

The application of electricity as a therapeutic agent / by J.H. Rae.

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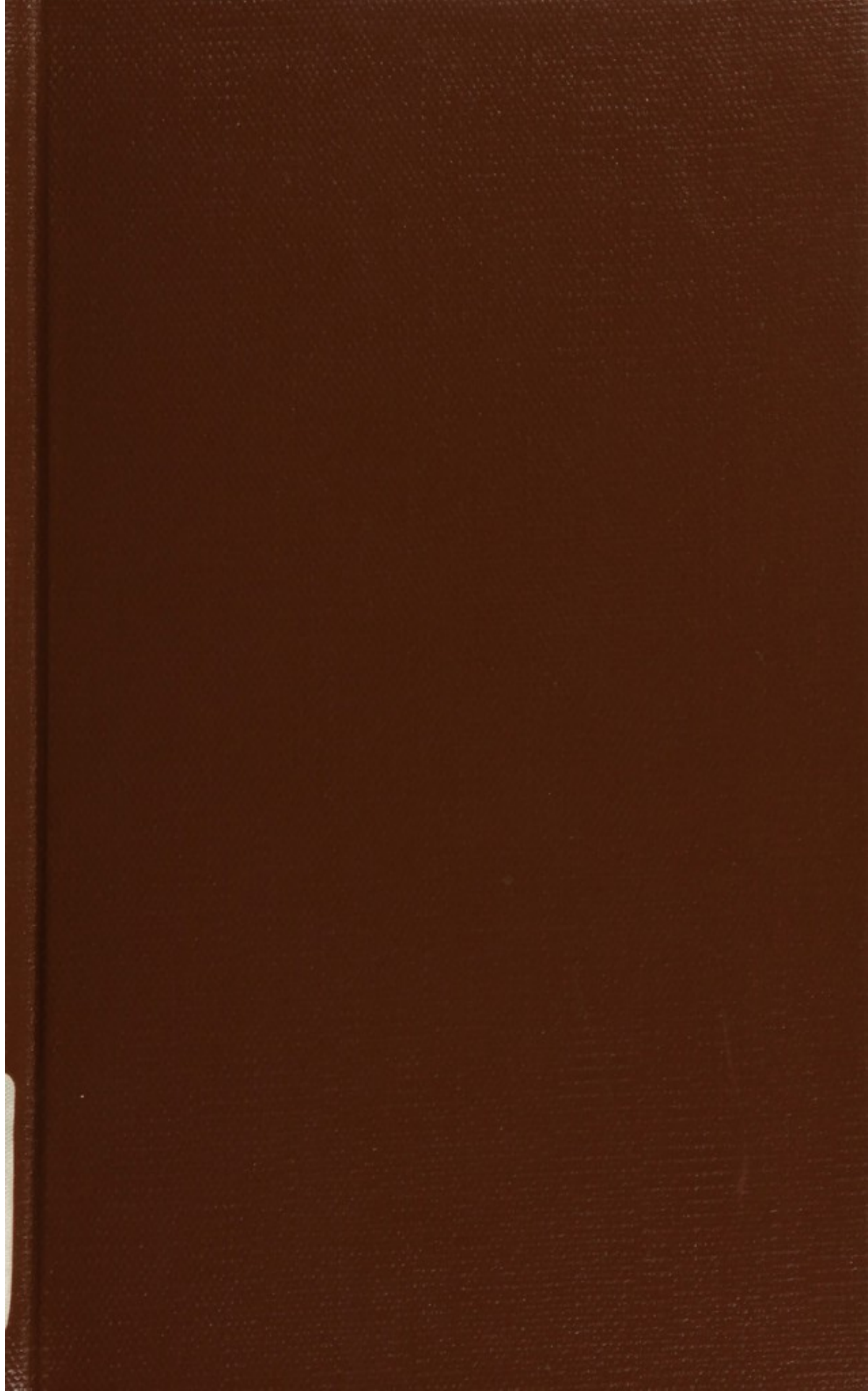
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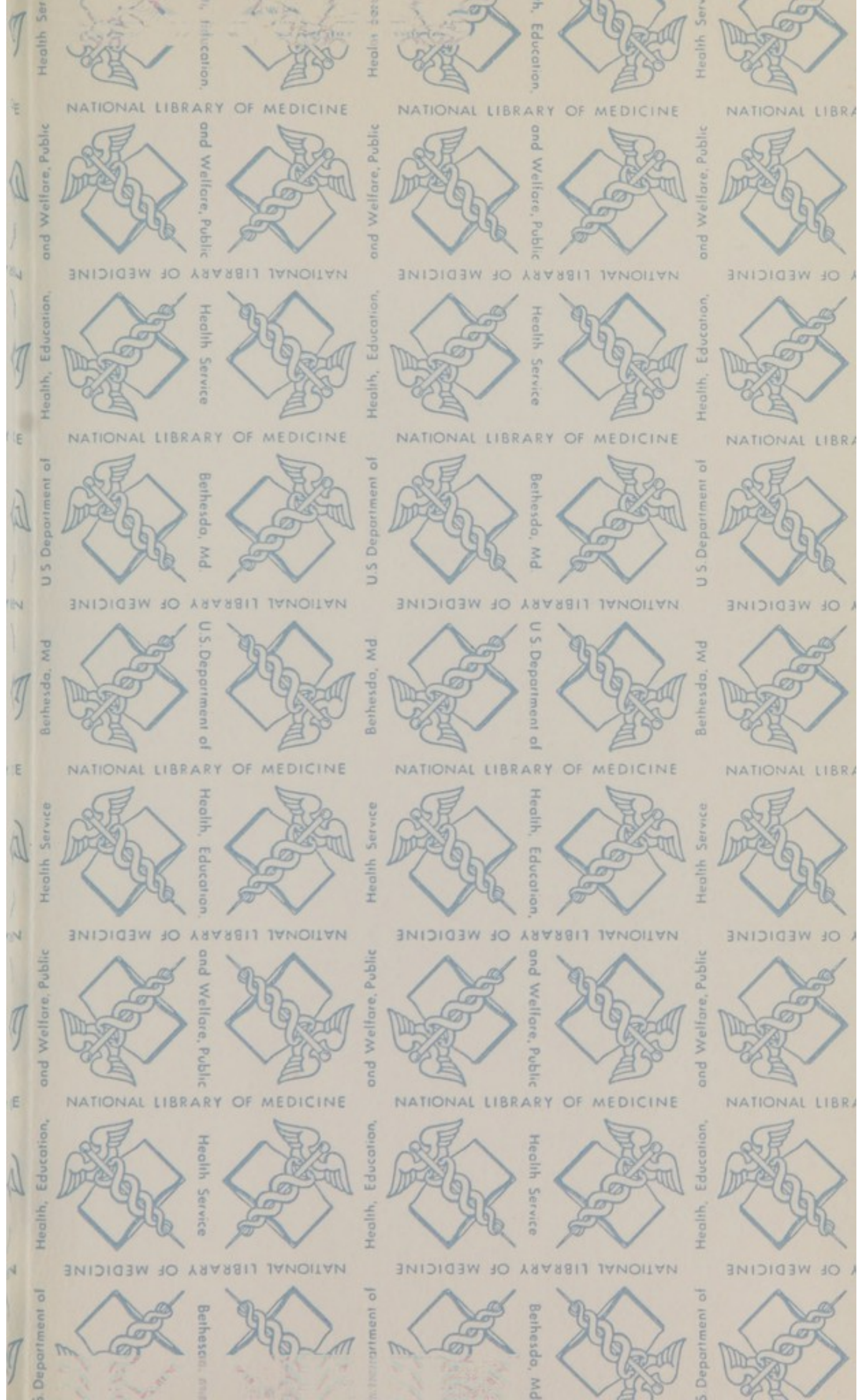
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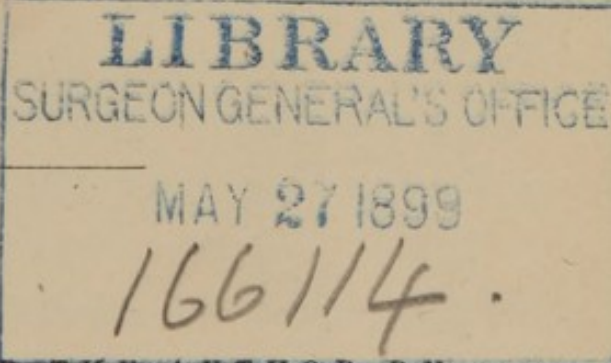
APPLICATION OF ELECTRICITY

AS A

THERAPEUTIC AGENT.

BY

J. H. RAE, M.D.



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INTRODUCTION.

ORIGINALLY it was not my intention to say anything regarding the philosophy or theory of the application of electricity, but on advice of others I have concluded to add this introduction. Individually I should prefer to adhere to my first resolution, and leave theories and speculations to others ; presenting only the mechanical operation, leaving others to form their own opinions as regards the *why* and *wherefore*.

The normal condition of the body is Health.

The abnormal condition, Disease.

In the normal condition the electricities are all equal, having full, natural, dynamic force.

In the abnormal the electricities are unequal ; some are dynamic, some latent ; obstacles intervene, interrupt, and change the currents.

In the application of mechanical electricity to the body, we must harmonize and assimilate the currents as generated by mechanical and chemical action, with the currents of the system as physically generated, and give such force of currents to the nerve-centres as may be distributed natur-

ally, and the *finer* or lighter the current used, the more liable are we to meet with success.

The great force and power of *electro-magnetism* consists in its ability to control and regulate the circulation of the blood, its contraction and relaxation of the muscles.

Electricity proper acts chemically upon the blood by increasing the oxygen and expelling impurities from the system; it also acts directly upon tumors, dissolving and removing them; it is also used in cauterizing, and is applied by acupuncture for aneurism, etc.

This work is only intended to give physicians and purchasers of the superinduced batteries an idea of how I use Electricity and Electro-magnetism. It is only *one man's* experience, and I sincerely trust and hope that it may lead to more and closer experiments by physicians. If I succeed in giving the principles of application, so that physicians and others can apply the electrodes correctly, my present end will be gained.

Electricity and Electro-magnetism do not cure; they simply excite the latent or dormant electricity to dynamic action, and nature then performs the cure. If the cure does not innately exist in the system, all the electricity, drugs, medicines, science, talent, and experience in the world cannot make a cure. There must be sufficient vitality or dormant electricity in the system, or all efforts will prove useless.

THE
APPLICATION OF ELECTRICITY
AS A
THERAPEUTIC AGENT.

MUCH might be said upon the early experiments of Oersted, Ampère, Davy, and others, relative to the action of electricity upon the magnet, and the reciprocal action of the latter upon the former, which led eventually to the construction of the galvanometer, an instrument so sensitive as to detect the presence of electric currents, even in almost all the tissues of the animal body.

These experiments, as well as those made later by Faraday, to whom the discovery of induction belongs, are found in all text-books upon the science of electricity, or the various encyclopedias, and it is not the purpose of the author to enter upon the broad field of electrical science, excepting so far as it treats upon the immediate character of this work,—the application of electricity as a therapeutic agent.

Soon after the study of electricity was commenced, it was sought to make use of it for the cure of certain diseases; and at one time electricity was regarded as a universal panacea, and people had themselves electrified for all kinds of diseases and afflictions.

This theory, however, was, under scientific investigation, speedily exploded, and electro-physiology of the present day is a law becoming well defined and based upon solid principles, which it is the design of this little work to promulgate.

In 1832, after several years of experiment, Faraday succeeded in producing electricity by induction, by finding that when a wire traversed by the electric current is brought suddenly into close proximity with another wire in its normal state, it developed in the latter instantaneously a current of electricity.

This was the first phenomenon of induction. No great effects were immediately produced by Faraday with the induced current, it being perceptible only upon the galvanometer.

The invention of the induction coil founded upon Faraday's great discovery, was made in 1836 by Prof. Page, then a medical student at Salem, Massachusetts. The credit of this invention is, however, erroneously given to Ruhmkorff, an instrument-maker of Paris, who, by dissecting Dr. Page's coil, and improving upon its construction and insulation, produced greater effects. The construction of all machines for the production of induced electricity from

a current generated by a battery, is upon the principle of Dr. Page's coil, and is as follows :

Upon a cylinder of thin wood or pasteboard is wound several turns of coarse insulated wire, and over this a great many turns of very fine insulated wire, and upon the careful winding and perfection of the insulation depends the strength of the machine. When the current from a battery, or the galvanic current as it is sometimes called, is caused to flow through the coarse or primary wire, a current is produced within the outer or induced wire, of the opposite polarity to that flowing in the primary wire. This induced current, however, is of but an instant's duration, and if the primary current is allowed to flow, disappears ; but upon the interruption of the primary current, another current, equally instantaneous but of less strength and in the opposite direction, is produced upon the secondary wire. Thus we produce, by the making and breaking of the primary current, an intensified alternating current of electricity upon the secondary wire, which may be made more intense by placing within the core of the coil a bundle of soft iron wires, which by being magnetized and demagnetized by the primary coil intensify the induced current. By the withdrawal of this rod of wires we are enabled to greatly reduce the effect of the induced current.

These coils are capable of producing but *two* currents of electricity,—the *primary* or *chemical current* of the battery, and the *induced* or *mechanical current* produced by the action of the former. To claim that machines can produce

more than these two currents within one coil is an error; or if apparently produced are but modifications of one or the other, or caused by the combination of the two. It being an undisputed fact that these two currents, which an induction machine of one coil can only produce, have entirely opposite effects upon the human system, such combination of the two currents must necessarily neutralize each other and cannot produce a beneficial effect.

Electricity does not cure when applied in massive doses. Many operators, especially the "Wandering Arabs," think a strong powerful current necessary, the stronger the more effectual.

These electricians will very soon discover their error. It is not the *shock* that cures, but the fine, delicately sensitive current, that assimilates itself with the natural physical currents of the human system. The knowledge of this fact caused me to commence experimenting, in 1860, to produce a mechanical current that would harmonize with the physical current as generated in the human body. After having innumerable coils made of every conceivable design, and testing in connection with them all the different forms of galvanic batteries existing, and finding the results no improvement upon the first principles, I was about giving up in despair, when I accidentally discovered that a third current could be, and was actually produced by the combination of two helix machines (properly proportioned and arranged), so refined and attenuated, that while it removed the shock, it still

retained all the power and magnetism of the initial induced current, only, if possible, like the homœopathic dilutions, becoming more effective in the development of its curative properties by its attenuation.

The construction of my machine for producing a super-induced current, as now perfected by me, consists of two helices, containing each the primary and secondary wires. Upon the first coil, the primary current, by the means of an improved current-breaker, is made to produce the induced electricity in the ordinary manner. By turning the "switch" upon the base of the machine, the induced current of this first helix is made to flow through the primary coil of the second helix, which, acting upon this second coil precisely the same as the battery current in the first helix, produces upon the secondary wire of the second helix the fine superinduced current of electricity, while at the same time the machine, having an improved rheotome, gives the primary and induced currents from the first coil of extra power, and superior to that of the ordinary machines.

INTRODUCTORY EXPLANATIONS.

PRESUMING that the general reader of this work is not familiar with the science of electricity, and does not, therefore, fully understand technical terms appertaining thereto, a few explanations may, perhaps, be advisable.

There is absolutely but *one electricity*, and in whatever form, and whether produced by chemical action on metals, by friction or heat, it is still electricity. But in the application of this agent therapeutically, changes of the primary electricity are made through the machine, which we designate as currents, as the *primary*, the *induced*, and the *super-induced*. The Rae machine is the only one which produces these three modifications, and each has its individual work to perform. The primary current is that generated in the cells of the battery by chemical action upon metals. If taken directly from the cells, unless there be a great number of them, this current will not be perceptible to the touch, and when desired for curative purposes it would be difficult to rightly proportion it; but by its passage through the rheotome or interrupter of the machine its continuity is rapidly broken, and with the addition of the

magnetism it receives, exhibits itself in shocks when applied to the body.

This current flows from one metal of the cells to the other, always in one direction, the starting-point being called the positive pole, and the opposite metal the negative pole of the battery; hence we say that this current has a polarity. Fig. 1 illustrates the theory of the PRIMARY

FIG. 1.

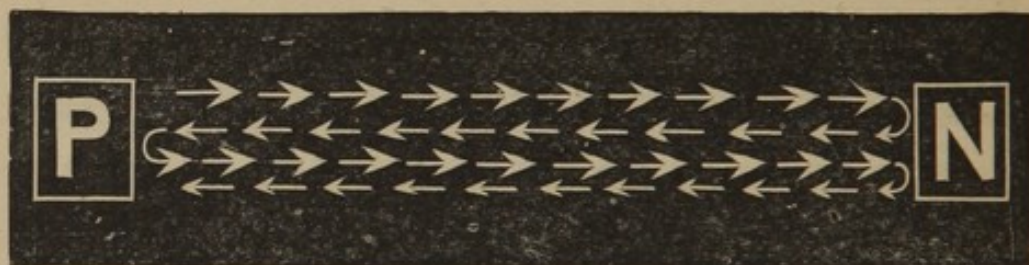


CURRENT. When the two poles are brought together, either directly or through the body, the circuit is said to be closed.

