharge in connection with levers "C" and "K". Turning knob "B" to left increases, to right decreases.

Ordinarily the electrode should pass back and forth over the painful area in light contact with the skin. At times it is advisable to raise the tube and apply a sharply counter irritant spark which will quickly redden the surface. I remember the old definition of neuralgia as "The cry of the starved nerve for blood" and certainly the high frequency will supply this want. In addition to the local treatment, autocondensation or spinal sparks should be applied in accord with the state of blood pressure. The diathermic currents are advantageously employed because of the heat generated. See Book of Instructions. Various names have been given to indicate the different forms of neuralgia as facial neuralgia, ovarian neuralgia, etc. Treatment is essentially the same for all varieties.

SIMPLIFIED

Electro-Therapy

LESSON 10

By Noble M. Eberhart, M. D.



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LESSON TEN

Neuritis

In neuritis, we have an inflamed condition of the nerve, the pains simulating that of rheumatism or neuralgia. Any nerve may be involved. Brachial neuritis is a common form. The high frequency current is positively curative in all cases, but must be used judiciously. The condensor electrode No. 9D is used and connected with cord No. 51. This cord slipped in pole "D", lever "C" on any button from 1 to 5 depending upon the volume of current desired. No. 1 is minimum and No. 5 is maximum. Lever "K" on No. 1, 2, 3 depending upon the strength of current. No. 1 is the minimum and No. 3 the maximum. Spark points "B" almost closed. By opening this spark gap you increase current. In fact you will find the spark gap "B" one of the most important regulating features on the cabinet. Sharp sparks must not be employed at first, but a mild sedative current should be applied. This means that the electrode should be kept in comparatively close contact with the surface. It should be explained to the patient that the first few treatments sometimes aggravate the pain. After this stage is passed, mild or medium sparks may be used. If employed in the start the pain often will be so great that the patient may abandon the treatment.

I always give auto-condensation in connection with a local application unless the blood pressure is quite low. Many cases have been reported cured by this general treatment alone. Recently the diathermic or heat currents have been shown to be very satisfactory in the treatment of neuritis.



Nose—Nasal Treatment

Use the small flat electrode No. 4. Fit it in the handle and attach to cord No. 51 attaching this cord to pole "D". Set lever "C" on 1 or 2, lever "K" on 1; five to seven minutes for average

treatment. Repeat daily or three times a week. If both nostrils are involved use five to seven minutes in each. This treatment is very satisfactory in nasal catarrh, nasal diseases etc.

Neurasthenia

Numerous cases of nervous exhaustion have been reported cured by high frequency current. When the blood pressure is high, give auto-condensation treatment as follows: Place patient on chair pad either in a sitting or reclining position. Attach one large maroon cord to chair pad and one post on the D'Arsonval modality. Attach auto-condensation handle to the other large maroon cord and other end of this cord to other D'Arsonval post. Have patient hold handle firmly with both hands resting on a pillow. Set lever "C" on button No. 5 and lever "K" on button No. 3, lever "G" on off button, spark gap "B" almost closed. Turn on current at switch "A", open and close spark gap "B" until meter reads 500 or 600 milliamperes. Give treatment for ten minutes. This length of time is usually sufficient. The average number of treatments required is from twenty to thirty. When the blood pressure is low, auto-condensation is contra-indicated. The following treatment should be given: Attach condensor electrode No. 9D to large high frequency cord, slip other end of this cord in pole "D", set lever "C" on button No. 3 and lever "K" on button No. 2, lever "G" on off button, spark gap "B" almost closed. Turn on current at switch "A", apply the sparks to spine, back of head and neck and over solar plexus; current can be increased

by opening spark gap "B" and also by changing setting of lever "C" and "K". Ozone inhalations are a desirable adjunct. You will find generator No. 22 illustrated in Book of Instructions.

Nephritis

(See Albumenuria).

Nasal Catarrh

For this condition the nasal electrode is used within the nose by indirect method. Patient seated on chair-pad connected to pole "D" by the large H. F. cord No. 51. The nasal tube is used without any connection with machine. (See Book of Instruction on Lightning Cabinet). A mild current is used, treating for three or four minutes on each side, followed by an application to the nose externally with one of the surface electrodes. Inhalations of ozone are of the greatest importance. (See Book of Instructions).

Ozone

Ozone is electrified air—chemically, its formula is (O_3), that of normal oxygen being (O_2). In other words, two atoms are broken up into three, the extra atom being very active, attacks the organic impurities. Its inhalation is essential to life, hence it is vital air. It is oxygen raised to a higher degree.

What is the physiological action of ozone? Ozone increases the oxygenation of the blood and tissues, increasing oxyhemoglobin and also

increases the number of red blood corpuscles. It is claimed that a decrease in white corpuscles is produced if they are above normal. In strongly concentrated form, ozone is destructive in its effect on mucous membranes and even to life itself. Germs are destroyed by it. It is distinctly deodorant and even a small ozonizer running in a room will quickly destroy the most objectionable odors. You will find a complete description of a small ozonizer given in Book of Instructions.

Anemia and all diseases of the respiratory organs including tuberculosis, infectious diseases and all conditions where there is an imperfect oxidation and impaired nutrition are benefited by ozone. An ozone spray has been demonstrated to be healing in all forms of ulcers, etc.

What is claimed for ozone in Pulmonary Tuberculosis? Ozonizing the air of the patient's room is the best method of employing ozone in this disease. H. De LaCoux, chemical expert to the council of the prefecture of the Seine, Paris says: "In the application of ozone for tuberculosis it is an undeniable clinical fact that the number of bacilli in the sputum diminishes after the second or third treatment, even before the general condition of the patient is improved."

Dr. J. T. Gibson says in *Advanced Therapeutics*: "In advanced cases with cavities and much expectoration, I think there is no means of so much use as inhalation of ozone. It empties the lungs of detritus and pus, revivifying the blood, disinfecting the parts of the lungs reached, and after the first irritation of its use passes off

there is nothing that gives the lungs the sense of rest and quiet as does this agent. I have seen the quantity of sputum lessened to a most remarkable degree and fever disappear and all symptoms improve by the use of ozone inhalations.

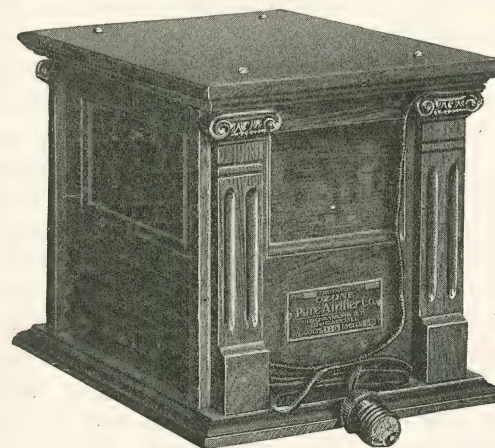
The efficacy of ozone in treating whooping cough has been attested by many authorities, among them being Caille, L'Abbe, Derecq, Doumer, Delherm, Bordier and Oudin. In practically all these cases, the ozone was administered in ten to twelve minute inhalations. Ozonizing the air in the patient's room should prove very satisfactory.

How do I get ozone from the Lighting Cabinet? Use the ozone generator No. 22 as shown in the Instruction Book. This generator is attached to large high frequency cord and this cord attached to pole "D", set levers "C" and "K" depending on strength of current desired. This ozone generator is not included with the outfit. Are there any cautions to be kept in mind? When ozone is produced, nitrous and nitric oxides are formed which are unfit for inhalation. They are filtered out by passing the ozone through oil of pine and eucalyptus oil. When a full dose is obtained there is often a slight sensation of dizziness or light headedness. An average treatment should last about ten minutes.

Ozonizer For Sick Room

This apparatus is made in a cabinet form. The most satisfactory size for the average patient's room is model No. 1, $9\frac{1}{2} \times 10\frac{1}{2} \times 9\frac{1}{2}$. It will

keep the air pure under all atmospheric conditions. The value of maintaining a uniformly pure condition of air in patient's room cannot be overestimated. The installation is most simple. In fact a child can operate it. You merely attach it to an ordinary light socket, it being operated the same as an electric light. It is inexpensive, both as to initial cost and operation and it will last a life time. The Ozone Pure



Ozonizer For Room

Airifier is not an experiment. Thousands of them are in use all over the United States and have been for many years. When ordering give the following information:

Is the current—

1. Alternating or Direct?
2. What is the Voltage?
3. If Alternating, the number of Cycles?

Obesity

The treatment for obesity is auto-condensa-

tion 350 to 600 milliamperes from 10 to 12 minutes daily. Patients lose from four to fourteen pounds per month in some instances. In those that do not show as great an actual reduction in weight there seems to be a redistribution of the fat which greatly increases bodily comfort.

Superfluous fat is a result of imperfect metabolism and that is why auto-condensation is beneficial. Cormelles has noted a greater tolerance of thyroid extract after auto-condensation has been employed. Auto-condensation technique is given in Book of Instructions on Lightning Cabinet. Instead of placing pad on chest it is placed over the abdomen. Sinusoidal can also be used by placing one large felt pad thoroughly moistened with warm salt water on abdomen and other felt pad on back, both pads connected with sinusoidal posts; lever "C" on any button from 1 to 5 depending on strength of current desired, lever "K" on *off* button, lever "H" on button marked "S"; advance lever "G" for increasing strength, also lever "C"; in moving lever "C" first turn off current at switch "A". Not necessary to turn off current when moving lever "G". Vibration with heavy pressure on abdomen, back, ribs and lumbar vertebra can also be used with satisfaction.

Piles

(See Hemorrhoids)

Papilloma

Treat on the D'Arsonval modality. The hot or caustic fulguration may be employed by using a wire insulated with rubber tubing on the D'Arsonval modality. One terminal of the

apparatus is connected to the heavy maroon cord and the fulguration wire with part of the insulation taken off and this wire fastened to metal tip of cord firmly fastened by adhesive tape, which is passed through the cystoscope and the other post marked D'Arsonval; attach the other maroon cord and to this cord connect the flat metallic electrode. This electrode is placed on the abdomen. You will find fulguration wire listed in Book of Instructions; it can be purchased in any desired length. The patient is prepared with green soap and water and bichloride and the bladder distended with water. After the cystoscope is introduced, the tumor is brought in view and the fulguration wire passed through the catheter channel of the cystoscope until the end of the wire is in view. The wire is then plunged into the tumor and lever "C" set at any point from 1 to 5, depending upon the strength desired and lever "K" on point 1 or 2 and current turned on. (Before introducing the wire into the cystoscope, cut the wire so that the insulation is flush with the end of the wire). Just as soon as the high-frequency current is turned on, bubbles (presumably hydrogen) are seen emanating from the tumor. If the tumor is small, or if the electrode has been placed near the top of the tumor, an immediate blanching of the tumor is seen. This treatment can readily be carried out under the guidance of the eye, providing the insulation of the fulguration wire is intact; unless the insulation is intact, a short circuit in the cystoscope occurs and subsequent burning out of the cystoscope lamp may result. Special bladder

fulguration electrode can be used instead of wire.

After allowing the current to pass into the tumor for about 12 to 15 seconds, the current is shut off, the fulguration wire withdrawn and reapplied to another part of the tumor. In large tumors, this procedure can be repeated until many different areas of the tumor have been treated in one sitting. As long as five or six minutes may be consumed in one sitting. Naturally, the duration of each treatment will depend on the size of the tumor. For example, in one case one sitting consisting of three 12-second applications was enough to completely destroy a small papilloma. As long as the electrode remains in contact with the tumor no pain is experienced by the patient.

When working near the base of the tumor or if the electrode comes in contact with the bladder-wall, the patient frequently complains of pain, so that, during the first fulgurations there is no pain, whereas towards the end of the treatment, while working near the bladder in treating the remaining tags, the patient at times complains of pain. It is also necessary to consider the pain incident to cystoscopy. This varies in different persons; some patients not being able to bear long sessions as well as others.

The number of treatments or sittings, as previously stated, is determined by the size of the tumor, some cases requiring as many as six sittings. Attention is called to the burning off of the insulation near the end of the fulguration wire. After the current has been turned on and the treatment carried on for a little while, sometimes only ten seconds, the insulation be-

comes soft and falls off or burns off from the end of the wire so that it becomes necessary to withdraw the wire and cut the end off squarely.

Unless this is done, there is danger of the bare wire causing a short circuit in the cystoscope. Usually when the high-frequency current is applied the tissues become white and shrivel up. Sometimes the tumor surface appears dark as though it were baked. Not infrequently after an application a larger or smaller piece of the tumor adheres to the end of the fulguration wire. At other times these small pieces may be passed at the next urination and often they are obtained from the wash water. They are carefully saved and examined microscopically. It is suggested that papillomata should be considered malignant in all cases of long standing cystitis which has persisted even in the presence of careful treatment, or with the history of frequent relapses, papilloma should be suspected, and the diagnosis confirmed or contradicted by cystoscopy. It is the consensus of opinion that the fulguration method is followed by remarkable results. Dr. Kolisher states that the destruction of tumors by the spark or by the constant heat was introduced because experience has shown that removal of tumors of the bladder by the knife is very unsatisfactory, even if we have to deal with entirely benign tumors. Invariably, after extirpation with the knife, with very few exceptions a recurrence will follow and this recurrence is characterized by numerous recurrences. If you remove one papilloma of the bladder in a very short time, ten or fifty or a hundred papillomas of the bladder, evidently

due to transplantation, will appear. In this way after the removal of a very little papilloma, papillomatosis of the whole bladder is produced, which is a condition very hard to deal with. Even if you dissect the mucosa of the bladder, you get a recurrence. Further, it was proven that, after excision, quite often the character of the base of the tumor will change. You excise an entirely benign tumor, and the recurrence is decidedly malignant. In order to avoid this, destruction of the tumor by heat was introduced, and the best way of doing it or the easiest is with the fulguration method. These tumors are very easily destroyed by sinking the electrode into the base of the tumor and coagulating all the blood vessels and if you examine such a patient 24 hours after the interference you will see that this whole papilloma is gelatinized, and all the soft parts are carried off, and there is nothing left but a skeleton like a dry leaf. Inside of a few days it drops off and there is a little granular surface left. It becomes cured inside of a week. It is very necessary that all connections be perfect and according to instructions given in this lesson; also remember if the electrodes are of bare metal, that is, not covered with padding, both the metal and the skin to which it is to be applied should be thoroughly moistened, either with plain salt water or more improved method of coating thoroughly with a soap lather, to overcome the usual resistance of the epidermis. See that the connecting cords are not crossed, touching one another nor touching any part of the patient.

Pimples

(See Skin Diseases).

Pharyngitis

(See Laryngitis).

Pyosalpinx

Intra-vaginal applications of the high-frequency current has proven effective; seven minute treatment three or more times per week. Connections made as follows: Vaginal electrode lubricated with vaseline attached to handle and large cord attached to pole "D". Lever "C" on 1 or 2 and lever "K" on 1, spark gap "B" regulated depending on amount of current desired. Wrap towels around patient while lying on back so that no portion of cord or metal of handle can come in contact with the patient. Treatment averages seven minutes.