Faraday discovered that the primary current as just explained, when passed through a coil of wire about which was wound another coil thoroughly insulated from the first, produced within the second coil a current of electricity of but a moment's duration if the primary current flowed uninterruptedly; but upon breaking or interrupting the continuity of the primary current it appeared again, but of a polarity reversed from that at first exhibited, so that by the rapid vibration of the rheotome we get upon the secondary wire a rapid pulsating current of alternate polarity, highly intensified by the introduction of the soft

iron core placed within the centre of the coil. This current we designate the INDUCED CURRENT, and though having no absolute polarity, yet we give it one by courtesy, from the fact that when the current upon the primary coil is interrupted the induced current produced is stronger than when the primary current is closed. Fig. 2

FIG. 2.

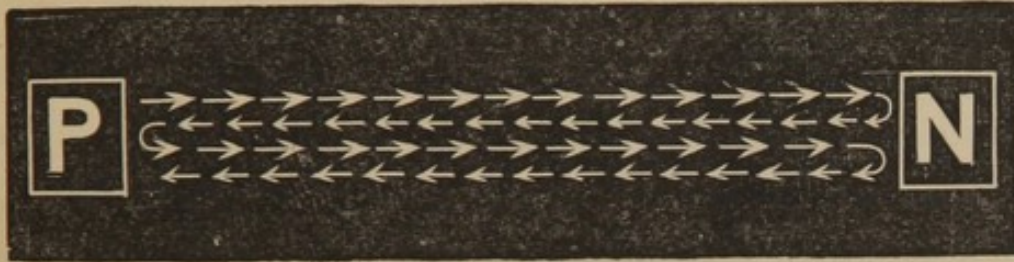


gives a good idea of what is intended to be conveyed, the heavier arrows in one direction and the lighter ones in the other, showing the difference in the intensity of this current.

To produce the SUPERINDUCED or ATTENUATED CURRENT another coil is used similar in construction to that from which the induced current is derived; only here instead of the battery current being used as a primary force, we employ the induced current upon the first coil of wire, and by its action, together with the magnetism of the iron core, a current by induction is produced upon the secondary wire, termed a superinduced current, similar to the induced but greatly refined. Fig. 3 represents this current.

It will be noticed that the arrows are smaller, showing the attenuation, and that the polarity is alternate as in the induced. The superinduced current, while of sufficient

FIG. 3.



strength for all purposes for which it is applied, and very penetrating, is almost wholly devoid of the shock so disagreeable to persons of a sensitive organization.

ELECTRO-DIAGNOSIS.

THE discovery and location of disease by electricity is very simple, and the physician will be surprised after he has used it a few times to see how great an assistant it is, and how perfectly truthful.

The patient being stripped a cloak or shawl may be thrown over half of the body, but I prefer the nude condition.

Let the patient stand upon the negative electrode, which should be covered with a wet towel; then take the positive electrode in the left hand and pass the right hand gradually over the entire body, and when the patient winces or shrinks you have found *one* bad spot. Continue until you have found every weak or tender spot in the body.

These will always exhibit themselves the instant the electricity touches them; and the character of disease must be determined by the physician.

I have discovered much that has been valuable to me in searching for disease by this method.

The current should be either a weak induced current modified so as to be pleasant, or, which is better, the superinduced, as this latter current is more searching and penetrating.

When the disease is in the superficial and larger muscles and nerves the induced may answer, but for the inner and deepseated muscles and nerves the superinduced is indispensable.

FEMALE COMPLAINTS.

In Guy's Hospital, London, electricity is relied upon as the primary and almost exclusive remedy when the condition of the organism is right for its use. In amenorrhœa,

for instance, the reports of the hospital show eighty per cent. of the cases entered as cured.

In female complaints, the physician or person applying it must remember that electricity, though the primary agent effecting the cures, *must* in every instance be assisted by medicines, diet, and care.

I may as well remark here that too much has been expected of electricity as a remedy.

Cures are looked for in a moment. It is thought that all natural causes succumb to its action, and that the cures are effected with lightning rapidity. On the contrary, cures by electricity must necessarily be *slow*, as electricity when applied mechanically simply *assists* nature, removes obstacles, and temporarily vitalizes the system while nature by her own process is recovering tone and power.

GENERAL INFLAMMATIONS.

ELECTRICAL TREATMENT.

Induced Current.

Apply the negative current to the feet of the patient; wet a towel, wrap the electrode in it, and place the feet on the towel. Take the positive electrode in the left hand, and with the right manipulate the various parts where the inflammation exists. Operate fifteen (15) minutes.

Do not use electricity, however, during the menstrual flow.

In extremely nervous persons, or where they have been reduced by pain, the superinduced current should be substituted for the induced, until the patient becomes stronger and can bear the increased intensity of the induced. This treatment will be found to be all that is necessary in simple inflammation of the womb, vagina, vulva, ovaries, etc. An occasional foot-bath treatment may be given, using a little common salt in the water.

MEDICAL TREATMENT.

One pellet of ACONITE and one of BELLADONNA may be given daily. Until inflammation is reduced, I would advise an occasional dose of each medicine for a couple of months; also, the use of electricity generally, or to the parts particularly.

SUPPRESSION OF MENSES.

Amenorrhœa.

After the natural establishment of the menses and their regular monthly appearance, they may be suppressed or arrested, or altogether stopped, by fright, exposure to wet, sudden draughts of air, and a variety of other causes.

The treatment is simple, and almost universally successful.

ELECTRICAL TREATMENT.

Induced Current, or Superinduced.

Apply the negative pole to the lower portion of the back, between the dorsal and lumbar vertebræ; with the positive operate upon the walls of the vagina even to the cervix or mouth of the womb. Time of operation from ten to thirty-five minutes, according to obstinacy of disease.

In strong lymphatic temperaments I have continued the operations one hour. When the flow presents itself, stop using electricity.

MEDICAL TREATMENT.

One pellet once a day of ACONITE and PULSATILLA.

If there is soreness in the region of the womb, with cramps and spreading pains, one pellet of BELLADONNA twice a day in connection with the other remedies.

After the catamenial period has passed stop all remedies.

About one week before the expected time, I would advise taking one pellet of ACONITE and PULSATILLA daily. This, with the previous electrical treatment, will probably establish radical cures; but where the case is apparently chronic, the full electrical treatment must be resorted to, and it may take several months to fully establish regularity.

PAINFUL MENSTRUATION.*Dysmenorrhœa.*

Treatment and remedies the same as above ; but in all severe cases a physician should be called in at once. In this disease during the acute attack electricity should not be used, depending entirely upon medicine. But the electrical treatment should be given daily during the three or four weeks between the times of the disappearance and reappearance of the flow.

DELAYING AND SCANTY MENSTRUATION.

The electrical treatment for this is identical with that of suppressed menstruation, only taking in connection with it the foot-bath, and using the *induced current* instead of the primary or chemical.

MEDICAL TREATMENT.

Give SULPHUR, FERRUM, and PULSATILLA, one pellet of each once a day during the time the menses are due, and while using the electro-magnetic treatment. After the appearance and disappearance of the flow take the same remedies twice a week until time for its reappearance, then resume the medicines daily with the electrical treatment. If it appears of its own volition, do not use electricity, but

keep up the medicinal remedies. Care and attention in this case are all that is required to effect permanent relief.

EXCESSIVE MENSTRUATION.

Menorrhagia.

If this is caused by a fall, blow, or other accident, medical treatment *only* is required.

MEDICAL TREATMENT.

ARNICA, a few drops of the tincture in a glass of water, a tablespoonful every two hours ; or, if violent pain, cramps, patient nervous, BELLADONNA, four pellets in a small glass of water, given one hour after taking the Arnica.

This being an important operation, I should advise the patient to call in a physician, as he will be able to treat the case successfully, and determine if electricity is essential. The electrical treatment is absolutely necessary when there exists organic affections and functional derangement.

ELECTRICAL TREATMENT.

Induced Current.

The positive electrode enveloped in a damp sponge or napkin is placed upon the spine just below the first dorsal

vertebra, and gradually moved lower down until it reaches the end of the spine.

The negative is taken in the left hand; with the right hand manipulate gently and carefully over the abdomen, around and down the inner portion of the thighs. It is advisable to have the electrode enter the vagina. Time, fifteen (15) to thirty (30) minutes, depending upon the character and obstinacy of the difficulty.

Occasionally, say once a week, the treatment may be varied.

Place the negative under the feet and manipulate the entire length of the spine, over breast and mammary glands with the positive. After the period has passed, electrical treatment should be kept up regularly once a day, for one, two, or three months, or even longer if necessary. I had one very obstinate case in 1859 that was under regular treatment for seventeen months, but time, patience, and perseverance finally conquered. Do not anticipate too rapid results.

I doubt if there is scarcely a case that cannot eventually be reached by persistence in treatment.

In connection with electricity use ACONITE, BELLADONNA, CHAMOMILLA, one pellet once a day of each.

PREMATURE MENSTRUATION.

This may be treated the same as excessive menstruation, only if blood flows a little nearly all the time, and is of a blackish color, bowels constipated, SULPHUR and NUXVOMICA should be taken in place of Aconite and Belladonna. Diet should be light. Avoid all lifting and heavy work. Dispense with all stimulating drinks.

LEUCORRHŒA OR WHITES.

Under this head I classify all unnatural secretions and discharges from the uterus and vagina, though the discharges are variously named, as

Catarrhal,	Disorganizations of womb,
Vicarious,	Gonorrhœal,
Scrofulous,	Syphilitic,

the discharge in each case being mucus, pus, or blood. The last two are specific poisons, and should not properly be classified with the others, but the treatment being identically the same, for convenience in the present little work, I place them all under one head.

In the general treatment of this condition of the organs of reproduction, it is absolutely essential to observe the strictest cleanliness. Sometimes a little warm water injected two or three times a day, with bathing *in* and around the vagina, is sufficient, but I have found a decoc-

tion made from certain herbs,* not only cleanses the parts, but tones them, materially assisting medical and electrical treatment. Again I depend almost exclusively upon the vitalizing effects of electro-magnetism.

ELECTRICAL TREATMENT.

Primary Current.

The conditions of leucorrhœa being analogous to scrofulosis, I give the primary current of electricity as described under Scrofulosis.

This bath treatment I give once a week, always stopping all electrical treatment during the menstrual flow. If the menstrual flow should not appear, I then use the treatment as described under the head of Delayed or Scanty Menstruation.

Superinduced Current.

I place the negative electrode about the middle of the back, take the positive in my right hand, manipulate over the abdomen in front of the upper portion of the thighs for ten (10) minutes, then change the negative electrode to the extreme termination of the spine (coccyx), retaining the positive, and manipulate over the chest, mammary glands, around region of liver and stomach. Time ten (10) minutes.

* The recipe for the preparation of the herbs will be found in the case of electro-medicated pellets prepared by Boericke & Tafel expressly to accompany my electrical machines.

If by local examination I discover ulcerated conditions, using *primary current*, I apply the positive instrument electrode, made of pure silver, direct to the ulcerated parts, holding the instrument in place about five (5) minutes.

Here you must modify the current by pulling out the little bundle of wires located in the first helix of my machine.

I generally use a small-sized speculum, so as to protect the walls of the vagina, and to be certain that I have perfect insulation until the current connects with the silver globe or button. The negative electrode, during this operation, is removed from the spine, and placed upon the abdomen over and near the positive, so that the current makes as short a circuit as possible from the ulcer to the negative pole. In all cases of ulceration the foot-bath primary current should be used once or twice a week, and when used, always omit local treatment on same day. If these directions are regularly adhered to seventy-five out of every hundred cases can be cured, and the remaining twenty-five cases will be materially benefited, but it requires *time*.

MEDICAL TREATMENT.

This is somewhat complicated, and I must be a little more definite than in other cases.

For heat, inflammation, and soreness, ACONITE, one pellet a day until the symptoms are removed. If the discharge is thin, watery, corrosive, ARSENICUM, one pellet each day.

When the discharge is excoriating, with fetid smell, accompanied by an itching of the parts, SULPHUR, one pellet each day.

If the patient has cramping, bearing down, or spreading pains, with rush of blood to the head, BELLADONNA, one pellet each day.

PULSATILLA may be used occasionally with great benefit.

The diet should be free and generous. Broiled and roast meats, rare, of all kinds except pork; all kinds of vegetables and fruit; black or Japan teas; pure milk and eggs. Pastry and rich high-seasoned food should be steadily avoided. Moderate exercise in the open air, pleasant society, occasional visits to friends and places of amusement, and plenty of *sun*.

PROLAPSUS UTERI.

Falling of the Womb.

When this exists in reality and not in fancy, the first thing is to have it replaced, and then supported by such mechanical means as may suggest themselves.

ELECTRICAL TREATMENT.

Superinduced Current.

Place the negative electrode on the spine between the shoulders; take the positive in the left hand, manipulate, pressing up, over the abdomen, following from middle of

abdomen on each side half round to the spine; run the current upward from the groins and about the thighs; operate fifteen (15) minutes, terminating with a passing of the hands over the chest, stomach, and liver.

If care is taken a complete and permanent restoration of the womb to its proper place, can be accomplished in from one to three months' time.

MEDICAL TREATMENT.

NUX VOMICA, one pellet daily. BELLADONNA, one pellet every third day.

If attended with inflammation, one pellet of ACONITE daily until inflammation subsides.

PROLAPSUS VAGINÆ.

Treatment the same as for falling of the womb.

HÆMORRHAGE OF THE WOMB.

This can be treated successfully by following the treatment indicated for excessive menstruation, operating on the womb direct, using induced current.

CHLOROSIS.

As regards the treatment of this complaint, if a cure can be effected, it must be by electricity. Some doubt has been

expressed whether a radical cure can be effected. I believe the percentage of cures heretofore has been small. Out of some six cases I am not confident that I have caused more than *one* cure, while it is true that in the others, more or less of benefit has been rendered. The one case of radical cure remained under treatment about eighteen months. At the expiration of sixteen months she was married, and treatment was continued at her solicitation once or twice a week for two months after marriage, when believing her to be *enceinte* I refused further treatment. When I last saw her, in 1869, she was a fine stout woman, the mother of three fine healthy children.

This disease should always be operated upon by a physician, at least until the parties, if owning batteries, understand how to operate. Even then the physician should remain in charge and administer remedies as indications may develop.

ELECTRICAL TREATMENT.

Primary Current.

Have the patient so arranged that the entire back can be operated upon. The operator takes an electrode in each hand. The balls of the electrodes may be covered with damp cloth. The operator rapidly passes the electrodes, one each side of the spine, up and down the entire length of the back. Continue this until the line of the electrodes on the flesh becomes *red* and warm. This will occupy from five (5) to ten (10) minutes. Then change.

Induced Current.

Allow the patient to clasp the positive electrode, covered with a moist cloth, in both hands. The operator then manipulates with moist hand or covered electrode directly over the lower limbs for from five (5) to ten (10) minutes ; then over the breast and stomach, five minutes, the entire operation taking about thirty (30) minutes.

It is advisable to give about once in ten days the foot-bath treatment, as described in Scrofulosis, also occasionally to use a very light superinduced current, applied by the hand to the head, placing the negative electrode at the feet, and using a current so light that it can just be felt by the patient. Passes on the head must be light and rapid, passing from top of head downward.

If the menstrual blood is thin and watery, or if a leucorrhœal discharge appears in the place of the menses, then give the full treatment as specified for Delayed or Scanty Menstruation, *all* electrical treatment to be suspended during the catamenial flow.

MEDICAL TREATMENT.

I have never used but three remedies in treating this disease, but have relied mainly upon two ; except where there may be a scrofulous condition.

ACONITE, one pellet daily taken at night.

PULSATILLA, one pellet daily taken in the morning.

When I have reason to suppose a scrofulous condition, I

give the night before I apply the bath treatment, one pellet of SULPHUR.

Diet the same as prescribed for Leucorrhœa.

NOTE.—Physicians or persons purchasing my three-current electro-magnet machine, are particularly requested to write me if the above treatment does not answer, sending me a perfect diagnosis, and I may be enabled to furnish some further advice or information.

SUPPRESSION AND SCANTY MILK.

This can, in many instances, be remedied by electricity.

Induced Current.

Place the negative electrode on the chest above the nipples from two to three inches.

Take the positive in the left hand, operating over pit of stomach from side to side so as to pass the currents through the mammary glands.

If an increase of the fluid is not perceptible after the third or fourth operation, it may be stopped, as no benefit can be expected.

Sometimes an effect may be produced by continuing the treatment to the uterus, applying the positive electrode at the womb, retaining the negative in place above the nipples; but if no beneficial effect follows the first treatment, I generally give up.

If the suppression arises from sudden cold or exposure, the difficulty is easily removed. Fever and cerebral diseases may be obviated by this treatment.

I have used with good effect from three to five drops of spirits of camphor, every three hours, in connection with electrical treatment.

EXCESSIVE FLOW OF MILK.

To assist in drying the milk in weaning, the reverse of the above treatment is all that will be required, and will remove much inconvenience.

THROAT DISEASES.

There are probably some fifteen or twenty names applied to various conditions of sore throat. I look upon these as entirely theoretical, at least as far as the application of electricity is identified with the throat. Hence all kinds and classes of difficulty of the throat are here treated of under this one heading.