Pleurisy

Treat through a layer or two of clothing using condensor electrode No. 9D attached to large High-Frequency cord and this cord attached to Pole "D". Set levers "C" on No. 4 and "K" on No. 3 and adjust spark gap "B" so that you get a medium intensity of current from condensor electrode No. 9D. Apply over both front and back of the chest, keeping up the treatment until marked reddening of the skin indicates a proper degree of counter-irritation. Three treatments a day if necessary in the beginning in conjunction with the usual medicinal methods. Chronic forms call for ozone which can be obtained by attaching Ozone generator No. 22 in same manner as vacuum

electrode. Diathermy is also advised by using two felt pads No. 690 thoroughly moistened with warm salt water, one pad on back and other over the chest, both pads connected with large maroon cords and these cords attached to D'Arsonval posts. Lever "C" set on button No. 5 and lever "K" on button No. 3; adjust spark gap "B" by opening and closing it until a meter reading of 500 milliamperes is obtained, treat with this current for about 10 or 12 minutes three times a day, if necessary, in the beginning.

Pneumonia

The high-frequency treatment of pneumonia is the same as that employed in pleurisy. In addition the inhalation of ozone by ozonizing the air of the room is absolutely essential and always should be employed from the start. It is much more sensible to administer this form of oxygen during the entire period of this disease than it is to administer oxygen as a last hope in extremis. (See Ozonizer on page 7)

Pulmonary Tuberculosis

In pulmonary tuberculosis we have a remarkably effective remedy in auto-condensation and ozone. My attention was directed to the use of auto-condensation in this disease by Chisholm Williams, in which he reported thirty-two of forty-three consecutive cases, as symptomatically cured. This being about seventy-five per cent. Previous to this time I employed the X-Ray, using with it vacuum electrodes or diaphragm applications of high frequency. I am now convinced that auto-condensation or

diathermy is superior to other forms of high frequency in this disease. Ozone is especially effective in consumption. It must not be limited to inhalation's at the physician's office, but the air of the patient's room must be ozonized so that he or she is constantly getting a suitable amount in the air they breathe. If they could only respire half as much air as formerly, but that amount by reason of the ozone is twice as powerful in oxydizing properties, the proper balance is maintained. Williams observed that the use of auto-condensation was followed at first by an increase in symptoms. The expectoration increased, the cough was more frequent but easier; there was a lower morning but a higher afternoon temperature; and an average loss of weight of about one pound a week during the first three weeks. The concurrent use of ozone shortens this first stage. After this period improvement was steady, although some attenuated tubercle bacilli were present long after all other symptoms disappeared. On account of the rise in temperature produced by auto-condensation we must be careful not to give too long a treatment at the beginning if the patient is carrying a comparatively high temperature. For instance 103 degrees or over, or is in an advanced stage of the disease.

The reaction is that similar to tuberculin. The rise in an already high temperature might be too great if a long treatment is given. For this reason it is a good plan to give five minutes on the auto-condensation chair pad. For technique see Book of Instructions and then await the subsidence of the reaction before giving

the second treatment. I would not employ more than three hundred milliamperes in the first three or four treatments, after which the patient will quickly establish a tolerance for the treatment and the dose may be increased to five or six hundred. As soon as this period is reached, daily applications are urged, and should be followed by spinal sparks to offset the blood pressure, reducing effect of the auto-condensation. Be sure to thoroughly moisten the felt pad with warm salt water and see that perfect contact is made with skin. In cases that carry very little temperature at the time of starting treatment, a ten minute daily application may be made from the beginning. The value of ozone and auto-condensation is so marked and so easy of demonstration that I am surprised the methods are not better known and in general use in institutions for the treatment of consumption.

Dr. Albert C. Geyser states: "From actual personal experience I am willing to go on record with statement that I am almost convinced that every case of Pulmonary Tuberculosis in the first stage is curable by the application of Diathermic current on the D'Arsonval modality."

Paralysis

(See Sinusoidal).

Puritus

This annoying symptom ordinarily is relieved by the high frequency current. Use same technique as given under Prostatic Diseases. In-

stead of inserting electrode it is held in the operator's hand. Generally speaking, the vacuum electrode spark is employed as sharp as the patient will tolerate but not for a long time. In other cases, light contact with the tube is desirable, giving longer treatments than with the spark. In itching skin diseases, the spark is grateful to the patient and relief is had immediately though often temporarily.

Periostitis

The vacuum tube carrying a medium intensity of current is passed lightly back and forth over the diseased area for from five to ten minutes, three times a week, followed by a few minutes application of the high candle power light. The No. 9D condenser electrode is preferred and this electrode is attached to the heavy high frequency cord and this cord attached to Pole "D" on cabinet.

Proctitis

In the chronic forms of this disease the direct D'Arsonval current (diathermy) is advised, using a metal electrode in the rectum while a metallic electrode is held by the patient ten minutes three to six times per week.

Prostatic Diseases

(See also Rectal).

The results following the high-frequency treatment of all forms of prostatic diseases are extraordinary. One authority found, in a large series of cases, over eighty-five per cent were cured. In my own experience the apparent cures have been over ninety per cent with no case in which perceptible improvement was not

present. In enlarged prostate I was of the opinion that recent cases and those with inflammatory infiltrate were all that could be reduced, but I have had positive reduction take place in a few cases of senile hypertrophy and I believe the possibility in these cases are worthy of investigation. The technique that can be used and which will be found very simple is the indirect method, patient lying on chair pad connected to post "D" using heavy high frequency cords No. 51. The rectal electrode is simply held in the operator's hand. No cord or handle used or electrode connected in any manner to machine. Electrode can be inserted in rectum. Lubricate with vaseline, control of current in electrode is made by the operator simply touching the electrode with his fingers. (This is what is called indirect high frequency). Vibration can also be used in conjunction with high-frequency and also diathermy in acute cases.

Psoriasis

This is treated by the same technique as that employed in Eczema.

Pyorrhea (Riggs Disease)

In this common but intractable disease of the gums the high frequency current is locally applied by means of special tubes. See Instruction Book. The disease is very difficult to cure and high frequency is beneficial because germicidal in character as well as nutritional. Seven minutes daily treatments with tube in contact with the gum. Pyorrhea early manifests itself by a slight reddening of the gums at

the margins and a tendency to bleed on slight provocation. A large majority of patients having pyorrhea are anemic and in these the gums instead of being red, may have a yellow and discolored appearance and are apt to be flabby or receding instead of puffy. In the second stage of the disease, pus appears, attacking first the peri-dental membrane. Later the bony socket of the tooth may be slowly eaten away or destroyed. The gum gradually recedes and the tooth becomes loose in its socket and painful to the touch. From this we can see at once indications for the employment of high-frequency currents. It has been claimed by another authority that it is necessary to destroy the microbic and suppurative state of the gums, correct the depleted nutrition in the tissues and produce an over-active phagocytosis and increase the index of leucocytic destructions. For this result one uses high-frequency currents with the greatest success.