ELECTRICAL TREATMENT.

Primary Current.

Place negative electrode enveloped in a large napkin on the back of the neck so as to cover nearly all the space below, and from ear to ear.

First take the positive electrode in one hand, and after moistening the forepart of the neck, pass your right hand over all the submaxillary glands. After thus applying positive electricity to all the forepart of the neck, open the mouth, take the throat instrument, and apply the current direct to the throat. If abscesses have formed on the tonsils, uvula, or other parts of the throat, apply the instrument directly to them, placing and replacing the instrument repeatedly for three or four minutes, not allowing the instrument to remain either on or off for more than one or two seconds, thus continually breaking the current. Time of operation not to exceed ten (10) minutes.

MEDICAL TREATMENT.

More depends upon medicines, in this class of diseases, than on electric action, though electricity assists materially.

In common sore throat and quinsy I depend upon ACONITE and BELLADONNA, using the tincture. Put five drops of each tincture in separate glasses, half fill with water, giving a teaspoonful of each alternately every two hours, until the swellings decrease.

Then change from the tincture to the pellets, putting four pellets of each into separate glasses, filling full of water.

Continue to give this medicine in connection with electrical treatment, for three or four days, or until the patient is convalescent.

MALIGNANT CHRONIC SORE THROAT.

Electricity used as described above, in connection with the two remedies above named, ACONITE and BELLADONNA, occasionally using a MERCURIUS VIVUS pellet, will be sufficient, unless the patient is scrofulous; in that case, resort must be had to the treatment described for scrofulosis.

It may take from six to eight months to cure malignant chronic sore throat.

CROUP.

Unquestionably, the false membrane forming in croup can be removed by the action of electricity as applied for sore throat, but I would only use it in extreme cases.

DIPHTHERIA.

Great benefit will be derived from the above-described applications in diphtheria, only I should in addition rub with the positive electrode entirely over the breast, sides, and diaphragm. The physician in attendance must decide, but he will find great benefit to result. In 1859, I used it in a number of cases, and as they *all* recovered, I have the utmost faith.

ASTHMA, CHRONIC.

Before using electricity, an examination should be made to ascertain if the heart is affected, and if this is found to be the case, electricity *must not be used*. If the difficult breathing is only a symptom of pulmonary disease, such as pneumonia or phthisis, it must be treated in connection with them. If it is a morbid condition and not symptomatic, then it assumes the dignity of a disease, and we treat it as such.

ELECTRO-MAGNETIC TREATMENT.*Induced Current.*

The patient may clasp the positive electrode, enveloped in a sponge or cloth wet with salt and water, in both hands. The operator takes the negative electrode in one hand, and with the other manipulates over and along the entire length of the thorax for ten (10) minutes, then places it at the lower end of the spine, and manipulates the entire length of the spine, also over lungs and stomach for ten (10) minutes more. Treatment should be daily.

MEDICAL TREATMENT.

Though the books indicate a large number of medicines, I seldom use more than three, ACONITE, NUX, ARSENICUM. I give a pellet of each, each day.

The physician will soon discover that electricity, ap-

plied as above, will enable him to cure many cases that are now considered incurable.

CONSUMPTION.

Phthisis Pulmonalis.

I do not claim that this disease can be cured by electricity, but its use will undoubtedly be of great benefit in assisting a cure, or in giving relief in the earlier stages of the disease, by toning up the weak and enfeebled nerves and muscles of the chest. This may, with proper medicines, diet, and exercise, change the conditions entirely.

ELECTRICAL TREATMENT.

Superinduced Current.

Place the negative electrode at the termination of the spine, hold the positive in the left hand, and apply the right over all the muscles of the chest and stomach, making quick and light passes. If the skin is dry, rub it over with a napkin wet in salt and water; also occasionally moisten the hand in the same solution.

After operating ten (10) minutes, change the negative electrode to the extreme upper part of the spine, and continue operations over chest and stomach with the positive. About once a week reverse the treatment, putting the negative electrode under the feet, and manipulating the entire body with positive electricity, passing the currents down-

ward. This excites capillary circulation. It may be necessary to keep up this treatment for a considerable length of time, but by persisting in it, much will be accomplished.

MEDICAL TREATMENT.

I have little faith in the application of any other remedy in connection with electricity than ACONITE and BRYONIA, and these only should be used.

ACONITE when there is any inflammation, BRYONIA when the patient is troubled with a cough; but I have the utmost confidence in the power of electricity to increase and vitalize the muscles of the chest, and to give tone to the entire system, increasing the oxygenation of the blood.

The above treatment is admirably calculated for the young of both sexes who are the children of so-called consumptive parents.

Diet, rare beefsteaks, mutton-chops, venison, roast beef, and mutton, game, fish, milk, and eggs. Oatmeal porridge once a day. Walking, horseback riding, such gymnastics as develop muscles of the chest, the inhalation of long full breaths, sparring with your shadow, hitting straight out. Good company, hearty laughing; avoid crowded rooms. Cod-liver oil and pure whisky *may* be used in small doses before each meal, but it had better be dispensed with. The bowels can be regulated by electricity, and by occasionally drinking a glass of water, with a teaspoonful of common salt in it, before breakfast.

INFLAMMATION OF LARYNX AND TRACHEA.

These are operated upon in the same manner as sore throat and quinsy, the only modification being the placing of the positive instrument upon the parts affected.

The judgment of the operator must be exercised regarding what changes in location of the positive electrode may be necessary to suit the anatomical formation.

BRONCHITIS.

The same operation as required for consumption reaches this complaint. Care must be exercised by the operator never to weary a patient while operating.

COUGHS, COLDS, AND HOARSENESS.

ELECTRICAL TREATMENT.

Induced Current.

Allow the patient to assume as easy a position as possible, and clasp the negative electrode in both hands as usual. The operator, holding the positive electrode in one hand, operates with the other on and around the neck, larynx, and trachea, also over the entire front of the chest. Time fifteen (15) minutes, or stopping as soon as perspiration is induced.

In hoarseness it may be advisable to apply the negative direct to the root of the tongue. If the patient is very nervous and sensitive the superinduced current may be used instead of the induced.

If the cold or cough is obstinate the foot-bath treatment should be given, substituting the induced current for the primary current. Time of bath fifteen (15) minutes. The bath should be given in a warm room, and the patient should not go out of doors for some time afterwards. The best time to take it would be just before going to bed.

MEDICAL TREATMENT.

Put four pellets of ACONITE in a glass of water, taking a spoonful every four hours.

Put four pellets of BRYONIA in a glass of water, taking a spoonful every four hours, alternating with ACONITE.

These remedies are generally sufficient.

INFLUENZA.

The treatment for this disease is very simple. If it is existing as an epidemic, the occasional use of electro-magnetism as prescribed for the disease itself, may act as a preventive simply by toning up the parts, and helping nature to resist the attacks.

ELECTRICAL TREATMENT.

Induced Current.

Place the patient's feet on the negative electrode covered with a damp cloth. The operator takes the positive in one hand, and operates upon the throat and neck, pressing quite hard. Time fifteen (15) minutes or longer as the

case may require. I find from ten (10) to thirty (30) minutes long enough to excite sufficient electrical action, except in very rare cases.

If the patient is nervous, substitute the superinduced for the induced current. This should be done in every instance of extreme sensitiveness to the electrical currents.

MEDICAL TREATMENT.

The same as prescribed for colds, coughs, etc. If the bowels are constipated, a glass of water with a teaspoonful of common salt dissolved in it, may be taken before breakfast, for a few mornings until the bowels are regulated. If there should be sneezing, discharge of water from the nose and eyes, one pellet of *MERCURIUS VIVUS* twice a day, in connection with the other remedies.

INFLAMMATION OF LUNGS.

Pneumonia.

The attacks of this difficulty are most frequent in damp, raw, and stormy weather. Persons with weak lungs, who are particularly subject to this disease, can use the electrical treatment as a preventive, its application having a direct tendency to brace up the muscles of the chest, expand the lungs, and increase capillary circulation, and thus by a general toning of the parts enable them to resist the injurious effects of bad weather.

As soon as there is a change in the weather perceptible

by the lungs, electricity should be applied, and a slight operation daily for a few days will in all probability prevent an acute attack.

ELECTRICAL TREATMENT.

Induced Current.

Place the negative electrode at the point of the spine where it connects with the head.

Take the positive in one hand, and with the other operate on the upper portion of the bowels, on the stomach, and over the lungs, also along the top of the sternum and clavicles (the bones protecting the lungs), passing the fingers up and down the outside of the throat. Then let the patient hold one electrode in each hand (reducing the power of the current), and the patient standing, throw his hands and arms up, out and down, as when exercising with dumb-bells. Any reflective person will see the common-sense philosophy of these electro-gymnastics.

In an acute attack, with fever, *electricity should not be used*, or at all events, not until the fever abates. Then it may be advantageously applied to remove soreness, and to tone up the lungs.

If there should be a syphilitic taint in the system, the electrical foot-bath, as described for Scrofulosis, should be given three (3) days in succession, in connection with the above treatment; then four (4) days intervening, giving only the regular treatment; again, for three (3) days in

succession give the foot-bath treatment, resuming afterward regular electrical treatment until the patient is well.

MEDICAL TREATMENT.

When inflammatory symptoms are well developed, with hard, bounding pulse, dry, hot skin, ACONITE, four pellets in a glass of water; tablespoonful every two hours.

When there is bloody expectoration, hard asthmatic breathing, hacking cough, pulse indolent and flagging, cold extremities, and patient inclined to delirium with a discharge of greenish pus while coughing, PHOSPHORUS, four pellets in a glass of water; tablespoonful every two hours.

If symptoms of gangrenous inflammation and utter prostration of vital forces appear, the patient cold, skin clammy, pulse sinking, difficult breathing, ARSENICUM, four pellets in a glass of water; tablespoonful every fifteen or twenty minutes until symptoms of a decided change exhibit themselves, afterwards once in two or four hours.

If there should be reason to suppose the existence of syphilitic or gonorrhœal taint in the blood, one pellet of SULPHUR and one of MERCURIUS VIVUS may be given daily.

In case the brain or head should appear to be affected, the eyes slightly congested, one pellet of BELLADONNA once a day.

I have been more particular in the medicinal treatment

of this disease, as it often runs a very rapid course ; and when the patient may reside some distance (as in the country) from a physician, death may ensue before the physician can arrive.

The diet in this disease should be light: oatmeal or cracked wheat gruels and porridge; black or Japan tea and light broths during the attack. During convalescence, rare roast beef and mutton, tenderloin steak, mutton-chop, free from fat and broiled, and no seasoning but salt.

PLEURISY.

This disease being simply an inflammation of the membrane which envelops the lungs and lines the walls of the thorax, is treated electrically the same as inflammation of the lungs, except that in pleurisy I use only the superinduced current, and generally rub the chest over the spot where the greatest pain exists, until the chest is quite hot and red.

MEDICAL TREATMENT.

ACONITE and BRYONIA prepared the same as in the last-described disease, and taken alternately every two hours.

If this disease is taken when it first appears electrical action and the medicines will break up the attack.

CONGESTION OF LUNGS,

Acute or chronic, may be treated the same as inflammation of the lungs, the conditions being analogous. Never having applied electro-magnetism in this disease I cannot say positively as to its action, but if I had a case I should treat it the same as I would pleurisy, only using a light current of the superinduced.

STITCH IN THE SIDE.

False Pleurisy.

This being simply an inflammatory irritation of some intercostal muscle, that is, a muscle between the ribs, the treatment is simple and results almost instantaneous.

ELECTRICAL TREATMENT.

Apply the negative electrode to the middle of the cervical vertebræ. Take the positive in the left hand, and with the right rub the affected point, lightly at first, as it will be very tender; but as the patient can stand it, harder, until the pain is removed.

One operation is generally sufficient, unless the condition has been of long standing, in which case it may take several operations.

MEDICAL TREATMENT.

ACONITE and ARNICA, one pellet of each every day. A

week or ten days should be sufficient time for the worst case. If caused by a strain or a fall, it is advisable to moisten the skin with tincture of ARNICA reduced one-half with water. Thus the positive electricity carries the Arnica or its active principle to the inner muscles, as well as to the superficial, and the relief is more speedy and permanent. *This* I call electro-medication, and it is fully explained in the article headed Rheumatism. It is something new in medicine, and may be doubted by some, but the facts exist and cannot be disproved.

BLOOD TREATMENT.

As I have heretofore stated I do not purpose to enter into disquisitions upon the origin of disease, but simply to deal with facts as illustrated in my own practice and that of others. Neither do I propose to enter into explanations of chemical experiments. The size of the book and the purpose for which it is designed will not admit of it.

If electricity is an agent that tends to assist in the oxygenation of the blood, it must necessarily have a powerful influence in purging it from the impurities and poisonous molecules that enter into its composition at times. Upon this basis I build my theory of the eradication of scrofulous complaints from the system by electricity; and the results effected by the system of practice I have adopted I believe sustain the position I have assumed. *See Cure of Cancer.*

The cases of cancer, ulcers, scrofulous complaints, gonorrhœa, and syphilis, tend to prove this at once.

Primary electricity (Galvanic) acts as directly upon the blood as induction-currents (Faradaic) do upon the muscles, or as the superinduced does upon the nerves.

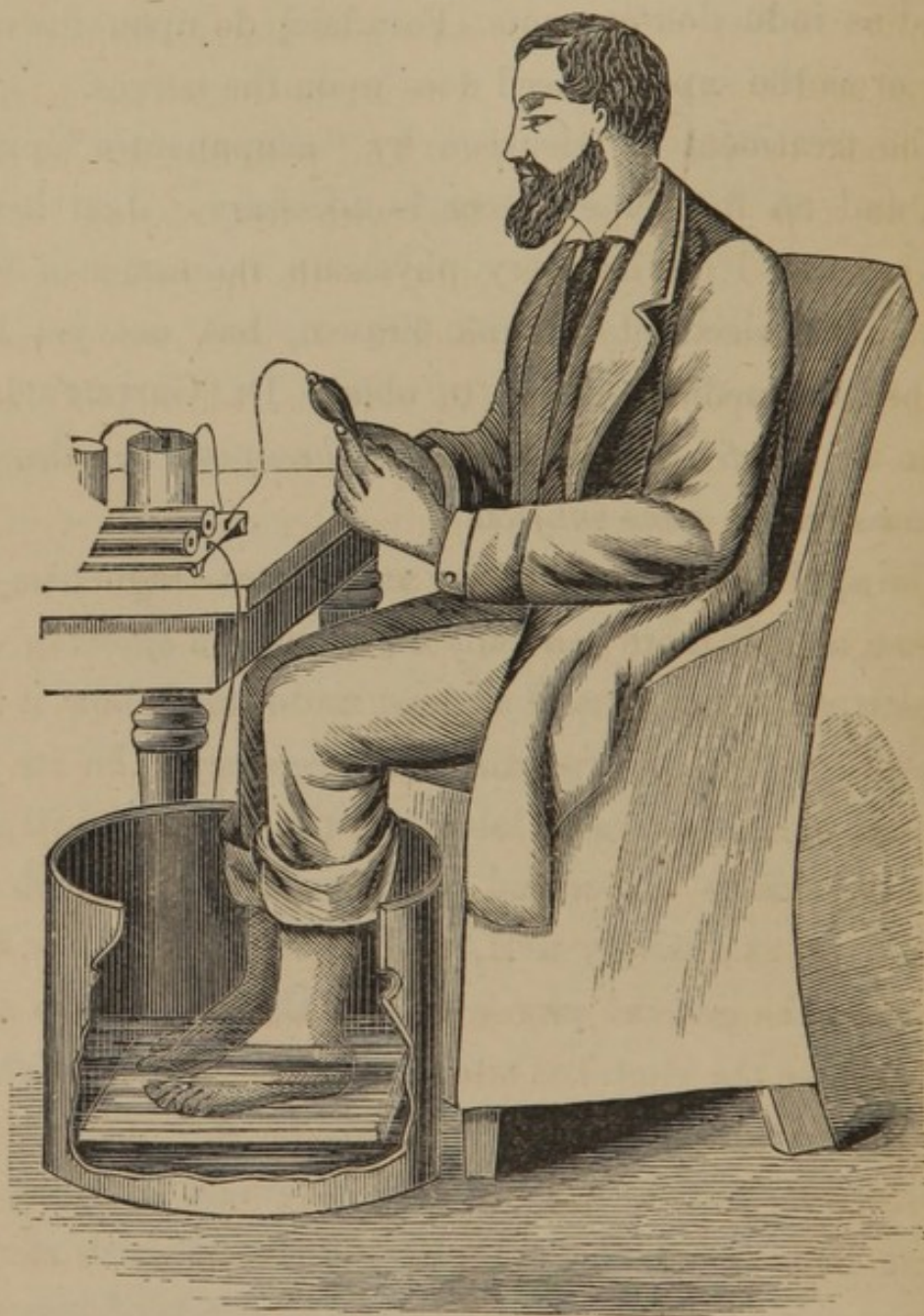
The treatment of aneurism by "acupuncture" proves this, and no further evidence is necessary. Just here I will say that I advise every physician, no matter of what school (for electricity, thank heaven, has not yet been chained by medical ethics), to obtain Dr. Garratt's large work on *Electro-Physiology and Therapeutics*; also Dr. Althaus on the same subject.