Gerneaux and Arnal use the high frequency as follows: A metallic fulguration electrode is introduced as far as possible between the loosened gum and the tooth in order that the spark may reach all the recesses and purulent foci. During the operation, which lasts an average of a minute for each tooth, one sees the margin of the gum blanch and the pus bubble out at the neck of the tooth. When all of the recesses have been penetrated, the fulguration is replaced by a small vacuum electrode which is passed over the external and internal surface of the gums for about ten minutes. Then wait three or four weeks to note results before giving a second

treatment, employing a rigorous antiseptic regime in the meantime, consisting of brushing with an alkaline powder night and morning and numerous rinsings with boiled water, etc. About a week after the treatment the patient massages the gums with the finger twice a day. In three or four weeks if pressure on the gums shows presence of pus, the treatment is repeated; otherwise the case is dismissed with instructions to keep up the massage of the gums and antiseptic care of the mouth. One to three treatments were required in the cases treated.

Dr. F. Morel makes use of medicaments in connection with the high frequency. He claims that the high frequency renders mucous membranes porous and facilitates the penetration of medicaments, and that the simultaneous application of the solution and the current produces an electro-chemic effect. He decomposes by the currents a solution of potassium bichromate claiming that the base will be taken up by the diseased tissues. After thoroughly removing the tartar from the teeth, he carefully irrigates with peroxide and evacuates all of the pus. Then he paints the teeth and gums with the following solution, using a spatula to get it up as far as possible around the roots.

R Fluoride of Ammonia.....	1 gramme
Chloride of Ammonia.....	1 gramme
Chloride of Potash.....	1.5 gramme
Salicylate of Theobromine..	1 gramme
Methyl Alcohol.....	50 centigrammes
Distilled water.....	20 grammes

M—Filter

This solution favors ionization and lessens the resistance of the tissues to porosity. A pad is then soaked in ten per cent aqueous solution of bichromate of potash and held over four teeth and a vacuum electrode held over this for about ten minutes with close contact. He only treats four teeth at a time. In advanced cases he uses a metal point and carries a few sparks up into the infected canals.

The vacuum tube application is for cataphoresis purposes and of the electrodes illustrated in the Lightning Instruction Book. This electrode having a cup to hold the saturated cotton may be used for this purpose.

The treatment is repeated every second day, sometimes giving three five-minute periods with eight minutes rest between. Usually four treatments produce a cure, occasionally six, seven or eight have been required. During the whole course of treatment, the patient washes the mouth six times a day with the following solution using half a glass each time.

Sodium Salicylate.....	10 grammes
Sodium Fluorosilicate.....	2 grammes
Distilled water.....	1 litre

Dr. Jirka applies Methyl salicylate in these cases driving it in with the vacuum electrode. He treats for eight minutes every other day. Reports a number of cases cured in three to fifteen treatments. Hubbel uses the cataphoresis electrode first and then the ball pointed pyorrhea electrode to massage the gums for five or six minutes each, treating daily until improvement takes place.

Post Operative Conditions

Are treated by the same technique as used in convalescence.

Post Fracture Conditions

The local application of the vacuum tube No. 9D discharge in conjunction with vibration is of great benefit in restoring a normal condition of the parts. Its physiological action clearly indicates its value here. Diathermy can be used and will be found a great benefit.

Pelvic Adhesions

Use D'Arsonval modality by placing a large pad to the back and small size pad over the abdominal area involved. These parts must be thoroughly saturated with warm salt water and attached to large maroon cords. Other end of cords attached to D'Arsonval posts. Perfect contact must be made on skin. Set lever "C" on button No. 5 and lever "K" on button No. 3, regulate spark gap "B" by opening and closing until meter shows four hundred milliamperes. Treat for ten or twelve minutes every other day. In some cases use vaginal electrode in vagina or rectal electrode in rectum by indirect method.

Ptosis

Ptosis is a condition that frequently responds to electrical stimulation. The affected part should be thoroughly warmed by the vacuum tube. Application followed by sinusoidal current. The treatment should be repeated daily.



SIMPLIFIED

Electro-Therapy

LESSON 11

By Noble M. Eberhart, M. D.



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LESSON ELEVEN

Prolapse of Rectum

Use a mild spark over the prolapsed tissue which almost always will cause an immediate contraction. If it does not, replace and follow with a seven minute intra-rectal treatment, three to six applications per week.

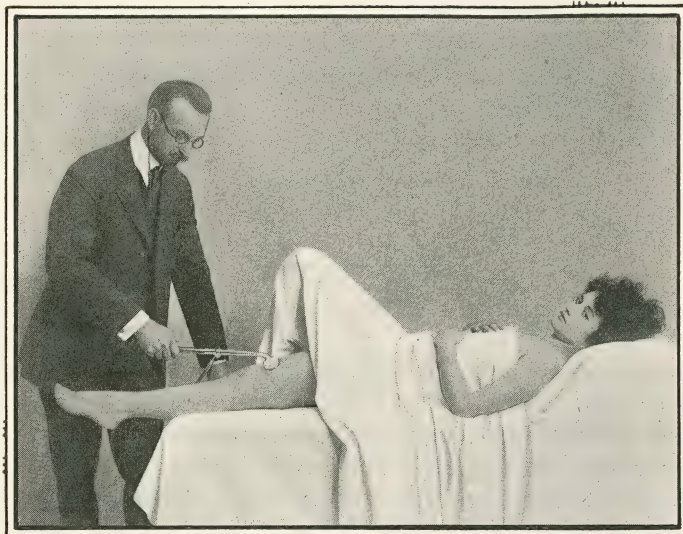
Riggs Disease

(See Pyorrhea).

Rheumatism

High-frequency currents are of exceptional value in muscular and in chronic articular rheumatism. In the acute articular rheumatism the results have been very satisfactory by using the diathermy treatment (diathermic current is obtained on the D'Arsonval modality). Articular rheumatism also known as inflammatory rheumatism or rheumatic fever is known at the present time to be an infectious disease. Ordinarily the attack is ushered in by a sore throat and the infection enters by way of the tonsils. It affects the fibrous and serous tissues in particular and one reason for believing the disease infectious was the similarity between the symptoms and those of gonorrheal rheumatism where a known infection causes the pain etc. frequently abscessed teeth are the foci of infection. Rheumatism is often confounded with

rheumatic gout. It quickly produces impoverishment of the blood (anemia) and this is one reason why auto-condensation has proved so beneficial. In the acute form both articular and muscular, the application of Diathermy with high frequency produces the desired results. In muscular rheumatism, of which lumbago, stiff neck,



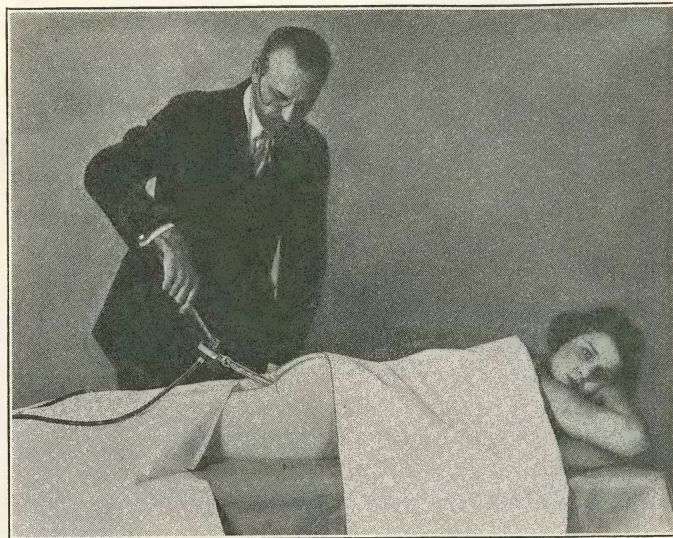
Showing Application of Violet Ray for Relief of Rheumatism

etc. are common types the condensor electrode No. 9D is used connected with H. F. cord No. 51 and this cord slipped into pole "D". Set lever "C" on any button from 1 to 5 depending upon the strength desired. Button No. 1 is the mildest and button No. 5 strongest. Set lever "K" on 2, 3, 4, depending on power desired and strength of spark, No. 2 highest frequency there-

fore smoothest current and button No. 4 lowest frequency and giving less oscillation, therefore current coarse. Adjust spark gap "B", to increase turn knob to left. The electrode is used with either a mild or sharp spark and during the application the patient changes position frequently to keep the muscles on the stretch and to ascertain whether this posturing causes pain. The treatment is persisted in until relieved whether it be ten or fifteen minutes.