The application of electricity and electro-magnetism will become, as it is more generally understood, a *specialty* with physicians. They should at least understand how it is to be used so they can prescribe it if necessary. In its mechanical application more labor and time are requisite than most physicians can afford. Hence a few will devote themselves exclusively to it, as I and a few others have done, and the general physician who desires to have a patient receive the electrical treatment in connection with his own will look for some *honorable* specialist.

I sincerely believe that I have, in several instances, removed from the system (blood) evidences of both mineral and vegetable poisons. The removal of effects of poisoning by lead and mercury has unquestionably been accomplished, with results so marked that I was led to experiment in

scrofulous diseases, with equal, if not better, results. The electro foot-bath (see engraving) accomplishes the above.

FIG. 4.



ELECTRO-CHEMICAL FOOT-BATH.

Take an ordinary tin foot-tub; put in warm water (80 degrees) to about an inch in depth, or just enough to cover

a board, a half inch in thickness and wide and long enough for both feet to rest on, so that but little more than the skin of the bottoms of the feet will come in contact with the water. For *mineral poisons* add thirty drops of sulphuric acid to the water. Attach the negative electrode by a hook or wire to the tub. The patient takes as comfortable a position as possible, with feet resting on the board and free from other contact with the tub, clasps the positive electrode (which should be of silver) enveloped in a napkin or sponge, wet with a weak solution of bicarbonate of soda, a teaspoonful of soda to a gill of water.

Now start the machine, running the *chemical*, which is the primary current, as it runs through the first wires of the helix, and is interrupted by the rheotome. Time of the bath from ten (10) to thirty (30) minutes, depending upon the condition and strength of the patient. For a weak, nervous person, recovering from an attack of inflammation of the lungs or pneumonia, ten (10) minutes is sufficient. When the bath is to remove poisons and scrofulous conditions, thirty (30) minutes. When administered to females for menstrual difficulties, ten (10), fifteen (15), and twenty (20) minutes, as previously stated. When sufficient time has passed, take a towel wet in cold water and rub the feet smartly for two or three minutes, then dry them.

After this is done use *induced* or *superinduced current*.

Place the positive electrode under the feet, the patient standing naked but with a large shawl or cloak thrown

over him. The operator takes the negative electrode, enveloped in a towel dampened with water having a few drops of alcohol in it, and manipulates the entire body, from five (5) to ten (10) minutes. When this is done the patient steps off the electrode, and is rubbed with a coarse towel before dressing.

If these directions are followed implicitly, the result in every instance will be a witness to the efficacy of the treatment.

Let me here impress upon physicians and heads of families one thing.

It is a well known and conceded fact that many difficulties are fastened upon the system, such as weak and sore eyes, deafness, running at the nose and ears, malformations, etc., etc., as results from scarlet fever, measles, etc. Now if during convalescence from any of these diseases the electro foot-bath is used, in ninety-nine cases out of a hundred these consequences will be prevented, and a perfect recovery assured to the patient. *Try it*, and after one trial the electro treatment will be considered as essential in stages of recovery as medical treatment in the acute stages of the disease.

While taking these baths it is necessary that the bowels should move regularly ; if slightly relaxed all the better. This can be effected by taking a glass of water, with a tablespoonful of common salt in it, before breakfast. I

advise the use also of a tea made of red clover tops, of the strength of ordinary tea, and to be drunk in its place.

BOWELS.

I regret that in concluding to publish this work, I restricted myself to any limits whatever, especially when I reach this subject, as the treatment of the bowels by electricity would of itself make a small volume. If this small and inconsiderable work should be received kindly by the public, it will soon be followed by a new work upon the bowels and cholera, Asiatic and local, treated electrically.

DYSENTERY.

Dysentery and diarrhœa being so nearly alike that the uninitiated often confound the one with the other, I think it best in this instance to break through my rule of non-description of disease, especially since this book is written solely to accompany my own electrical apparatus, as an instructor to heads of families and other purchasers.

Dysentery is an inflammation of the rectum, and exhibits itself by severe stitching and cramping pains, soreness and uneasiness in the bowels, with discharges of blood and mucus; the urine high-colored, of a reddish-brown,

accompanied by thirst, dizziness, nausea, vomiting, and headache.

Sometimes dysentery appears as an epidemic, but under the combined treatment of electricity and homœopathy, it yields kindly and is easily cured.

ELECTRICAL TREATMENT.

Induced Current.

Place the negative electrode, wrapped in a cloth, to the rectum, take the positive and manipulate thoroughly over the entire surface of the bowels for five (5) or ten (10) minutes. Then change *the wires* at the machine, taking out the negative wire and putting it in the place of the positive, and *vice versâ*, thus reversing the currents. Now with the negative, which will be in your hand by this transposition, manipulate the spine from the shoulders downward, from three (3) to five (5) minutes, ending with three or four passes over the bowels and stomach. Continue this daily until the patient is well.

MEDICAL TREATMENT.

ACONITE, four pellets in a glass of water, a tablespoonful every hour. (The *tincture*, however, is preferable if you have it, or can obtain it, using two or three drops in place of the pellets.) This medicine should always be used first.

COLOCYNTHIS, four pellets in water as before. (Here

also the tincture is preferable.) A tablespoonful every two hours, omitting one dose of the Aconite.

If there is a constant desire to urinate, also for false stools, MERCURIUS VIVUS, one pellet every two hours.

I would advise the patient to continue this treatment for three or four days after the disappearance of the disease, using only one pellet a day of each of the medicines. Diet should consist of dry toast, crackers, and tea.

CHRONIC DIARRHŒA.

This disease exhibits itself by thin, watery discharges, the food passing undigested, nearly in the same condition as when eaten.

It is the effect of gastric disturbance, and probably of inflammation of the mucous lining of the bowels.

When not chronic, diarrhœa is easily cured, sometimes by one dose of ACONITE; but when chronic, it may take considerable time, and here electricity exhibits its wonderful vitalizing effects.

ELECTRICAL TREATMENT.

Primary Current.

Spread a towel, wet in warm water, over the entire surface of the abdomen, and be sure to *keep* it warm during the operation. Attach the negative electrode to the towel; take the positive electrode in the left hand, and with the

right wet with tincture of ARNICA, reduced one-half with water, manipulate over the central spinal region, that is, from the small of the back up between the shoulder-blades ; operate briskly with a very light current, one just perceptible by the patient, occasionally applying the naked electrode to the spine, passing it rapidly down both sides of the spine once or twice, then resuming the hand for a few minutes ; then pass the naked electrode (positive) three or four times down the spine, alternating with the hand-manipulation. Continue this for ten (10) minutes, then change to *induced current* or *superinduced*, by shifting the wires on the machine (being careful not to disturb the electrode). Now rub the entire spine, from back of the neck down to the lower extremities, also about the neck, chest, liver, and lungs. Let the time of the whole treatment of both currents not exceed twenty-five (25) minutes. Be sure to keep the towel on the abdomen warm during the entire operation, and when it is over have a warm dry flannel in readiness to take the place of the wet towel, and this should be worn until the patient is well.

Flannel being a non-conductor of electricity tends to keep the electric fluid in the body. In diarrhœa the electricity flies from the bowels ; our great effort should be to retain it.

MEDICAL TREATMENT.

ACONITE, one pellet daily ; MERCURIUS VIVUS, one pellet daily ; CHAMOMILLA may be given daily, if the stools look

yellow or green, as if mixed with bile. The medicine and electrical treatment should be resorted to occasionally for a month after the patient appears to be completely restored.

WEAKNESS OF BOWELS,

With constant inclination to stool.

This complaint, unless produced by cold, or the too free use of cold or ice-water while the body is overheated, is generally a symptom of some other disease. It is treated in the same manner as diarrhoea.

CONSTIPATION.

In pronouncing Electro-magnetism a specific for constipation of the bowels, I have the support of eminent European physicans, especially of the old school of practice. Dr. Trousseau, of the Hôtel Dieu, Paris, Dr. W. Cummings, of Edinburgh, Dr. Robert Christison, and a host of others, advise and urge the use of electro-magnetism as the best remedy, especially when the disease can be traced to the excessive use of cathartic drugs.

No family that can afford the expense should be without some kind of magnetic machine; all are more or less good, though they do not produce more than two currents, viz., primary and induced, though I seldom use an induced current, always preferring a superinduced. Other persons may disagree with me. The reason I prefer the

superinduced current is, that we obtain all the effects of the induced, without the heavy jumping shocks that the best of induced current machines produce. I describe two methods of application of electricity, one or both of which may be used as the physician or other operator may prefer.

Primary Current.

(Old method.)

Place the positive electrode, with towel, on the spine, just above the middle of the back; the negative electrode, with a sponge, about the middle of the lower portion of the abdomen.

Maintain the electrodes stationary for ten (10) minutes.

Superinduced Current.

(Second method.)

Attach the negative electrode to the instrument marked "cathartic;" rub a little clean tallow or sweet-oil over it, thus lubricating the tip; insert the instrument in the anus; take the positive electrode in the left hand, and with the right hold *the mouthpiece* on the tongue of the patient. The patient can perform this operation for himself or herself, by attaching the brass connections of the silk cord to the thumb-screw on the instrument. As the handle is of hard rubber it is perfectly insulated, and can be held in place by the patient. Time, ten (10) minutes.

Remove the mouthpiece, and manipulate over the stomach, bowels, and entire length of spine, with the positive electrode.

MEDICAL TREATMENT.

ACONITE, MERCURIUS VIVUS, NUX VOMICA, and SULPHUR are generally given, but I seldom use any other medicine than Aconite, of which I give one pellet morning and night.

I will here remark that all the remedies used by me are medicated by the primary current of electricity.

Diet should be perfectly natural, avoiding too much sweet and acid.

After beginning the electric treatment, the patient may take a glass of salt and water every morning before breakfast, and continue to do so for one week.

I would advise all persons of sedentary habits to drink this three or four times a week.

In all chronic cases I prefer it to any other medicine.

TAPE-WORM.

When the presence of the tape-worm is *known* to exist, give the superinduced current treatment as described in the article on Constipation, giving salt and water freely. It may or may not destroy the parasite. I have never knowingly removed one, but two or three instances have been reported to me in which the worm has been removed

by the above treatment. It may be true. At all events no injury can result from its trial.

DYSPEPSIA.

Scarcely any one need be troubled with this distressing and fashionable complaint while we have at command electricity and homœopathy. I doubt if I have ever failed in effecting a cure in any case presented for treatment, if the patient continued a sufficient length of time under my care. The greatest difficulty I have to contend with in this and a great many other chronic affections is, that as soon as the patients begin to feel better, they stop treatment, trusting to nature to complete the cure. Then, if the disease returns, they blame the remedies. The patient with a chronic complaint has as great a duty to perform toward the physician as the physician has toward the patient; and if the remedies applied or administered exhibit evidences of successfully combating the disease, it is unjust toward the physician, and criminal toward humanity, for him not to continue the course of treatment until the cure is complete. A patient may rest assured that no physician will detain him longer than is absolutely necessary to perform the cure. The physician is as anxious to perform the cure as the patient is to get well.

As a general thing the physician's reputation is his capital, and his reputation is established by success.

ELECTRICAL TREATMENT.

Superinduced Current.

Place a damp napkin or sponge, to which the negative electrode is attached, over the stomach; take the positive in the left hand, and rub the spine, dwelling a considerable length of time over the upper portion of the dorsal and the lower cervical vertebræ. If the case is an extreme one, the current should be steadily applied for five (5) minutes to the middle of the back. To do this envelop the positive electrode in a cloth wet in salt and water, as heretofore described, and hold the electrode by the handle.

The current should be decreased; and this is accomplished by pulling out an inch or two of the bundle of wires in the first helix. After the expiration of the five (5) minutes, resume rubbing the spine, terminating the operation by passing the hand over the neck and breast, and along the thorax. Time of entire operation, from fifteen (15) to twenty (20) minutes.

Repeat daily until the cure is effected.

MEDICAL TREATMENT.

ACONITE, one pellet at night for three days; NUX VOMICA, one pellet, just before dinner for three days, while taking the Aconite. Let three days pass without medicine, but keep up the electrical treatment.

After waiting three days, resume medicine by taking one pellet of ACONITE every night, and one pellet of

CARBO VEGETABILIS at noon. Follow this for one week, then change to ACONITE, one pellet at night; NUX VOMICA, one pellet in the morning, following this course until well. CARBO VEGETABILIS, one pellet, may be taken occasionally for acidity of stomach, sour eructations, flatulence, diarrhœa, and bloated bowels. If this medicine is not sufficient to remove the above symptoms, substitute the CHAMOMILLA, taking one or two pellets daily. In an acute attack of indigestion, the same remedies may be applied, but given say every thirty minutes until relieved.

An acute attack may prove dangerous unless vigorously handled.

WIND ON THE STOMACH; HEARTBURN; SOUR STOMACH; REGURGITATION OF FOOD.

These are all of the dyspeptic type or range, and should be treated the same as dyspepsia, being only symptoms of that disease.

If the patient is of a nervous temperament, and inclined to hysteria, give one pellet of AURUM.

If the indigestion is supposed to proceed from the habit of overeating, or from swallowing imperfectly masticated food, improper diet, or want of exercise, these must be changed before the cure can be effected.

SEMINAL EMISSIONS.*Spermatorrhœa.*

Impotence, and the various diseases peculiar to the organs of generation, will be described in another work, shortly to be published, entitled "Electricity and the Organs of Generation."

HIP DISEASE.*Morbus Coxarius.*

This disease is analogous to the white swelling of other joints, and is of scrofulous origin, therefore the description of one answers for the others. If the disease is taken in time it is easily managed, and takes but a few weeks to cure; but if not treated before it has had time to mature, it may take months, and even years to cure, and when cured may leave the patient crippled for life.

ELECTRICAL TREATMENT.*Primary Current.*

Place the foot of the limb affected upon the negative electrode covered with a wet cloth, the operator taking the positive, as usual, in the left hand. First proceed to make an examination by pressing with the finger, and you will readily satisfy yourself as to the location of the disease, and of the ligaments, etc., actually affected. When this is determined, you may either use the hand (which is always

the best and the most reliable), or may attach a sponge to the positive electrode, and with that rub just above the location of the disease, also directly upon it. Operate this way for five minutes. Then take the handles of both electrodes and turn the currents from the back over the location of the disease, through the hip by short currents; that is, put the negative electrode on the inside of the thigh, in the groin, always keeping the positive *above* the negative. Give this treatment for fifteen (15) minutes, then change to the

Superinduced Current.

Place the negative electrode at the feet and rub the whole length of the spine quite hard, sufficient to redden the skin, for ten (10) minutes. You may pass the hand occasionally over the region of the lungs. About every fifth day omit the primary treatment, and give the bath as described for scrofulosis, terminating the day's treatment with the superinduced current as on other days. If the stage of ulceration has been reached, apply the local or Humboldt battery, as hereafter described under the head of Ulcers.

MEDICAL TREATMENT.

The physician in attendance should direct this without much reference to my treatment.

I give ACONITE, BELLADONNA, RHUS TOX., SULPHUR, the same as in scrofulosis. The person having charge may select remedies as the symptoms show either scrofulosis or

rheumatism, as at times before suppuration begins, the disease in its action is similar in many particulars to rheumatism, and may be treated like it. Medical or electrical treatment will be of little or no avail unless the limb is kept perfectly quiet. When the patient must walk, crutches should be used, so that the limb will not support any of the weight of the body.

Diet the same as in scrofulosis.

DROPSY OF THE SCROTUM.

Hydrocele.

I have operated upon only three cases of this complaint, and in one only was I entirely successful; still my impression is that electricity can be used, and with great results; but the full treatment, such as I would now use, if cases should be presented to me, would be by acupuncture in connection with the

Primary Current.

Take a piece of silver wire a quarter of an inch thick, or if this cannot be obtained, attach a silver half dollar to each electrode. The operator, holding the electrodes by the insulated handles, touches various parts of the scrotum under and around with the two silver half dollars, always keeping the electrodes opposite to each other; that is, if the negative is under, the positive is over. Keep the electrodes at one point about one and one-half ($1\frac{1}{2}$)

minute, changing rapidly. Use the thin edge of the pieces. Time of operation fifteen (15) minutes daily.

Absorption begins with first treatment. If tapping has been resorted to, I question whether a radical cure can be effected except by use of acupuncture.

MEDICAL TREATMENT.

PULSATILLA, MERCURIUS, one pellet a day of each. If the disease has been caused by an accident, ARNICA may be given, one drop of the tincture in a wineglass of water; teaspoonful three (3) times a day.

My opinion is, that in this difficulty the true curative agent is primary or direct electricity.

After giving the above electrical treatment, we may, once or twice a week, give the superinduced current, by placing the negative electrode under the feet, and sponging the scrotum, groins, and inner portion of the thighs with the positive electrode covered with a sponge or cloth. The patient should keep quiet, and if the parts are painful, a supporter may be worn so as to take the weight off the scrotum.