In chronic rheumatism the best treatment is auto-condensation daily. During the first treatments the symptoms may be somewhat aggravated, but after the second or third week improvement is steady and rapid. The amount of uric acid in the urine is immediately increased by auto-condensation which probably accounts for the aggravation of symptoms in rheumatism and gout where long treatments are given in the beginning. The following technique is advised: Attach the large maroon cords to posts marked D'Arsonval on cabinet, then connect two felt pads No. 690 thoroughly moistened with warm salt water to other end of these cords, place pads opposite one another so that the heat may be carried through the part to be treated. For instance, if it is the knee one pad is placed on each side of the knee. The electrodes are bound on with the tapes and must have good firm contact on skin. Set lever "C" on button No. 3 and lever "K" on button No. 2, spark gap "B" slightly open. Start the machine by pressing down the red switch button, meter should show 500 or 600 milliamperes. If it does not show this amount open spark gap "B" a little and if this

does not increase the meter reading to the desired amount, shut off current at switch "A" and advance lever "C" and also lever "K". When meter registers 500 or 600 treat patient for 10 or 12 minutes.



High Frequency Rectal Application for Proctitis, Prolapse of Rectum, Pruritus. Hemorrhoids, Anal Fissure, Etc.

Rectal Treatments

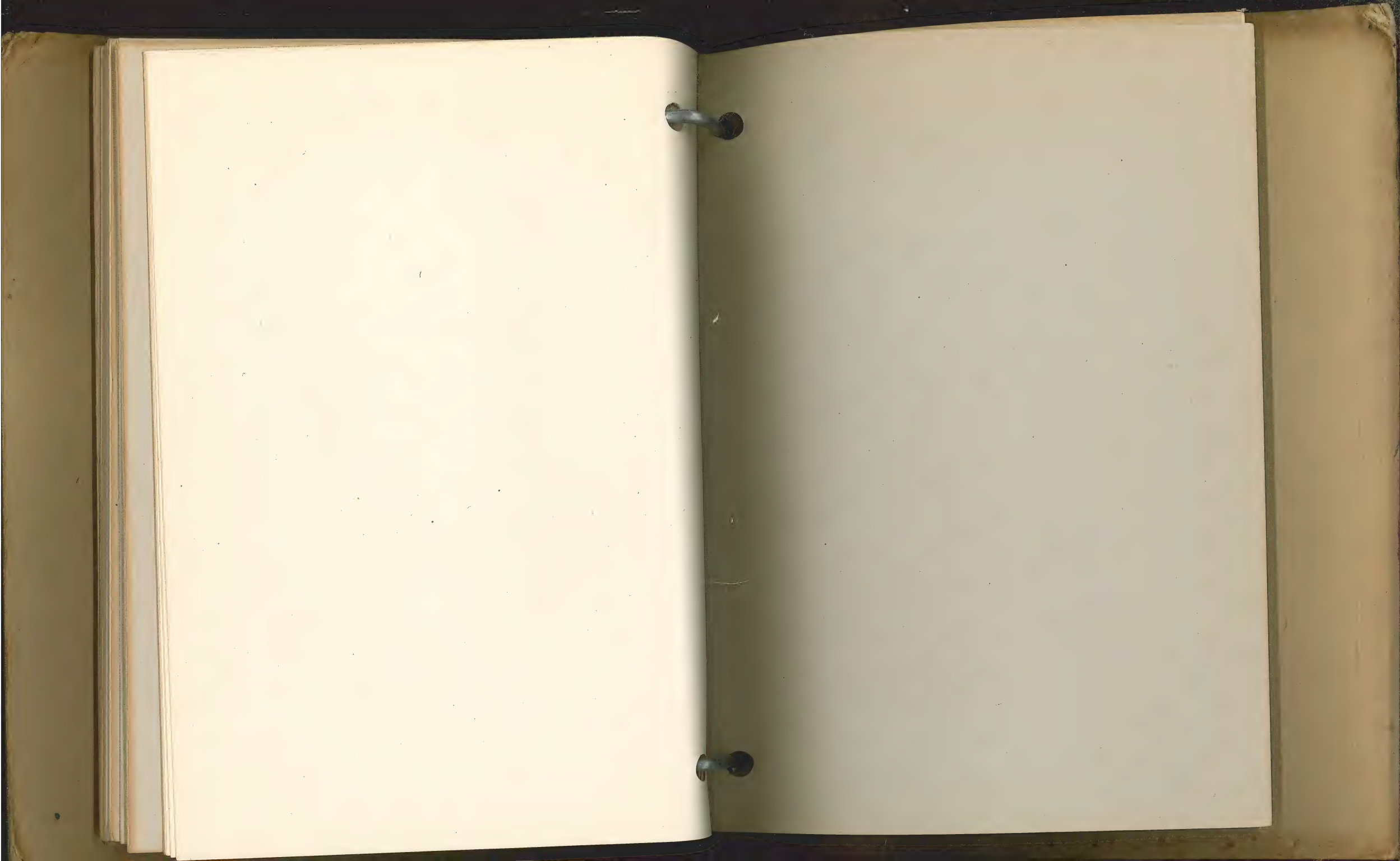
The plain vacuum electrode No. 2 is used. It is inserted in the handle and lubricated with vaseline. The patient lies on one side (Sims, position) the knees well drawn up, the back of the patient is toward the cabinet. The electrode is carefully and gently inserted in the rectum. When the electrode has been adjusted in place as above directed, set lever "C" on 1 or 2.

Lever "K" on 1, spark gap "B" fairly closed. Turn on current, to increase intensity turn knob of spark gap "B" to left. Let treatment last about seven minutes, no longer at first. When you have become accustomed to treating these cases you will occasionally give a little longer treatment, but too long exposure of a mucous membrane will result in a burn from the heat produced in the tube, so be safe by being careful to keep to the seven minute rule until you are fairly expert in the work. The above treatment is used for fissures, hemorrhoids, catarrhal conditions etc.

Raynands Disease

French operators report successful treatments of this disease with auto-condensation, different cases requiring twelve or more treatments. Dr. Neiswanger reports the cure of a case of this fearful disease by the high-frequency current, which is remarkable. A case was treated at a large clinic by massage, external heat etc., without apparent benefit. The disease was confined to the left hand, the pulse very weak, tips of the fingers turned black and dried up. Pain, loss of sleep, etc., proved so wearing that amputation was suggested but declined in favor of electrical treatment. The patient was placed on auto-condensation chair pad and strong current administered on alternate days with the result that after the eighth treatment pain was relieved and sleep restored and within two months the fingers were normal, the nails regrown and recovery was complete.





SIMPLIFIED
Electro-Therapy

LESSON 12

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LESSON TWELVE

Renal Calculus

This is treated electrically by diathermy on the D'Arsonval modality with one large felt pad back of kidney and one to abdomen in front, both pads thoroughly saturated with warm salt water. Use four hundred milliamperes at the start and in five minutes bring it up to six hundred milliamperes and hold at that reading for twelve minutes. Give daily treatments. Pain is relieved quickly in most instances.

Retinitis

The method employed is the use of the double eye electrode or using a vacuum tube with a mild amount of current. Lever "C" on No. 1, lever "K" on No. 1, spark gap nearly closed. Have electrode in light contact with the eyelids, eyebrows and temples. The indirect method of high frequency can be used by patient sitting on chair pad, this pad connected to post "D" by heavy high frequency cord; the electrodes are held in operator's hand without any connection to machine, the nasal electrode can be used in addition to the regular double eye electrode. I have treated successfully a number of diseases of the eye with high frequency in connection with Dr. G. F. Suker at whose suggestion these methods were employed. Among these was one

case of retinitis pigmentosa which I understand is considered an incurable disease.

Ringworm (*Tinea*)

In ringworm and in all forms of tinea use the vacuum tube applications either by direct contact or by a reasonable sharp spark.

Superficial Abscess; Skin Ulcers

(See Skin Diseases).

Skin Diseases

What is the usual way to treat skin disease? With condensor electrode No. 9D attached to cord No. 51 and this cord inserted in post "D" with lever "C" on button No. 1 and spark point "B" almost closed and lever "K" on point No. 1. You are ready to turn on current at switch "A". Some patients will tolerate a much stronger current than others and it is necessary to regulate the dosage according to the individual tolerance. To increase the sharpness of the spark turn the knob "B" to left. A longer spark at the spark gap "B" makes a sharper and thicker spark from the electrode. You can also increase the power by advancing lever "C" from 1 to 5, number 1 is the minimum and No. 5 is maximum.

Turn off current at switch "A" before placing electrode in contact with the surface to be treated. After contact is made turn on current and pass the electrode lightly back and forth. Always keep it in motion and in close contact with the skin. If the electrode sticks on the skin dust on talcum powder or lay on a thin layer of gauze or other thin cloth. The electrode will

then pass smoothly and the thickness of the gauze being so slight the spark will not be too sharp. Keep the electrode moving over the surface to be treated for from five to ten minutes; after a few minutes the skin usually becomes red from the increased amount of blood brought to the surface.

If itching exists, raise the tube away from the surface to produce a reasonably sharp but even spark. This will be found very agreeable over an itching surface as in eczema or psoriasis.

How to treat Acne Vulgaris or Pimples—This disease in some forms is perhaps as prevalent as any we meet. It is an every day disorder and manifests itself in so many forms and although derived from many causes, it is never dangerous. The derangement is always an annoying and unsightly one, which everyone afflicted therewith is anxious to be rid of, and which reaches many forms of plausible procedure. I have had such an extensive experience in the successful treatment of this annoying trouble that I am advocating the high frequency in its treatment. Set lever "C" on point No. 3, lever "K" on point No. 2, lever "G" on off point and have spark points "B" open about one half turn, or until sufficient discharge is produced from ball "D". The condensor electrode No. 9D is used for the high frequency cord No. 51 and other end of this cord is slipped in pole "D". Apply electrode to the surface to be treated before turning on current at switch "A". The tube is not raised from the skin but kept in light contact with it, dusting on talcum powder if the tube sticks to the skin

or else treating through a single thickness of cloth. In place of the No. 9D condensor electrode I have found that any of other electrodes can be used such as the rectal style for treatment of the face, this enables the operator to get a better contact about the nose or other sharp angles than is possible with the condensor electrode. The tube is kept moving rapidly back and forth over the surface and is not allowed to remain stationary over any point. Lately I have made considerable use of the indirect method of treatment by having the patient sit on the auto-condensation pad with cord No. 51 fastened to pad and pole "D", holding the electrode in my hand without connection to cabinet, the duration of the high frequency treatment should be from seven to twelve minutes. Treatments may be given three to six times a week where postules are forming. I have found it advantageous to raise the tube for fifteen or thirty seconds and apply for that length of time, a reasonably sharp spark. This often aborts the postules. I do not approve of deep lancing of postules on account of the consequent scarring. When a yellow head appears on the pustule it should be opened with a sterilized needle and then instead of using pressure to evacuate the contents, the shaft of the needle should be passed across the pustule, which will remove all the pus that is ready without bruising the tissues and extending the focus of infection. Where scars are already present there is no more efficient application for them than a sharp spark from the glass electrode.

Psoriasis, skin ulcers, eczema superficial

abscesses, lupus vulgaris and the like are successfully treated in a similar manner to Acne.

Sciatica

By sciatica we refer to pain along the sciatic nerves and branches and is successfully treated by the high frequency current. Use condensor electrode No. 9D attached in the regular manner to post "D". Set lever "C" at the desired point, depending upon the strength of the current desired, lever "K" on 2, 3, or 4 as required and spark points "B" partly closed; at the beginning of treatment open spark points "B" to increase current. Use enough current to produce a spark about one half inch. Do not raise electrode from the skin. If electrode sticks to skin dust with talcum powder. Apply current along the course of the nerve, lower part of the spine and over the painful areas, 10 or 15 minutes daily. It is advisable to follow with auto-condensation. Start with 600 milliamperes. Use following method of auto condensation connections: Use heavy maroon cords, attach one to felt pad No. 690, this pad thoroughly saturated with warm salt water and attach other cord to spongio disc and handle No. 316. This disc must also be thoroughly saturated with warm salt water. Other ends of both cords to be attached to D'Arsonval posts on cabinet. Now place the long felt pad under buttock of the affected side. The small round pad over the inguinal area, hip and upper part of thigh. If penetration is not sufficient, advance lever "C" and also lever "K", remember to start with 600 M. A. and increase to tolerance.

Sprains

Use a vacuum electrode with a moderate intensity of current. Keep the electrode in light contact while rubbing gently back and forth over the sprain. The diathermy current is equally useful. In old sprains use a sufficient spark to produce marked reddening of the skin as counter irritation is necessary.

See Instruction Book for indirect method of high frequency. This is a very simple method and can be used in connection with your rectal, vaginal, eye, ear, nose and throat, also fulguration as shown in Book of Instruction. In using this method for rectal, vaginal etc. you will notice no handle is used and electrode is not connected to machine, patient is seated on chair pad and this pad connected to post "D" by large high frequency cord. Set levers "C", "K" and spark gap for the desired strength of current. Lever "C" controls current entering machine, button No. 1 minimum and No. 5 maximum. Lever "K" controls frequency. Button No. 1 highest frequency (smoothest current), button No. 3 lowest frequency (coarse current).

Sinusoidal

(See Paralysis).

The sinusoidal current is indicated in any form of Paralysis or atrophied condition of the muscles or nerves and in sluggish circulation of the venous blood as in varicose veins and ulcers. To obtain the best results in paralysis of the arms or upper body, immerse the hand in

two pans or trays of water connecting each pan to the sinusoidal current posts, set lever "H" in hole marked "S" and lever "G" on *off* button, lever "C" on button No. 1 and lever "K" on button marked *off*. Attach the metal handles No. 311 to the small maroon cords and drop the handles into the pans. The No. 618 liquid bath connectors can be used in place of the handles if desired. To increase current advance lever "G" one button at a time; still more current can be obtained by advancing lever "C". This lever controls all the current entering the cabinet. Before changing the setting of lever "C" turn back lever "G" to button No. 1 and turn off current at switch "A". The same technique applies to the lower limbs by placing the feet in the trays. If it is desirable to use a stronger current on one limb than the other, place a handful of salt in the tray where most current is wanted, the action of the salt reduces the electrical resistance of the skin and allows a more free passage of the current.