DROPSY OF THE CELLULAR TISSUE.

Anasarca.

I have not had sufficient experience in dropsical cases to warrant me in particularizing the treatment. I have always avoided taking, when possible, any patients of the kind.

I regret this now, as reflection assures me that electricity must be peculiarly potent in exciting the absorbents. I should now treat all dropsical effusions very much in the manner laid down for hydrocele; that is, run the primary current from point to point over the entire region affected.

In case of dropsy of the heart, before using electricity ascertain if there exists any valvular or organic affection of the heart; if so, do not use the electricity in any form: it is dangerous.

DROPSY OF THE CHEST.

Hydrothorax.

This disease probably can be operated upon successfully. Any new facts that may be developed will be published by me in one of the journals, or in the second edition of this work, if one should be published.

In dropsical swellings remaining after acute eruptions, such as measles, scarlatina, etc., the electro foot-bath as described in the article on Blood is all that will be required.

MEDICAL TREATMENT.

In the few instances of treatment I have had, I have used ACONITE, BRYONIA, MERCURIUS, FERRUM, and CINCHONA; giving one or two pellets a day, as symptoms exhibited.

When the patient is troubled with a constant desire to urinate and unable to pass water, I give ACONITE and CAN-

THARIDES alternately, two pellets in half a glass of water (Aconite first), every fifteen or twenty minutes, until relief is afforded.

The physician in using electricity in any kind of dropsy must be guided by the philosophy of the treatment as explained and described for hydrocele, together with his own good sense and judgment in the matter.

FELON.

Whitlow.

This disease generally attacks the ends of the fingers, and according to different authors there are several varieties of the disease, the only point of difference being in the tissues involved. I treat them all alike.

ELECTRICAL TREATMENT.

Primary Current.

Take any small vessel and fill it half full of warm water, with half a teaspoonful of common salt. Connect the negative electrode with the water. Immerse the affected finger in the water, for an inch above the swelling and painful portion; take the positive electrode in one hand, and with the tips of the fingers rub the finger of the patient above the water, passing your fingers from the wrist on the outside and inside down almost to the water, for about ten (10) minutes; then change to *superinduced current*.

Leaving the finger still in the water, with negative elec-

trode attached, rub with positive electrode the whole body of the arm, from the neck down to the water, for five (5) minutes. Follow up this treatment twice a day. Generally two or three days destroy all symptoms. If the cure is not effected in three days my advice is to lance to the bone. I give no medicine.

GOITRE.

Bronchocele.

This disfigurement is sometimes so rapidly cured that I have been astonished and almost frightened. The enlargement has, in one or two instances, been entirely removed in three operations. A Miss M——g was brought to my office with goitre, about the size of a hen's egg.

The first application reduced it to the size of a black walnut; the second operation, three days after the first, it decreased at least one-half again. The third operation, about a week after the first, scarcely any of the enlargement remained. I did not see the patient for two months, when I met her on the street; I inquired about the disease and why she did not call again.

She replied, "Oh, Doctor, it all went away, and mother did not want to throw away any money." I operated but three times.

Miss ——, of Syracuse, was entirely cured in seven or nine operations, I forget which. As she was the daughter of a very particular friend, I kept no account of the operations. Another case was that of a widow lady of Bing-

hamton ; goitre very large. She was under treatment daily for more than two weeks before any impression was made upon the disease. It took three months to effect a cure. I mention these extreme cases, so that people need not be disappointed with either a rapid or slow cure. Time is sure to reach the most inveterate case.

ELECTRICAL TREATMENT.

Primary Current.

Take the handles of the electrodes, one in each hand, and after the surface of the swelling has been moistened with salt and water, pass the ball of each electrode up and down either side of the goitre, so working as to entirely surround it, holding the electrodes stationary for a half minute at a time, and always opposite to each other. Be sure to encircle the swelling. Continue the primary current, but let it be light, so the patient just feels it, for ten (10) minutes, then change to the

Superinduced Current.

Place the negative electrode at the back of the neck, wrapped in sponge or cloth, as usual ; take the positive electrode in the left hand, and with the right rub the goitre, pressing rather hard. Rub all around and down for five (5) minutes, then change electrodes and let the patient clasp the negative in both hands, while with the positive you rub over the heart and lungs. If the patient is nervous, operate

once or twice a week upon the whole length of the spine, placing the negative at the lower end of the spine, and with the positive rubbing from the neck quite hard, using the full strength of the superinduced current. Operations should be daily, still three times a week will answer. I give no medicine, but keep bowels slightly relaxed with salt and water, a teaspoonful of salt in a glass of water before breakfast.

SALT RHEUM AND TETTER.

For electrical treatment these complaints are analogous, and they sometimes yield readily to electricity, but at other times are obdurate and incurable. In fact, I believe I have failed as often as I have succeeded in treating these diseases. I never give much encouragement to patients.

ELECTRICAL TREATMENT.

Primary Current.

Place the negative electrode under the feet; take the positive electrode with sponge, and rub the entire body from neck to feet, using a light current. Time, fifteen (15) minutes.

Superinduced Current.

After the primary treatment place the negative of the superinduced current under the feet, and let the patient clasp the positive pole. Have the current weak, just so it is pleasant. Time from five (5) to seven (7) minutes.

MEDICAL TREATMENT.

SULPHUR, one pellet three times a week. ARSENICUM, one pellet once a week.

Bowels should be kept open. If there is a tendency to constipation, a glass of common salt and water before breakfast. Should this not answer, add ten grains of Rochelle salts.

BILIOUSNESS.

If in the first symptoms of this disease electricity is applied it is easily cured, and the threatened attack of fever averted. But after fever has set in electricity should not be used. When the fever has been entirely subdued, the primary and superinduced currents can be used with much effect in toning the system, and in eradicating any malaria that may be left.

ELECTRICAL TREATMENT.

Primary Current.

The foot-bath, as described in Blood Treatment, giving it only about ten (10) minutes, when change to the

Superinduced Current.

Place negative electrode under the feet; wrap the positive electrode in a towel wet with tincture of arnica, reduced three-fourths with water, and rub well over bowels

and stomach ; also on the spine, rubbing it hard and quick, and finishing by passing the towel or sponge over the entire trunk of the body.

It is best to wash out the towel or sponge two or three times during this operation.

MEDICAL TREATMENT.

ACONITE, NUX VOMICA, and MERCURIUS VIVUS, one pellet of each, daily, taking one before each meal, beginning with Aconite ; the others in order of mention.

In the spring of the year it will be of great benefit to take one or two of the above operations each week until the weather has become settled, and the malaria has disappeared.

NERVOUSNESS.

As the nervous system is composed of the brain, spinal marrow, and the nerves, it will be found that in using the superinduced current only, we reach the inner nerves as well as the superficial.

The induced current, as a general thing, acts only on the superficial nerves, except it reproduces itself by reflex action affecting the inner nerves slightly. If it becomes necessary to operate on the brain, the superinduced current being produced by an induced current, its polarity is decreased to a mere nominal condition, and acts as a circulative current, vitalizing the probably dormant electricities of the brain, enabling them to perform their natural and

functional duties. The induced current has performed some eminent cures, but it has been when only the superficial nerves were affected, and failures then made are, now by the use of the superinduced current, changed to success.

The electrical applications for almost all nervous difficulties are almost identical. I will select the most important.

ATROPHY OF THE NERVES.

A very common cause of this disease is an injury to the spinal marrow, and may be caused by a fall, concussion, etc. It generally develops so slowly as to undermine every organic function before its presence is even suspected, so electricity should at once be resorted to upon the slightest appearance of nervousness, and a thorough examination of the spine should be made, and if the nervousness proceeds from an injury to the spinal marrow, electricity will discover it immediately.

EXAMINATION OF SPINE.

Induced Current.

In an examination of the spine, I generally use this current to begin with, and never after the examination unless I find curvature, and its further application will be defined under that head in another part of the book.

Place the negative electrode at the lower end of the spine; hold the positive in one hand, using a current as strong as the patient can comfortably bear; press with the

fingers on and between the vertebræ, also at the sides. If the spinal marrow is injured, the particular place where the injury exists will be indicated by the patient shrinking from the touch, the part being sore and tender, and pressing on the part with electricity, it will appear as if there was a boil or sore equally tender.

If, on examination, however, no tender spot is discovered, you may rest assured there exists no spinal affection, as in making a diagnosis, electricity is always reliable.

If the spine is affected, give the

Primary Current.

The operator takes one electrode, covered with cloth wet in salt water, in each hand. Holding by the insulators, he passes the electrodes, one opposite the other, each side of the spine, slowly up and down in the vicinity of the sore spot, occasionally letting the positive rest for a moment upon it. Time of operation with primary current, ten (10) minutes.

Superinduced Current.

Place the negative electrode, covered with a sponge or wet cloth, at the lower end of the spine.

Let the patient clasp the positive electrode in both hands. Time, fifteen (15) minutes. Then the operator takes the positive in his left hand, and with slightly increased current (sufficient to overcome the electrical resistance of his own body), rubs the entire length of spine, ending by

operating with one hand gently but rapidly each side of the head, passing his hand from the crown downward.

These operations should be daily. As soon as the soreness of the spine disappears, the primary current should be dispensed with, but it may be necessary to continue the superinduced for weeks or months, but time, labor, and perseverance will be sure to conquer in the end.

MEDICAL TREATMENT.

ACONITE, one pellet daily. LYCOPODIUM, one pellet daily.

About once or twice a week, one drop of tincture of ARNICA, in tablespoonful of water.

LOCKJAW.

Tetanus.

ELECTRICAL TREATMENT.

Induced Current.

The seat of this disease, no matter what may be the inducing cause, is in the spinal marrow.

Place the positive electrode at the lower end of the spine, hold the negative, and give as strong a current as the patient can stand. Rub from the nape of the neck all the way down rapidly, pressing hard for five (5) minutes. Then change negative electrode to where the cervical and dorsal vertebræ unite, reduce the strength of current, and rub around the neck, throat, and chest for fifteen (15) minutes. The patient will feel relief almost instantly, but the

treatment must be followed up daily, and sometimes twice a day. The cure can only be effected by *careful watching* and *labor*. No one but a physician should use electricity in this disease, or at least it should be administered under his immediate supervision, when of course he will give the necessary medicines.

MEDICAL TREATMENT.

I generally give NUX VOMICA, from three to five drops of the tincture in a glass of water, a teaspoonful every ten (10) minutes until the spasm yields.

I use also STRYCHNINE, a half grain of the *first trituration*. In case of congestion, BELLADONNA.

No person should for a moment tamper with this disease, unless he is a physician. But when the spasm attacks the patient, if an electrical machine is at hand, the above treatment can be used until the arrival of the physician.

My advice is not to depend upon either medicine or electricity alone, but to use both vigorously until the patient is cured.

VERTIGO.

In this disease use the superinduced current, as described in atrophy of the nerves. Use daily, with a very light current, one just perceptible by the patient, giving, in connection, ACONITE, NUX VOMICA, and PULSATILLA, one pellet on successive days.

This treatment is intended only for the chronic stage of the disease.

ST. VITUS'S DANCE.*Chorea.*

In this disease, the treatment electrically is identical with the superinduced treatment as described for atrophy of the nerves, only adding, that about once a week the entire body should be rubbed, the patient clasping the negative electrode in both hands, while the operator, holding the positive in one hand, rubs with the other. Time, twenty minutes. Treatment daily, until the cure is effected. Afterward, let it be given occasionally for two months.

MEDICAL TREATMENT.

One pellet of ACONITE, and one of IGNATIA, given on alternate days. The patient should take plenty of outdoor exercise, and eat wholesome, generous food. *No pastry.*

CATALEPSY.**ELECTRICAL TREATMENT.***Superinduced Current.*

Place the negative electrode on the spine, at the back of the neck. Take the positive electrode in one hand, and with the other rub the diaphragm, chest, and throat. Use the full strength of the current. Operate until the attack is broken, but if it does not yield in fifteen (15) minutes,

stop treatment for two hours; then repeat. The first application is generally successful.

MEDICAL TREATMENT.

Give ACONITE, four pellets, dissolved in a gill of water. Put a few drops on the tongue, and moisten the lips.

EPILEPSY.

Superinduced Current.

Place the positive electrode under the feet, and rub the entire body with the negative, dwelling longest upon the spinal column. Time, twenty (20) minutes. Operate daily.

Never use electricity, however, when the fit is on. I have not cured one case of true epilepsy; but other electricians declare that they have. I do not assume, because I have not been able to effect a cure, that the disease is incurable; hence I give the principle of application the same as I have used in the cases I have treated. One thing is gained by this treatment,—the patient's general health is improved.

TWITCHING, GENERAL OR LOCAL.

The same treatment as in chorea—superinduced current; but if local, as in the eye or side of the face, apply one electrode longer to the affected part.

PALPITATION OF THE HEART.

If there is a functional derangement of the heart, do

not use electricity at all. If it is simply a nervous symptom, use the superinduced current as described for epilepsy. Time, twenty (20) minutes.

MEDICAL TREATMENT.

ACONITE, DIGITALIS, CARBO VEGETABILIS, one pellet each on alternate days. Diet plain and simple, avoiding all stimulants and highly seasoned food.

HEADACHE, SICK OR NERVOUS.

ELECTRICAL TREATMENT.

Superinduced Current.

Place the negative electrode, wrapped in a napkin, over the first dorsal and last cervical vertebræ. Take the positive and rub over the region of the stomach, chest, and liver, for ten (10) minutes.

Then change electrodes, taking the negative in the hand, and placing the positive on the same region of the spine, and continue operations as before, for ten (10) minutes longer. Treatment daily.

BILIOUS HEADACHE.

The same treatment as described for biliousness.

GASTRIC HEADACHE.

The same treatment as described for dyspepsia. In nervous headache I generally give ACONITE and BELLADONNA alternately.

AGUE AND FEVER.

This disease is generally very regular in its returns; that is, if it is daily. At ten o'clock daily you may expect your attack, or at the same hour every other day, if it is intermittent.

ELECTRICAL TREATMENT.*Induced Current.*

Just before the time of the expected attack, let the patient go to bed. Have everything in readiness, your sponges and napkins wet in warm or hot water, and as soon as the *creep* up the back is felt, and before the yawning, and stretching, and cold chills down the back come, apply the positive electrode to the nape of the neck, then take the negative and rub the stomach, bowels, and liver. Rub hard and rapidly, with as strong a current as the patient can bear, for (5), ten (10), or fifteen (15) minutes; finishing by holding the insulated handles of each electrode, and rubbing up and down the spine, each side of the vertebræ. After the first chill is broken, repeat the treatment daily; at first, about the hour of the usual attack. Then vary, giving it sometimes in the morning, and sometimes in the afternoon. A few repetitions of the treatment will break up the attack entirely, and so invigorate the system as to enable it to resist any future attacks.

Persons cured of ague and fever by electricity seldom have a return of the disease.

GASTRITIS, CHRONIC.

Nearly all the symptoms of this disease are similar to

those of dyspepsia, and its treatment almost identical. But the greatest of care must be exercised as regards diet. Wheaten grits, prepared barley, oatmeal, with a beefsteak or mutton-chop daily, cooked rare, and well masticated before swallowing. Moderate out of door exercise, and a general sponging of the entire body, three times a week; placing the negative under the feet, and with the positive in a napkin, wet with salt and water, rubbing the body all over, from the neck to the feet.

This should be done, if possible, just before going to bed.

MEDICAL TREATMENT.

ACONITE and MERCURIUS VIVUS, one pellet, on alternate days.

ARSENICUM, if there appears to be a sore, burning spot in the stomach; one pellet in place of Mercurius vivus. If the patient is female, a PULSATILLA pellet may be taken once or twice a week; but I generally depend upon the vitalizing power of electricity to tone up the nerves.

If the patient is habitually costive, an occasional glass of common salt and water before breakfast, using, if possible, filtered water.

INFLAMMATION OF THE KIDNEYS.

Nephritis.

This difficulty, in either the chronic or acute stage, yields readily to the electrical treatment, a few operations being in general sufficient.

ELECTRICAL TREATMENT.

Induced Current.

Place the negative electrode, covered with a napkin, at the small of the back. Take the positive in the left hand, and with the right rub the lower part of the bowels, in and around the groins. Then place the positive electrode for a moment below the scrotum, taking it away, and replacing it several times so as to interrupt the current. Then place the negative electrode once more under the feet, and with the positive rub the small of the back hard and quickly, terminating the operation by passing the positive several times up and down the spine. Use a current agreeable to the patient. Time of operation, fifteen (15) minutes.

If the inflammation does not yield, give after the third operation one electro foot-bath, resuming the above treatment on the following day.

MEDICAL TREATMENT.

ACONITE and CANTHARIDES, one pellet of each daily. If the attack is acute, give the tincture of Aconite, one drop in a glass of water, teaspoonful every two hours, alternating with the same proportion of the tincture of Cantharides until relief is obtained; then use pellets as before.

INCONTINENCE OF URINE.

Enuresis.

The treatment of this difficulty is the same as that used for inflammation of the kidneys.

If it should fail, as it often does, you can use a gum-elastic catheter with a metallic tip. A wire running through the catheter, and perfectly insulated, connects with the silver tip. The positive wire of the battery is connected with the wire of the catheter. The catheter is now insulated so that the silver tip enters the bladder, while the negative electrode is rubbed over and pressed on the pubes. Time, five (5) minutes. This should be repeated several times for a week or two.

This method of application is used by Dr. Floriel, who reports several cases entirely cured by it. I have never used it, but it appears to be the true electric method, if the first fails, as it often does.

MEDICAL TREATMENT.

I seldom use any other medicines than ACONITE and CANTHARIDES, one pellet of each daily. In an acute attack, of course, the medicines should be given every hour until relief is obtained.

DIABETES.

After this disease reaches a chronic stage, it is doubtful if a *cure* can be effected, though much relief may be experienced from the use of electricity. If the disease is taken in its early stages, there is no question of its being curable by the combined use of medicine and electricity.

ELECTRICAL TREATMENT.

Induced or Superinduced Current.

Place the negative electrode, enveloped in a wet cloth, upon the middle of the lumbar vertebræ; take the positive, and rub the abdomen over the region of the bladder, allowing the positive to remain for about three (3) minutes upon the glands between the scrotum and anus.

If the patient is nervous, use the superinduced current. Time, ten (10) minutes. Repeat this treatment once or twice daily with moderate current.

MEDICAL TREATMENT.

ACONITE, SULPHUR, MERCURIUS VIVUS, one pellet of each on successive days, beginning with Sulphur.

Stimulating drinks, fruits, and flatulent food must be strictly avoided. Aside from these, ordinary diet. Probably an electro foot-bath, as described in the article on Blood, would be of service, substituting the induced or superinduced current for the primary, moderate exercise and regular hours.

BLADDER.

All the diseases to which the bladder is subject may be treated precisely as diabetes.

WORMS.

When these exist in adults, we give the following

ELECTRICAL TREATMENT.*Induced Current.*

Attach the negative electrode to the instrument designed for the purpose, and insert about an inch of its length in the rectum, first lubricating the tip with sweet oil; then, with positive electrode, rub the bowels from ten (10) to fifteen (15) minutes. Then attach the positive to the mouth-instrument, and place it at the root of the tongue, and keep it there for three (3) minutes. The current, when applied to the tongue, must be very mild, just strong enough for the patient to feel it.

MEDICAL TREATMENT.

ACONITE, one pellet, three times a day; a glass of salt and water every morning before breakfast.

CATARRH.

This distressing disease sometimes yields rapidly to electricity, but in a few instances defies all our exertions and ingenuity.

ELECTRICAL TREATMENT.*Superinduced Current.*

Let the patient clasp the negative electrode in both

hands. The operator takes the positive in one hand, and with the tips of the fingers of the other operates each side of the nose from the eyes downward; passes one finger rapidly over the eyebrows from the nose towards the ears; also passes the palm of his hand lightly over the forehead, from the middle to the ear.

He will discover a few very sore and sensitive spots, some intensely sore, as if there existed an internal boil. Operate very lightly over these spots, but continue to operate until they no longer feel sore when you touch them. If this is not accomplished in ten (10) minutes, stop operating till the next day; then repeat the treatment until the cure is effected.

MEDICAL TREATMENT.

ACONITE and MERCURIUS VIVUS, one pellet of each daily.

Suppressed catarrh should be treated much the same as pneumonia.

EAR DISEASES.

Many electricians still persist in using instruments; but I find if I cannot reach the disease by outward operations, that instruments will not be of any service. If the physician in attendance thinks differently, and concludes to use them, of course he can do so; but my advice is to use as light a current as possible. The entire apparatus for hearing is very sensitive, and more injury can be done, in the tenth part of a second, by instruments, than months

will be able to repair. The treatment for all diseases of the ear is the same, or very nearly so.

ELECTRICAL TREATMENT.

Superinduced Current.

First, place one electrode just behind one of the ears. Take the other electrode in the left hand, and with the forefinger rub for a minute or two behind the opposite ear; then reverse the electrodes, and rub behind the other ear. With the hand then rub lightly up and down each side of the nose. While doing this, change the one electrode from behind one ear over to the other ear, so that you send the current from the sides of the nose to each ear. Operate in this way about three (3) minutes. Now take the mouthpiece, and send the current from the root of the tongue upward, first to one ear, then to the other. This is done by changing the one electrode from ear to ear. When you have operated in this way for about three (3) minutes to each ear, change the electrode to the back of the neck at the highest point of the spine, and with the other electrode in the left hand, rub the neck all over, up and down, and make a few light and rapid passes from the middle of the forehead back to the ear. Time of the whole operation from fifteen (15) to twenty (20) minutes.

I have in this instance said nothing about *positive* and *negative*, as the distribution in general treatment of the ear does not require any attention to polarity. The main object is to get an electric action upon the group of muscles

and nerves that create and support the sense of hearing. The current used should always be the superinduced and very light. The above treatment is successful to a great extent in *partial deafness*, in *noises of the ear*, and *earache*.

MEDICAL TREATMENT.

BELLADONNA, PULSATILLA, ACONITE, MERCURIUS VIVUS, one pellet of each on successive days, unless the symptoms should exhibit a more frequent dose, and a reliance upon one or two.

The head should be kept free from dandruff, and a brush should be used frequently during the day, to irritate slightly the surface of the head, so as to increase capillary circulation.

The ears should be washed daily, and all secretions of wax, etc., removed.

CHRONIC DISCHARGES FROM THE EAR.

As this almost invariably exists only when the patient is scrofulous, I give, once a week, the foot-bath, with primary current, as described in Scrofulosis, adding this further treatment: While the feet are in the tub, and at the termination of the bath, the operator takes the positive electrode in one hand, and for about one minute rubs around each ear.

After the patient is rested from the bath, give the

regular superinduced current as described in the article on Ears. For the discharge, I give SULPHUR one pellet daily.

In this disease the ears must be kept perfectly clean, and should be occasionally sponged with a strong solution of Castile soap.

The physician will find that the electrical treatment, while it fails sometimes, will yet be of great service to him in ear difficulties, if he will bestow upon it the time and labor necessary to insure success.

LIVER COMPLAINT.

Hepatitis.

Heretofore, the liver has had to receive much undeserved blame. Any diseased condition that could not be explained was called "liver complaint," or "torpid liver."

A lady once called upon me, stating that her liver was out of order; that she had been doctoring for it for five years without any benefit. She had tried about a dozen physicians, and hundreds of bottles and boxes of advertised medicines, all without any benefit.

I gave her an electro foot-bath, as described for scrofulosis, and six pellets of ACONITE, with directions to take one pellet daily for six days, and walk at least a mile a day, and to call on me the seventh day. At the appointed time the lady came, looking a hundredfold better. She said she felt like a new being, and thought she could jump over a six-rail fence. I gave her another bath, six more pellets, and when the week came around she called

and pronounced herself *well*. There was absolutely nothing the matter with her, except a *sluggish circulation* produced by *overdosing*.

When there is reason to suppose that the liver does not perform its functional duties, I give the following

ELECTRICAL TREATMENT.

Induced Current.

Place the negative electrode at the lower end of the spine, and with the positive rub over the region of the liver, quite hard, for ten (10) minutes; then lightly over the stomach and chest for five (5) minutes more.

Give the foot-bath at the first operation, and once a week until cured. The operations with the induced current should be daily, however.

The same treatment for

INFLAMMATION OF THE LIVER.

For this affection the current should be very light. It would be better, however, in acute inflammation, to depend upon the medicines, ACONITE, NUX VOMICA, BRYONIA, ARSENICUM, and MERCURIUS VIVUS, and not use electricity until the inflammation is subdued, and then use only the superinduced current.

ABSCESS OF THE LIVER.

In this disease, as far as my experience goes, electricity cannot be of any service whatever, and it will only be a waste of time and labor to employ it.

JAUNDICE.

In this complaint I have been very successful.

ELECTRICAL TREATMENT.*Primary Current.*

Use the electro foot-bath twice a week. At the termination of the bath, and before the feet are removed from the tub, take the positive electrode, and rub over the region of the liver, lungs, and stomach, from three (3) to five (5) minutes. Give this treatment once a week; on other days use the

Superinduced Current.

Place the positive electrode at the lower end of the spine, and with the negative rub over the region of the liver and stomach for fifteen (15) minutes, then place the negative under the feet, and let the patient clasp the electrode in both hands for five (5) minutes. Time of superinduced current twenty (20) minutes.

MEDICAL TREATMENT.

ACONITE, ARSENICUM, and MERCURIUS VIVUS, one pellet of each, on successive days. The above treatment is for chronic jaundice.

SPRAINS.

Electricity will be found to be of the greatest benefit in all cases of sprained limbs.

If the ankle is sprained place the foot in warm water, put the negative electrode in the water in such a way as not to touch the foot. Take the positive in the left hand, and with the right rub down the ankle over the sprain. Have a little arnica and water in a saucer, and keep the hand and limb wet with it during the entire operation.

If the wrist is sprained put the hand in a vessel of water, so that the palm only is wet, and then continue as described above.

Time of operating in either case from fifteen (15) to thirty (30) minutes. Operate until the patient is free from pain, and the swelling and inflammation have subsided in a measure. Two or three operations will generally be sufficient.

EXTERNAL BRUISES.

If on the lower limbs or arms, they should be treated as described for sprains; but if about the chest or back, as follows:

ELECTRICAL TREATMENT.

Primary Current.

Take the negative electrode wrapped in a napkin or sponge, wet with ARNICA or CONCENTRATED EXTRACT OF HAMAMELIS and water (about half and half), and place it about four or five inches *below* the bruise. Take

the positive in the left hand, and with the right, wet with tincture of arnica, rub from four to six inches above, down, and over the bruise. Rub softly at first, until the swelling or inflammation recedes, then rub a little harder from ten (10) to twenty (20) minutes. This treatment is generally successful in reducing the inflammation and subduing all pain. Follow it up for three or four days. If you have never used electricity before, you will be surprised by its almost miraculous effects.

INTERNAL BRUISES.

ELECTRICAL TREATMENT.

The negative electrode should be placed at the lower end of the spine. Then with the positive rub over the region of the bruise; always keeping it above the negative, as it is absolutely necessary that the current should run down and out of the body, bathing the part freely with **CONCENTRATED EXTRACT OF HAMAMELIS.**

MEDICAL TREATMENT.

The same as for sprains and external bruises.

Tincture of **ARNICA**, two drops in a gill of water, a teaspoonful every hour.

ACONITE, four pellets in a gill of water, a teaspoonful every hour for the first few hours. As the patient improves give the medicine two, four, and six hours apart, until the cure is effected.

The *principle* of the application of electricity as laid down here can be used to great advantage, in all cases of broken bones.

The surgeon will find it of the greatest benefit, not only in allaying inflammation, but in many instances it will prevent fever and greatly assist in the knitting of the bones. For broken limbs it should not be used over ten (10) minutes.

As the patient begins to walk, or use his arms, as the case may be, a superinduced current will give strength.

Superinduced Current.

Place the negative under the feet, and taking the positive in the left hand rub the parts recently united lightly for a few minutes. Then with a sponge or napkin, wet in dilute ARNICA, rub the entire body with the positive electrode. Time of operation from twenty (20) to twenty-five (25) minutes.

NIGHT SWEATS, OR COLD SWEATS.

These generally proceed from a deficiency of electric action in the system.

ELECTRICAL TREATMENT.

Superinduced or Induced Current.

The first is always the best to begin with. Place the positive electrode under the feet, having the feet in a bath-tub with a little salt water. Take the negative, wrapped in a napkin, and sponge the whole body from the neck to the

feet for about ten (10) minutes. Then while the patient holds the positive in both hands, with the negative rub the full length of the spine, hard and rapidly, until it becomes quite red. This treatment, if possible, should be given just before going to bed. If applied in the daytime the patient should lie down after it for half an hour or an hour.

MEDICAL TREATMENT.

CHAMOMILLA and BRYONIA, one pellet each daily, Bryonia in the morning and Chamomilla at night. If there should be a thin, watery discharge from the bowels with stool, I add one pellet ARSENICUM until the diarrhoea disappears. This treatment generally cures the sweats unless they are the result of phthisis.

OPPRESSION OF THE CHEST.

Difficult Breathing.

This affection, if it proceeds from a recent cold, should receive the treatment prescribed for Pneumonia. Relief is generally obtained at the first application. Three or four operations will not only remove the difficulty but will give tone to the parts affected.

SCIATICA.

I doubt if a well-determined case of this disease was ever cured, though many claim to have effected cures. It can, doubtless, be temporarily relieved, but I would not

advise any person to have recourse to electricity, with any confidence that a permanent cure can be accomplished.

I have afforded immense relief in hundreds of instances, but I have yet to learn of one *bona fide* cure performed by any electrician.

ELECTRICAL TREATMENT.

Primary Current.

Place the negative electrode under the foot of the side affected. Take the positive in the left hand, and rub just above and over both kidneys. Then rub above the kidney on the side affected, passing the electrode up and down and around the thigh and in the groin, allowing the hand to follow the entire length of the limb. Current full strength. Time twenty (20) minutes.

Superinduced Current.

Keep the negative electrode under the foot, and with the positive rub the entire length of the spine, and down both limbs. Time five (5) minutes.

MEDICAL TREATMENT.

ACONITE, COLOCYNTHIS, MERCURIUS VIVUS, one pellet each on successive days. In acute sciatica give the medicines every hour, according to the severity of the symptoms.

RHEUMATISM.

This disease in connection with paralysis is the great hobby of electricians, and I very much doubt if a cure of

rheumatism was ever effected without the use of medicine in connection with electricity. That the two together have made some wonderful cures, hundreds of cases in my own practice will testify.

I would earnestly protest against the use of any electrical current in cases of rheumatic fever. But after the fever subsides, the electricity can be used to great advantage.

In fact, every case should, under any and all circumstances, have electricity applied. The treatment for both chronic and acute rheumatism is almost the same.

ELECTRICAL TREATMENT.

Primary Current.

Place the feet in water, in the same manner as for the electro foot-bath, the negative electrode attached to the water. Take the positive electrode and rub over the kidneys thoroughly, until the flesh is warm and red. Then rub the lower limbs with CONCENTRATED EXTRACT OF HAMMELIS or ARNICA, either with the hand or a sponge. Always rub downward and outward, never upward, rubbing very gently over the swollen and tender parts, but increasing in force as the patient can bear it. Time, ten (10) minutes.

If the disease is in the arms or shoulders, put the hands in a basin of water, and rub from spine to hands, and from the neck down both arms, or the arm affected to the water,

dwelling longest upon the sore and inflamed parts. Time, ten (10) minutes.

Superinduced Current.

Leaving the electrodes as in the primary treatment, rub over and around the kidneys, the whole length of the spine, and the limbs affected. Time fifteen (15) minutes.

MEDICAL TREATMENT.

ACONITE, one pellet twice a day. Rely on this, but give in connection DULCAMARA, if the kidneys seem to be implicated, one pellet daily. BRYONIA, if there is acute pain in the lower limbs, one or two pellets daily, as the symptoms may indicate. NUX VOMICA, if the attack begins with chills and tearing pains in the limbs, one pellet in connection with Aconite. Whatever medicine you use always give Aconite at least once a day.

There are a great many medicines such as Belladonna, Chamomilla, Ignatia, Mercurius, Pulsatilla, Colchicum, Guaiacum, and a host of others, but I have found the first mentioned, with perhaps Pulsatilla, all that was necessary. My main dependence is electricity and Aconite.

Aconite is the true electro-remedy, as it possesses in itself the positive and negative action, and this is the true reason of its being so often and successfully used in what may appear as contrary complaints. Aconite regulates and changes the *internal* latent electricities to a naturally dynamic condition, and hence if curable the disease must yield.

NEURALGIA.**ELECTRICAL TREATMENT.***Primary Current.*

If the disease is upon the upper part of the body, let the patient clasp the negative electrode in both hands. The operator then takes the positive in the left hand, and with the fingers of the right slightly moistened, gently rubs the nerve affected, rubbing outward toward the hands. If about the head or face the current must be very light. If the disease is located in the lower limbs, place the negative under the feet, and with the positive rub over the nerves affected downward toward the feet. Time ten (10) minutes then change to the

Induced or Superinduced Current.

Leave the negative electrode under the feet, and rub downward with the positive. If the upper part of the body is affected, the patient should hold the negative in both hands, and the operator rub outward toward the hands. Continue this for ten (10) minutes, then place the negative at the lower end of the spine, and with the positive rub its entire length until the skin becomes warm and red. Time, from five (5) to ten (10) minutes. No operator should use the primary current on the head higher than the ears.

MEDICAL TREATMENT.

ACONITE, four pellets in a glass of water; a teaspoon-

ful every two hours, alternating with BELLADONNA in same proportions. If the pain is acute, every hour, until relief is obtained. In facial neuralgia, COLOCYNTHIS, one pellet every two hours, in connection with Aconite. Avoid all draughts. A warm or hot dry flannel may be applied immediately after the application of electricity, and it should be worn for two or three days. I know of some instances where electricity has stopped the pain instantly, but they are rare.

INFLAMMATION OF THE SPINE.