Sinusoidal current is contra-indicated in cases of high blood pressure. If your patient has an abnormal blood pressure, first reduce same as far as practical before applying the sinusoidal.

Periodically interrupted sinusoidal current may be obtained by opening and closing switch "A" as slow or fast as desirable. Do not forget to moisten the electrode thoroughly with warm salt water before giving treatment with this current, it insures the best contact and overcomes the resistance of the skin.

The spark from the high frequency current

along the course of the affected muscles will also be found highly satisfactory. In using the high current, attach the large high frequency cord to the condensor electrode No. 9D and other end of cord to pole "D". Set lever "C" on button No. 1 and lever "K" on button No. 2. To increase current entering electrode open spark gap "B". If still more current is desired turn off switch "A" and set lever "C" on button No. 2, 3, 4, or 5, button No. 1 minimum and No. 5 maximum. For further instructions on sinusoidal treatments, refer to your Book of Instructions.



Shingles

(See Herpes Zoster).

Synovitis

Treat as directed for sprains, that is, use condensor electrode No. 9D in close contact with skin for a sedative application in the acute form or use the diathermic current from the D'Arsonval modality, 400 milliamperes from 10 to 12 minutes daily or every other day is also beneficial. For the chronic case use a short thick counter-irritant sparks setting lever "C" on 5 and lever "K" on 3.

Suppuration

Vacuum tube applications always tend to limit suppuration. Where a suppurating area is accessible the ozone spray is the best application which can be made to it.

Sinusitis

In frontal sinusitis I have on a number of occasions applied the vacuum tube over the sinuses, keeping it in light contact although employing a medium intensity of current. The first time I gave this treatment it was for the purpose of affording temporary relief until the patient could arrange to consult a specialist as I believed operative interference necessary. I almost questioned my diagnosis when informed the following day that the pain had practically disappeared. Subsequent experience has shown that this result may be obtained in a fair proportion of cases that are seen early in the disease. If relief is not afforded by one or two treatments, the sinus should be drained by a competent rhinologist.

Syphilis

Inflammatory deposits, without regard to character, are amenable to absorption by high frequency currents when properly applied. While the specific infection is not directly influenced by these currents, their ability to promote reparative processes stimulate phagocytosis and hasten elimination makes them ideal as an adjunct in the treatment of syphilis. The medicinal treatment of syphilis often fails in patients with faulty metabolism. In such cases

auto-condensation will dilate the blood vessels and permit a better diffusion of mercury iodine and sabarsan throughout the entire body and aid materially in shortening the period of treatment. (Dr. Burton B. Grover.)

Tabes Dorsalis

(See Locomotor Ataxia).

Tuberculosis

(See Pulmonary).

Throat Treatment

The special round tipped electrode No. 5 is used. This electrode is inserted in handle and attached to large cord and this cord attached to pole "D", set lever "C" on 1 or 2 and lever "K" on No. 1. Regulate spark gap "B" depending upon the intensity of current desired. Use the condensor electrode No. 9D for external work on throat; used in laryngitis, pharyngitis and all throat diseases.

Torticollis (Wry Neck)

Wry neck or stiff neck in an acute or sub-acute form is cured by vacuum tube No. 9D applications along the sterno-cleido-mastoid muscle. An application of 8 or 10 minutes with lever "C" on 3 and lever "K" on 3, kept in light contact with the skin or applied through a sufficient number of layers of cloth to get short sharp, thick sparks.

Tonsillitis

Treat the throat externally with fairly sharp vacuum electrode spark, attaching the condensor

electrode No. 9D to heavy high frequency cord and this cord on Pole "D", set lever "C" on any point from 1 to 5 and lever "K" on No. 2 or No. 3, regulate spark gap "B" to obtain the desired intensity of current. Use electricity as an adjunct to your regular treatment.

Tic Douloureux

Trigeminal neuralgia has been successfully treated by application of the high frequency current, one operator reporting the cure of a case where resection had failed. Application over the course of the nerve with medium intensity of current, but without producing a spark for 8 or 10 minutes. Diathermy is indicated and I believe will prove more effective. Give four to six hundred milliamperes.

Tonsillotomy

Diseased tonsils may be treated by surgery or desiccation. Dr. Judd says: "For the removal of the tonsils we have in desiccation an ideal method. It is bloodless, not very painful and avoids the danger of hemorrhage in fibrous growths."

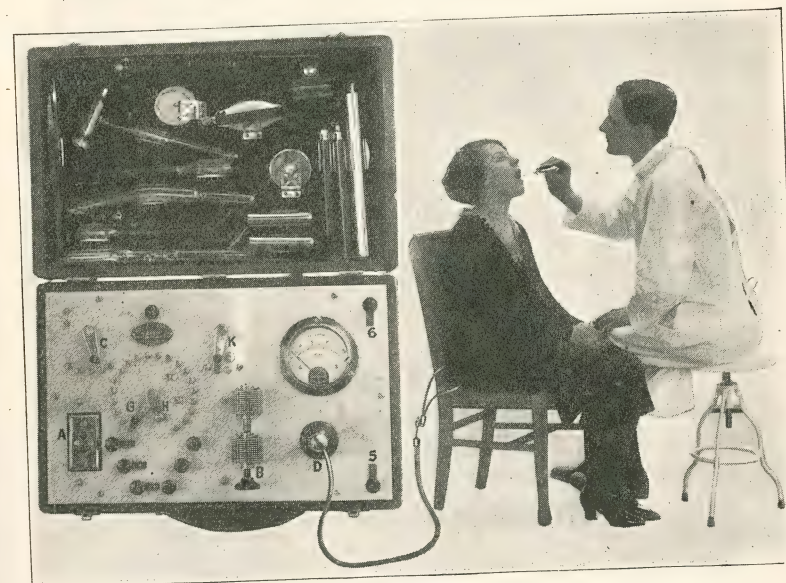
Advantages of Desiccation—

- No trauma to adjacent tissues.
- No embolism.
- No secondary infection.
- No surgical shock.
- Complete sterilization.

No primary or secondary hemorrhage, very little post operative discomfort. A safe procedure where a general anaesthetic is contra-

indicated. Dr. Grover says it is better to avoid treatment during the acute stage of tonsillitis. The most favorable time is during the stage of quiescence. The thoroughness of the treatment required from light desiccation of the crypts in follicular tonsillitis, to complete destruction of the tonsil in cases of widely disseminated infection, depends upon the degree of infection. Technique:—The first step is the complete anaesthetization of the tonsils and tonsillar pillars, base of the tongue, pharynx and soft palate by cocaine, often a 5 to 10% solution of cocaine applied topically will suffice; however, some cases require the injection of the solution when a weaker one will not answer the purpose. Seat the patient on the chair pad, connect this pad with the heavy high frequency cord and this cord to pole "D", set lever "C" on point No. 5 and lever "K" on point No. 2, set lever "G" on off point and open spark gap "B" about a quarter turn of the adjusting knob. Use tonsil electrode No. 29. This electrode is used by indirect method and is therefore not connected to the apparatus in any manner but is held in the hand of the operator. The next step is to insert the point of the tonsil electrode into that portion of the tonsil to be destroyed, care being taken to see that no portion of the electrode except the active point touches any part of the patient. The current is then turned on for sufficient time to do the work. The needle may be forced into the deeper portion of the tonsil while the current is still on. When steam is seen coming from the tonsil dehydration has taken place. A whole tonsil may be destroyed in this manner. One

operation if thoroughly done is sufficient, however, it is better in some cases to sterilize only a portion of the tonsil at a sitting. This must be left to the judgment of the operator. For further instructions, refer to Book of Instructions.