This may be divided into three separate complaints: First, the vertebræ, or bony portion; second, the membranes enveloping the vertebræ; third, the marrow.

There is but one mode of treating all three, that is, modify the currents to the patient's touch or sense of feeling.

ELECTRICAL TREATMENT.

Superinduced Current.

Place the patient in a comfortable position. Wrap each electrode in a cloth moistened with dilute ARNICA. Take them by their handles, and place one each side of the spinal column, beginning at the top, and passing them down to the end of the spine, always keeping them opposite to each other. Operate with a light current, increasing its force as the inflammation subsides. Operate

ten (10) minutes. Then place the negative electrode at the end of the spine, and with the positive rub the stomach and chest. Time, five (5) minutes. Operate daily. If the patient is scrofulous, give the electro foot-bath once a week.

MEDICAL TREATMENT.

ACONITE, LYCOPodium, SULPHUR, BELLADONNA, and BRYONIA, giving one pellet of Aconite every day, and one pellet of each of the others on successive days. This for the chronic condition. If the attack is acute, the medicines must be given more frequently — sometimes every half hour.

CURVATURE OF THE SPINE.

If it is an angular curvature we may arrest the disease where we take it, strengthen the spine and build up the whole system. Lateral curvatures are *sometimes* straightened.

ELECTRICAL TREATMENT.

For angular curvature, place the positive electrode at the lower end of the spine, and hold the negative at the joining of the head and spine for five (5) minutes; then place the negative at the lower end of the spine, and with the positive in the left hand, with the right hand rub the spinal column hard, pressing the fingers between the vertebrae.

Then remove the negative to the dorsal region, still holding the positive in the left hand, and rub over the breast and stomach. Time of operation about forty (40) minutes.

Once a week, rub the entire body, placing the positive electrode under the feet, and rubbing with the negative.

LATERAL CURVATURE OF THE SPINE.

ELECTRICAL TREATMENT.

Superinduced Current.

For three or four operations, place the positive electrode under the feet, and with the negative rub the entire body, using a light current ; then change to the

Induced Current.

Let it be as strong as the patient can bear. Take one electrode in each hand, as described in inflammation of the spine, hold the positive behind and on the side of the curve, just so it escapes touching the bones of the spine.

Place the negative on the opposite side, in the hollow and vacant place where the spine *should* be ; move slowly up and down for ten (10) minutes. Then rub the entire length of the spine with the electrodes, always keeping them opposite to each other, for five (5) minutes longer. Give the treatment daily if the patient can stand it. Or if the induced current is omitted, give the superinduced as described above.

If the back becomes very sore, let the patient rest from all treatment for a week. If the presence of scrofulosis is suspected, give the electro foot-bath once in ten (10) days. If the disease is curable, it will improve slowly, taking from six (6) months to a year to complete the cure. Do not expect much improvement in the first month.

Mechanical appliances are sometimes useful in angular curvatures, but if used, should be well considered, and when put on, a close eye should be kept upon the lungs. Braces are sometimes used in lateral curvature, but with the electrical treatment I should dispense with them. Care should be exercised, however, to have all the weight of the clothing depend from the shoulders.

MEDICAL TREATMENT.

ACONITE, one pellet every other day; LYCOPodium, one pellet every other day.

If the patient is scrofulous, one pellet of SULPHUR once a week. If there is a dry, hacking cough, one pellet of BRYONIA or HEPAR SULPHUR in place of LYCOPodium.

The patient should exercise every day; stand with back to the wall as straight as possible, and reach upward with the arm of the drooping side. Raise the arm quickly, as high as it can reach; then drop and raise it again, repeating the movement several times; then throw the arm out on a level with the breast several times; then raise both arms and thrust them out, as in the first instance. Exer-

cise in this way daily, from five to ten minutes at a time.

PARALYSIS.

The effect of electricity in this disease has been greatly overestimated. I doubt, if all the cases treated by this agent could be correctly reported, if we should find five per cent. of cures. Where electro-magnetism has been used judiciously and scientifically, probably eighty per cent. of the cases have derived permanent benefit. Where it has been used without discrimination, at haphazard, chance may have cured one per cent.

In the majority of cases, the treatment has been by this sort of guesswork. In Guy's Hospital, London, England, I believe every case treated received some benefit. Dr. Garratt, of Boston, has had remarkable success in the application of electricity, not only in this class of diseases, but in many others. I have many *walking* evidences of success, but not so many as I might have had, if the discovery of the superinduced current had been made twenty years ago. When the sensor nerves are affected, the use of the induced current for the motor nerves, and the superinduced for the sensor nerves, will double the prospect of relief in many if not in all cases.

The strictest watch should be kept to discover the first evidences of improvement, for as soon as improvement takes place, the strength of the current should be reduced, as by overstimulating the cure may be retarded, or even

defeated. In fact, always after the muscles and nerves have once been excited a light current should be used, one that can just be perceived by the patient.

PARALYSIS OF ONE SIDE OF THE BODY.

Hemiplegia.

ELECTRICAL TREATMENT.

Induced Current.

Place the positive electrode under the foot of the side affected (which is generally the left side); take the positive and begin rubbing the whole length of the spine rapidly and with force, until the skin is quite red; then rub over the region of the kidneys for a few seconds. After this, rub the leg from the ankle up, a few inches at a time, letting the hand or electrode rest a half minute at various points, until the kidneys are reached; then repeat the upward movement several times. Let this portion of the treatment occupy about fifteen (15) minutes.

Change the positive electrode to the hand of the patient on the affected side, and then begin at the wrist and rub up the arm and down the side to the small of the back, making the same movements as in operating upon the leg. Time, about seven (7) minutes.

Superinduced Current.

Place the positive electrode under the foot, and repeat the same treatment of the lower limb. When this is done, place the negative at the lower end of the spine, and with

the positive rub the stomach and breast, and around the neck, for ten (10) minutes.

At about every third operation, the entire body should be rubbed or sponged; the negative placed at the end of the spine.

Care should be taken to prevent the patient from catching cold after the operations.

MEDICAL TREATMENT.

ACONITE, two pellets a day, morning and night. NUXVOMICA, one pellet at noon, daily. Should the patient exhibit symptoms of congestion, give one pellet of BELLADONNA occasionally.

Electricity should not be used when the patient is first attacked. If the disease proceeds from lesion of the brain, electricity must not be used until the lesion is cured. Failing to observe this is one of the reasons that not more cases of paralysis have been cured. When the disease is simply local muscular paralysis, electro-magnetism can be used with great advantage and success *after the third day*. Care and perseverance are required, and when they are bestowed, there is no reason why a restoration to health should not follow the treatment.

PARALYSIS OF THE LOWER EXTREMITIES.

Paraplegia.

This phase of the disease is to be operated upon from the kidneys to the feet, as just described. First, with the induced current, then with the superinduced, operating

upon the spine, chest, and stomach. The operations should be daily, and, if convenient, the induced current should be given in the morning, and the superinduced at evening.

PARALYSIS OF THE TONGUE.

ELECTRICAL TREATMENT.

Superinduced Current.

In applying this current to the tongue and throat, it must be *very* light, so as scarcely to be felt by the hand or on the skin.

Place the silver mouthpiece, attached to the positive electrode, upon the middle of the tongue, near the root. The patient can hold this by the insulated handle. Take the negative in the left hand, and rub the neck up and down the thorax for five (5) minutes. Then rub the neck, behind the ears, and down the spine to between the shoulder-blades. Time of the operation ten (10) minutes.

Then change the wires on the machine so that you reverse the currents, and operate five (5) minutes.

Treatment daily.

MEDICAL TREATMENT.

ACONITE, in acute attacks, six pellets, in a glass of water; a teaspoonful every hour until improvement takes place.

In chronic condition, one pellet of ACONITE, morning and night. CAUSTICUM or NUX VOMICA may be given, one pellet before dinner each day.

If there is much headache, with tendency to congestion, BELLADONNA may be substituted for NUX.

FACIAL PARALYSIS.

ELECTRICAL TREATMENT.

Superinduced Current.

The patient clasps the positive electrode in both hands. The operator takes the negative in one hand, and after rubbing the back of the neck briskly, begins to rub *very lightly* the side of the face affected; passing the hand from the side of the nose and the corner of the mouth back to the ear, continuing ten (10) minutes. Then rub the neck and the upper part of the breast for five (5) minutes. Time of operation, fifteen (15) minutes.

MEDICAL TREATMENT.

The same as for paralysis of the tongue. I find, however, that the only medicine required is ACONITE.

PARALYSIS OF THE SENSE OF TASTE AND OF SMELL.

ELECTRICAL TREATMENT.

Superinduced Current.

Place the positive electrode on the third cervical vertebra. Taking the negative in one hand, operate with the other about the neck and both sides of the nose lightly, finishing the operation by placing the silver mouthpiece on the tongue for about a minute. Time of operation fifteen (15) minutes.

MEDICAL TREATMENT.

ACONITE and CAUSTICUM, one pellet of each once a day.

PARTIAL PARALYSIS OF THE OPTIC NERVE.

ELECTRICAL TREATMENT.

Superinduced Current.

Let the patient clasp the positive electrode in both hands. Then take the negative and rub the upper portion of the spine quite hard, until the skin becomes red; then take the positive from the hands of the patient and place it under his feet. Now touch the closed lids of the eye *very lightly*, and pass the fingers under the eyebrows fifteen (15) or twenty (20) times, also very lightly; then rub all around the eyes, and backward towards the ears, thoroughly. Time of operation ten (10) minutes.

An occasional electro foot-bath, say about once a week, should be given. Use, in this case, the induced current in place of the primary. The above treatment should be given regularly, and if not successful at first, should be persevered in.

PARALYSIS OF THE SPHINCTER OF THE BLADDER.

ELECTRICAL TREATMENT.

Superinduced Current.

Place the positive electrode under and behind the scrotum. Take the positive and rub over the region of the bladder from three (3) to five (5) minutes; then rub over

the region of the kidneys until the skin is quite red. After this, place the positive electrode on the spine over the region of the kidneys, and rub the bowels. Time of operation fifteen (15) minutes. If this does not effect a cure, try the treatment for incontinence of urine.

MEDICAL TREATMENT.

ACONITE, one pellet daily ; CANTHARIDES, one pellet twice a week.

PARTIAL PARALYSIS OF THE FINGERS.

Pen Palsy.

This disease is becoming quite common. The treatment is very simple, and relief can generally be given at the first application of electricity ; but it should be followed up for two (2) or three (3) weeks, or even longer, and if possible the patient should refrain from using the pen during the time of treatment.

ELECTRICAL TREATMENT.

Superinduced Current.

Half fill a saucer or any small vessel with water, having a little common salt dissolved in it ; let the patient place his fingers in it. Attach the positive electrode to the water ; then take the negative and rub from the fingers up to the shoulder-blades and spine ; rub well on the under as well as upper side of the arm for five (5) minutes.

Then remove the vessel of water and wrap the positive

electrode in a cloth wet with dilute arnica; then operate, taking the negative electrode in one hand, and with the fingers of the other rubbing all the muscles and nerves, from the wrist to the opposite electrode. Time, five (5) minutes.

Now place the positive, wet with the arnica, on the spine at the nape of the neck, and let the patient hold the negative for a moment. Time of treatment, from ten (10) to twelve (12) minutes.

Repeat the treatment daily until the cure is effected.

MEDICAL TREATMENT.

ACONITE and PULSATILLA, one pellet each, on alternate days.

Having the hand and arm rubbed with a coarse towel two or three times a day will assist in the cure.

I earnestly advise any physician desiring to use electricity, to purchase Dr. Garrett's book on *Electro-Physiology*.

INDOLENT ULCERS.

Application of Local Permanent Battery, Primary Current.

The method of treating ulcers here described "has been occasionally put in practice in many nations," and as far as can be ascertained there is but one testimony, and that is, "that no other means known is so capable of modifying the low morbid vitality, and producing so uniformly a rapid growth of granulations in old and ill-conditioned ulcers, as by the continuous current of galvanism."

The Local Battery.

Two disks of metal, one of silver, a little larger but thinner than a Spanish dollar (the silver should be 950 fine), the other of zinc, and a trifle larger than the silver disk, are applied directly to the skin. The silver disk is placed a little below and just on the edge of the ulcer, while the zinc is placed a few inches above it, on the sound skin.

The disks must be moistened and covered with rubber-cloth or oiled silk, and the whole tied on quite closely, so as to induce perspiration and keep moist. They must be connected by a copper or silver insulated wire, and so arranged as to form a complete and continuous current of galvanic electricity.

These instruments will be furnished to order by Dr. Rae, or by Boericke & Tafel.

By the use of the local battery just described, indolent ulcers can be readily aroused to take on a sound, healing condition, even where all other treatment has failed.

The local battery should be taken off and cleansed at least twice a week, and occasionally be left off for a day, at which time electro-magnetism should be used.

Superinduced Current.

Take each electrode by the insulated handle and pass the currents up, down, and around the limb on which the ulcer is. Pass the currents thus for ten (10) minutes, then place

the negative under the feet, and sponge the entire body from neck downward with the positive electrode, wrapped in a moist napkin or sponge. Time, fifteen (15) minutes. An occasional electro foot-bath may be used.

RACHITIS OR RICKETS.

This is a swelling and softening of the bones, terminating in deformity and malformations; also liable to produce phthisis, asthma, and, in females, may be the inducing cause of many female complaints, such as irregular menstruations, etc., etc.

When this disease first exhibits itself, it is easily controlled and cured; there is no excuse for a failure by an intelligent physician.

In this disease I depend almost entirely upon the vitalizing effect of electro-magnetism, and the chemical action of the primary current of electricity and its power of eradicating the scrofulous conditions of the blood.

ELECTRO TREATMENT.

Induced Current.

Place the negative electrode, enveloped in a wet sponge or cloth, on the extreme upper part of the spine, just where it connects with the head; the operator takes the positive in the left hand, and manipulates or rubs the *entire* body with the *right* hand, dwelling a little longer

over the region of the stomach, heart, and lungs. Operate from ten to twenty minutes, using a *very* light current at first, and as the patient gains in strength, and the disease exhibits symptoms of improvement, gradually increase strength of current. If the skin is dry, moisten it with a weak solution of salt and water, say half a teaspoonful of salt to a gill of warm water. Give this treatment daily.

Primary or Chemical Current.

Once a week, and no oftener, use this current as follows : Take a small foot-tub, tin, or a tin basin, cover the bottom with about one inch of warm water, at about eighty degrees ; place a thin board in the bottom to allow the feet to rest on, so that the water just touches the soles of the feet ; put the negative electrode in the water ; allow the patient to clasp the positive in both hands ; run the current very light, not to exceed five minutes ; take feet out of water and wipe, first with a *cold* wet towel, then with dry towel, using considerable friction ; let patient quietly rest for a few minutes, then use the

Superinduced Current.

Place the negative at the lower termination of spine (coccyx) and manipulate with positive over the region of stomach, bowels, heart, and lungs, same as in daily treatment ; when this treatment is given, of course the general daily treatment with induced current is to be omitted.

MEDICAL TREATMENT.

Give ACONITE and SULPHUR alternately every third morning one pellet. The Aconite in connection with electro-magnetism controls the fever and inflammation. Sulphur acts with the electricity upon the blood.

It may be necessary to follow up the above treatment for one entire year.

ASPHYXIA OR APPARENT DEATH.

In all cases of suspended respiration and circulation, the principal object is to restore action of the lungs. Lay the patient upon a mattress with the head slightly raised, remove from the mouth, throat, and nostrils any impurities that may impede a free passage of air to and from the lungs; use a strong INDUCED CURRENT; first rub the chest and spine hard and rapidly with warm or hot dry flannels; when this is done place the positive electrode wrapped in a cloth moistened with a weak solution of aqua ammonia on one side of the thorax, in the region corresponding to the insertion of the diaphragm, between the eighth and ninth ribs; the negative to be used on the opposite side of the thorax in same region. The moment the negative electrode is applied the current is closed, the diaphragm *should* contract, and the lungs fill with air. This air is expelled again by removing the negative electrode, thus breaking the current and pressing gently upon the abdomen. This inspiration and expiration

can be repeated several times, sufficient to oxygenate the blood contained in the pulmonary capillaries ; immediately following this, place the negative electrode to the upper portion of the spine, say about the centre of the cervical vertebræ (phrenic nerve). Take the positive in left hand, and with right hand, damp with weak solution of aqua ammonia, rub over the heart, lungs, liver, pressing lightly upon the stomach, also down the lower limbs to the feet. While this latter treatment is in progress insufflation should be proceeded with very gently, and should be superintended by an experienced physician, who, of course, will observe that the stomach is to be protected from the artificial air.

When asphyxia or apparent death is produced from an overdose of opium, chloroform, or carbonic acid gas, the same treatment as above, only dwelling longer upon the stomach and spine. Perseverance is requisite, and by establishing and maintaining artificial respiration life is often saved.

It will probably be found advantageous to put one or two drops of sat. tinc. of ACONITE in one-half gill of brandy, and moisten the lips or tongue every few minutes.

AMAUROSIS.

Scrofulous Acute Inflammation, Weak and Watery Eyes.