Application of High Frequency to Tonsil

Tuberculosis of the Glands

Use the vacuum electrode No. 9D over the glands. Diathermy should also be used at five or six hundred milliamperes for 10 or 12 minutes. Use the high-frequency current 8 to 10 minutes

Tinea

(See Ringworm).

Ulcers

(See Skin Diseases).

Varicose Ulcers

Long thick muscle toning, high potential sparks over the affected limb, on the spinal centers and upon the general muscle masses of the entire body for alternative nutritional circulatory benefits are indicated (Monell). Use the No. 9D condensor electrode with large high frequency cord attached to pole "D". Set lever "C" on 5 and lever "K" on 3 regulate spark gap "B". Narrow gap, less current; wide gap, increased intensity of current. 8 to 10 minutes treatment.

Vaginal Treatments

In treating various female diseases the electrode is well lubricated with vaseline and inserted in the vagina while the patient lies on her back. Wrap towels around so that no portion of cord or metal of handle can come in contact with the patient, for if this happens she will get an unpleasant shock from the sharp spark that will pass. When everything is carefully adjusted, turn on the current. Set lever "C" on 1 or 2, lever "K" on 1 and regulate spark gap "B"; turning knob to left increases and turning to right decreases current. Treatment to be seven minutes; always turn off current before removing the electrode, adhere to the seven minute rule. The above treatment used in vaginitis, uterine diseases, pyosalpinx, leucorrhea etc.

Varicose Veins

Use sinusoidal modality technique is given in Instruction Book. Take two pans and fill with water sufficient to cover the feet. Both feet to be placed in pans and each pan connected to posts marked sinusoidal on cabinet. Lever "H" on "S" and lever "K" on *off* and lever "G" on *off*, lever "C" on No. 1. Turn on current by pressing down red button on switch "A". Advance lever "G" and also lever "C" depending upon the intensity of current desired. Do not advance lever "C" without first turning off power at switch "A". The current is stepped up slowly to point of tolerance. This treatment to be given daily for a week. The current can be interrupted by pressing the red and black buttons on switch "A" alternately and at the speed desired. If the patient has high blood pressure, reduce the pressure by auto-condensation before applying the sinusoidal treatment for varicose veins. You will find the sinusoidal treatment also valuable for cold feet due to defective circulation.

Vaginitis

The human vagina in a normal state harbors many types of bacteria. When it becomes infected with specific germs an inflammation of its mucous surface results and the condition is known as vaginitis. The first step in treatment is to remove by douching or swabbing any discharge that may be present. A large vacuum electrode insulated where it comes in contact with the vulva should be chosen. The electrode is connected with the high frequency post and

inserted into the vagina. A current of toleration is employed for 5 to 7 minutes every day. (Dr. Burton B. Grover.)

Whites

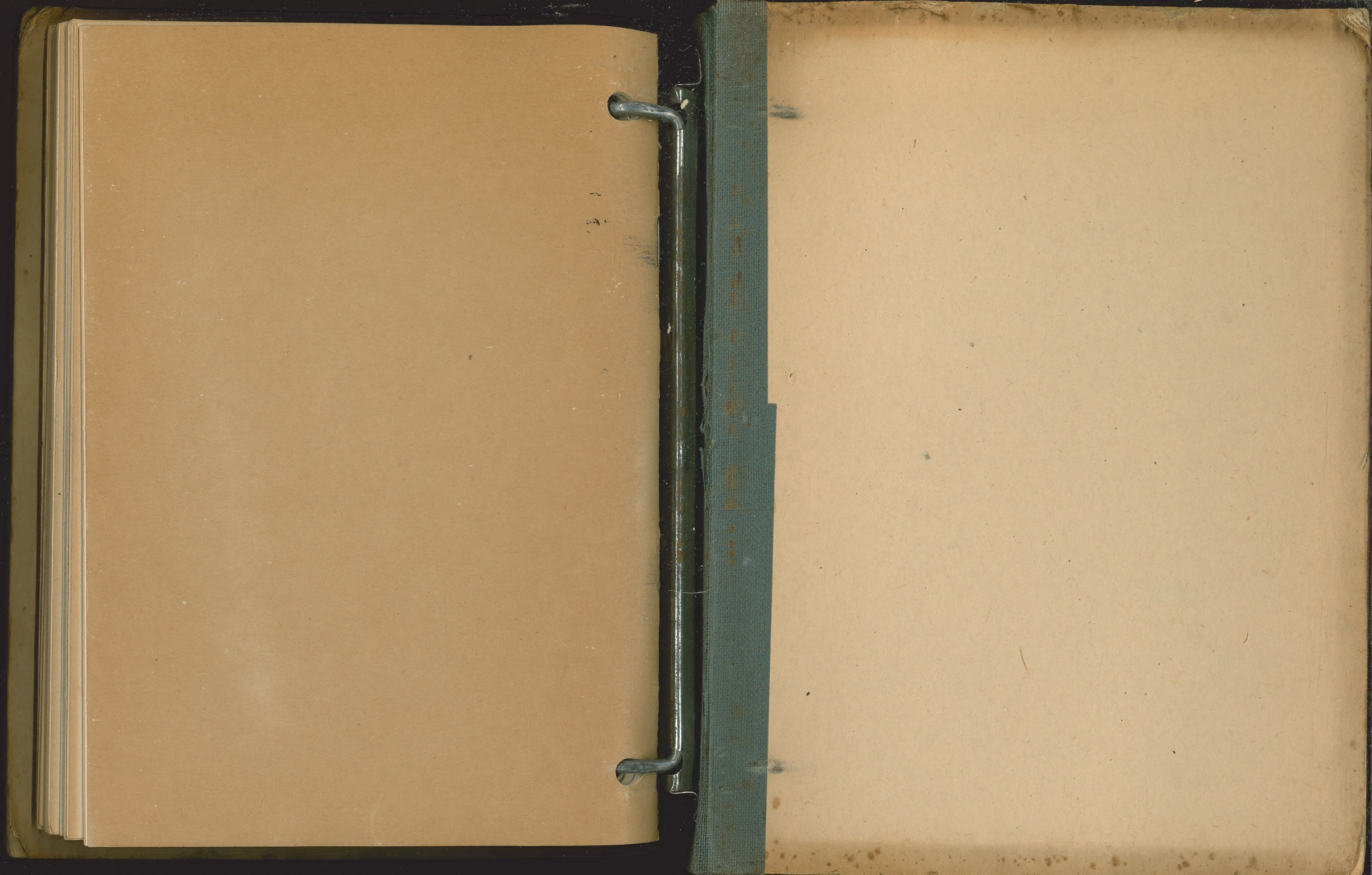
(See Leucorrhea).

Wounds

Use the No. 9D condensor electrode with lever "C" on button No. 1 and lever "K" on button No. 1 allowing just a feeling of warmth 5 to 6 minutes.

Writer's Cramp

This is an occupation neurosis variously known as piano player's cramp, telegrapher's cramp, etc. It is the result of repeated use of the same muscles to the point of exhaustion and chronic fatigue. The vacuum electrode is used with the current sufficient to produce a half inch spark. The tube is kept in light contact with the skin and the application is made from the finger tips to and including the shoulder area, brachial plexus and upper spinal centers. For the latter, the electrode is raised to obtain a stimulating spark and I frequently employ the spark for the whole treatment. The use of vibration in conjunction is strongly urged. Three treatments a week. Many authorities advocate general eliminative treatments in connection such as auto-condensation or electric light baths and diathermy has been tried recently.



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