There are many phases of disease in these organs, and I would advise any patient to at once apply to an oculist ; but if none is accessible, to go at once to the physician in

whom they have the most confidence, and while the physician is attending, the following electro treatment can be pursued *only* with his knowledge and consent, and under his supervision. The application of electricity is the same for one and all, except in scrofulous ophthalmia, and for that we add the foot-bath treatment once a week, as will be described.

ELECTRO TREATMENT.

Induced Current.

Place the negative electrode at the base of the head where it connects with the spine; take the positive in the left hand, and with tip of forefinger of the right hand touch lightly, and rub softly over the eyelid of the closed eyes, over the eyebrows, passing the finger over the eyebrows very swift, so as not to dwell a second on one spot; then with thumb and forefinger press lightly upon the sides of the nose, rub each side of the eye back towards the upper part of the ear; follow this for six to eight minutes; moisten fingers with a weak solution of sulphate of magnesia or Epsom salts, say half teaspoonful in a pint of water; this should be kept in a bottle, and after using, cork and put away. It is well to bathe the eyes with this solution three, four, five, or six times a day. After the patient has rested a few minutes continue with the

Superinduced Current.

Let the patient take the negative electrode in both

hands, the operator taking the positive, and, after moistening the hair with a little rose-water or warm water with a few drops of alcohol, make a few passes from the top of the head downwards, for about three or five minutes, rubbing harder just behind the ears.

The same treatment as above for scrofulous ophthalmia, adding the foot-bath treatment once a week; but after drying the feet reverse the electrodes, that is, put the positive under the feet of the patient, the operator holding the negative in left hand, touch the eyes and all around them for about three minutes with the finger of the right hand. The current *must* be very light, scarcely perceptible.

If the above-described treatment does not show evidence that it is sufficient for *Scrofulous Ophthalmia*, the physician should apply the Local battery by placing one disk each side of the spine, connected by insulated wire, say positive silver disk just under the left ear, negative zinc disk in corresponding position on right side. The full treatment by this Local or Humboldt battery will be described in the chapter on Sinuous and Indolent Ulcers.

MEDICAL TREATMENT.

In scrofulous sore eyes, ACONITE, ARSENIC, and SULPHUR, one pellet a day alternately; first day Aconite, second day Arsenicum, third day Sulphur, occasionally stopping all medicine for one week. When the eye is very dry, give one pellet BELLADONNA once a week. It takes a long time

to effect a cure, and even weeks may elapse before any improvement is visible.

SCROFULOSIS, CONSUMPTION OF THE BOWELS.

*Tuberculosis.**

The dyscrasia of tuberculosis is not identical but analogous to scrofula, and the general treatment except *local*, being identically the same, I have concluded to place them under the general head. It is my earnest wish and desire that this article should be read and reread until the philosophy of the electro treatment, as applied in my practice, is thoroughly understood. I particularly urge this, as my success in the treatment of general scrofula and tubercles, is contradictory to the assertions of authors such as Garratt and Althaus; and while I hesitate to differ from them, still the FACTS as evidenced by my success in my own treatment sustains me, and if I am correct, the fact that electricity (chemical or primary current) properly and judiciously applied, does change the condition of the blood, is fully established; and this is highly important to the medical profession. I believe the case of the Hon. T. T. Davis, published under the head of Cancer, fully establishes this, as minute examinations by physicians who had twice previous to my electrical treatment operated upon him with the knife, could not detect, after the third tumor was cured by me, any cancerous molecules in the blood.

* Condition.

ELECTRICAL TREATMENT.

Primary or Chemical Current.

Take a small ordinary tin foot-bath, place in the bottom a small piece of board half an inch thick, sufficiently large to place both feet on; put enough warm water in the tub to allow the board to float, add a small teaspoonful of dilute sulphuric acid to the water in the tub. The patient places both feet on the board, the soles only coming in contact with the water. Have the patient seated in as comfortable a position as possible, as he must not be wearied or tired. Attach the negative electrode to the *tin*. The patient clasps the positive electrode, covered with a napkin wet with a solution of bicarbonate of soda, half an ounce to a half pint of water. Time, fifteen minutes.

Thus you have the positive electricity from the direct or chemical current coursing through the entire body *downward*, and impurities escape from the body by the feet. After the foot-bath, as explained, it is advisable to use the

Superinduced or weak induced current. Put *positive* under the feet, take a sponge or damp towel, attach negative pole, and rub the body all over from neck to feet. Thus if any impurities are exuded by and with insensible perspiration, they will be removed.

This treatment of the bath should not be given more than once or twice a week, as it will be found to weaken the patient, but the induced or superinduced current can be used with advantage daily.

MEDICAL TREATMENT.

Use ACONITE, ARSENICUM, and SULPHUR.

Aconite, one pellet twice a day, in high fever, restlessness, or want of sleep.

Sulphur, one pellet, morning, noon, and night, if the bowels are first loose and then costive, the abdomen hard, the discharges having a sour, sickening smell.

Arsenicum, one pellet, morning, noon, and night, if a constant, exhausting diarrhoea, of a thin watery consistence and very offensive smell is present, with night-sweats and haggard look.

The physician in attendance will occasionally see indications for other remedies and give them.

TUBERCLES.

As it is not my intention to write a work on the cause of disease, I shall not attempt in any instance a description or diagnosis of any complaint. I simply describe the electrical treatment by the well-known and understood names of disease.

The foot-bath treatment, as just described, is the first treatment, electrically, in all tuberculous complaints, and must be given once or twice a week. The change of application of the induced and superinduced I will now explain under each respective head.

PULMONARY TUBERCLES.

Induced Current.

Place negative electrode at about the middle of the dorsal vertebræ; take positive electrode in left hand, and manipulate with right hand, just a light pleasant current, over chest, lungs, liver, and stomach, always rubbing down or from the sternum towards the back; the skin may, or should be, first moistened with salt and water. If the patient is weak and nervous, the superinduced current should be used in place of the induced. If patient is troubled with cough and hectic fever, give one pellet of ACONITE and BRYONIA alternately every day.

TUBERCLES OF THE LIVER.

These tubercles generally occur among children, and I believe never exist as a primary disease, and occurring only as a symptom of tuberculosis, I refer the reader to scrofulosis and consumption of bowels, just described.

MENSTRUAL TUBERCLES.

The treatment for these is precisely the same as that described for suppressed menstruation, only giving foot-bath as in tuberculosis.

TUBERCLES IN BRAIN.

I have never succeeded to my own satisfaction in apply-

ing electricity, though I have been informed by several electricians that they have occasionally effected cures. Of this fact I always expressed my doubts, contending that we *dare* not reach the brain with a chemical current of sufficient strength to be effective, and if a cure is made it must be by the general vital reaction after continued treatment for scrofulosis combined with the application for the eyes.

TUBERCLES IN SPINAL MARROW.

(See Treatment of Paralysis.)

MEDICAL TREATMENT.

One pellet ACONITE once a day, one pellet CARBO VEG. once on next day. If cough is present, one pellet of BRYONIA twice a day, but take only one medicine each day.

PILES.

Piles or hæmorrhoids may be classified under two heads. The first, where there is a discharge of blood, may be denominated bleeding piles. Second, where no blood is discharged, we call blind piles. The electro treatment is alike for both.

ELECTRICAL TREATMENT.

Primary Current.

Place the patient in as comfortable a position as possible; I generally place a large pillow upon the lounge, sofa, or bed. The patient lies face down with the abdomen resting

on the pillow. Put the negative electrode in a damp towel over the region of the liver, moving during operation three or four times to stomach and bowels for a few seconds at a time. Put a small piece of sponge on wire attached to positive electrode, manipulating with sponge so arranged around the anus and for a quarter to half an inch in rectum; operation not to exceed four minutes with the primary current, then change to the

Induced Current.

Take negative electrode in towel, and place so as to cover a portion of dorsal and lumbar vertebræ. Manipulate with positive electrode around the anus, over and on the vesicles or tumors, five minutes, then take positive electrode in one hand and manipulate over the chest and lungs for two to three minutes. If the skin is dry moisten with a solution of salt and water. Where the pains are sharp, stinging, as if red-hot irons were inserted in the anus, it is better to make a weak solution of alum water, one-fourth ounce of alum to a pint of water, and use freely in bathing the anus while operating; almost *immediate* relief will be afforded. But be it remembered, that though a cure may be easily effected the disease is liable to return. In curing piles, I believe, we only remove the effect, not the cause, and, like a cold or cough, one may be attacked with it at any time.

MEDICAL TREATMENT.

In bloody piles, where there is a discharge of blood, give one pellet ACONITE twice a day, morning and night. In blind piles, chronic, give one pellet SULPHUR one day, one pellet NUX the next day, and keep up this treatment until a cure is effected. I have cured an acute attack of piles in three days, so as to stop all treatment of electro-magnetism ; but I generally keep up medicinal treatment for two or three weeks. Chronic piles take much longer—one, two, three, and sometimes six months.

In chronic piles the use of electricity once or twice a week is sufficient. Pregnant females must *not* use electricity in an attack of piles, but can use with great advantage alum wash.

CANCER.

Treatment of this disease I can best illustrate by giving a striking instance from my practice,—Case of Hon. T. T. Davis :

This case is peculiar, and at the time of cure, 1869, created considerable excitement. What gave prominence to it was that H. Marion Sims, the eminent surgeon, twice operated surgically, each time removing the tumor with the knife. The first operation, removing tumor from left breast, was performed in Paris in 1868, after English and French surgeons had pronounced it too dangerous for them to attempt; the second operation, removing tumor

from under left arm, was accomplished in February, 1869, at the St. Cloud Hotel, New York City, by Dr. H. M. Sims, assisted by Dr. Nott; thus the character of the tumors is well authenticated. Upon the appearance of the third tumor on the right breast, Mr. Davis being by this time too reduced physically to admit of a third surgical operation, was advised to try electricity. Dr. Neftel, a Russian physician and electrician, was applied to, and as Mr. Davis afterwards informed me, performed several operations without much, if any, effect; after this I believe Dr. Neftel applied electrolysis or puncture, but this was very weakening, or supposed to be so, and Mr. Davis came to Syracuse. Upon his arrival he and his friends urged me to undertake the case. I hesitated some time, thinking that I might possibly be interfering with Dr. Neftel, but upon Mr. Davis's assurance that it would not, I consented, and give below the facts of treatment.

May 12th, 1869. Made examination; found tumor about the size of a large hen's egg, shaped like a bean, just below and to the right of the nipple on the right breast; the tumor exhibited several small red spots, where the electrolysis had been applied; the case being so well known, I made no further diagnosis, but proceeded at once to operate.

I used the *primary* current, half strength, passing it through *silver electrodes made specially for this case*. The negative electrode was placed on the breast, about two inches from the tumor; the positive I placed upon various

parts of the tumor, moving the negative to correspond with the moving of the positive; operated about twelve minutes; the patient exhibiting signs of exhaustion, I stopped.

Before applying the electricity, I made the skin moist with tinctura Thuja occidentalis, reduced one-half with water. I gave one pellet of Aconite. *Same evening* gave another operation, this time using the superinduced current, giving what I denominate constitutional treatment, applying the negative at the lower extremity of the spine, manipulating with positive the entire length of the spine, also over the breast and stomach, finishing with a few passes on the head. Gave one pellet Nux, same as Aconite.

May 13th. Repeated operations same as day before; gave no medicine.

May 14th. Repeated operation, giving medicine same as first day.

May 15th. On this day, after operating, made a close examination of tumor; the nurse and myself both satisfied that the tumor was softer, less hardness of skin, and we thought it had decreased some, but the patient was stronger, had better appetite and was in good spirits. Operated twice, as usual.

Kept up treatment as described, giving the two remedies every other day until about 1st of June; patient growing stronger daily.

June 1st. Upon a close examination of tumor, the pa-

tient, nurse, and myself became satisfied that the tumor had diminished in size ONE-FOURTH at least; the patient was affected to tears (but tears of joy); the nurse and two or three friends perfectly astonished. We all now felt that I had control of the disease, and were satisfied that I should effect an ultimate cure. Precisely the same treatment of electricity and medicine kept up until about the 1st of August. Patient became comparatively strong, increased several pounds in flesh. At this time patient went to New York upon business, and while there was examined by his former physicians, and Mr. Davis reported to me that they pronounced the cancer radically cured.

Above, you have a true history of this case. I make no comments, offer no theory, but give a plain statement of facts, and leave the readers to form their own conclusions.

DR. J. H. RAE'S ELECTRO-MAGNETIC MACHINES.**THREE CURRENTS.***Directions for Connecting the Battery, and for Producing the Various Currents.*

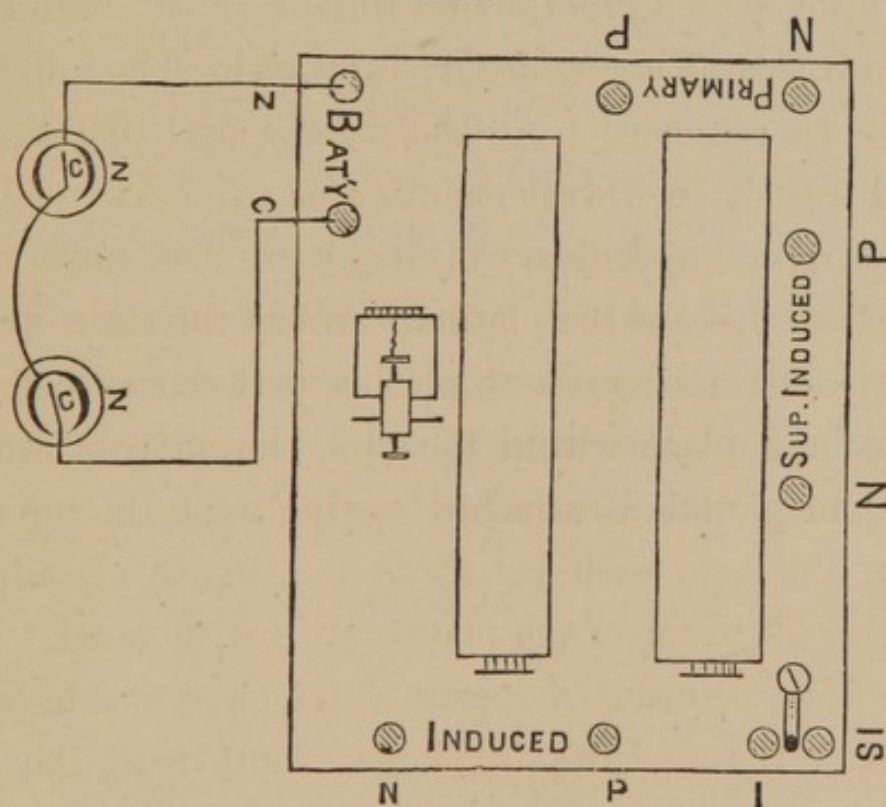
The battery accompanying the machine is (when not otherwise ordered) of the Smee design, of which two complete cells are sent, each cell consisting of a glass jar, two plates of zinc, and a thin sheet of platina. The plates of zinc, with the platina placed between, are securely clamped together, electrical connection with the metals being made by the thumb-screws upon the top of the clamp, the outer with zinc plates, which forms the negative pole of the battery, and the centre screw with the platina, or positive pole. Before using for the first time the zinc plates should be thoroughly amalgamated, to prevent local action. This is done by removing from the clamps, and placing them for an instant in a weak solution of sulphuric acid, then coating with quicksilver, taking care that none of the quicksilver touches the platina. When the zincs are thus amalgamated, reclamp with platina between as before described, and place within the jars, the strip of wood to which the platina is attached resting upon the top of the glass. Put into each jar about one ounce of sulphuric acid, and fill to top of the platina strip with water. When this is done, connect by means of the short insulated wire the outer thumb-screw upon one clamp with the centre thumb-screw of the other, thereby making connection with

zinc of first jar and platina of second (see cut). Now, from the platina (centre thumb-screw) of first jar lead another of the insulated wires to the thumb-screw upon the machine marked C, another wire from the zinc (outer screw) of second jar to thumb-screw on machine marked Z (see diagram), and electrical connection between the battery and machine is complete, and the rheotome or interrupter armature should vibrate. If it does not, regulate slightly the *front* thumb-screw either forward or back, as may be necessary, but under no circumstances should the back screw be moved.

The Primary Current.

To use this current, place the switch at the right corner

FIG. 5.



of the machine *between* the two buttons, as shown in the

diagram; attach the flexible cords with electrodes fastened thereto to the two thumb-screws at back of machine marked primary, at N and P respectively, as will be understood. The cord attached to thumb-screw N is the negative, and that from P the positive, electrode.

The Induced Current.

Turn the switch to the *left* upon the button I; place the electrodes in the thumb-screws at front of machine marked *Induced*, the left wire being the negative and the right positive, as represented by the letters N and P in the diagram.

Superinduced Current.

Place the switch upon the button SI at the right; connect electrodes with thumb-screws on right side of machine marked Superinduced. The left-hand wire being negative and right positive, as before.

In using the machine, pull out the rod of wires within the first or left-hand coil before the electrodes are applied, pushing in to increase strength of current as desired. This rod regulates all the currents, and it is unnecessary to remove the rod within the second coil.

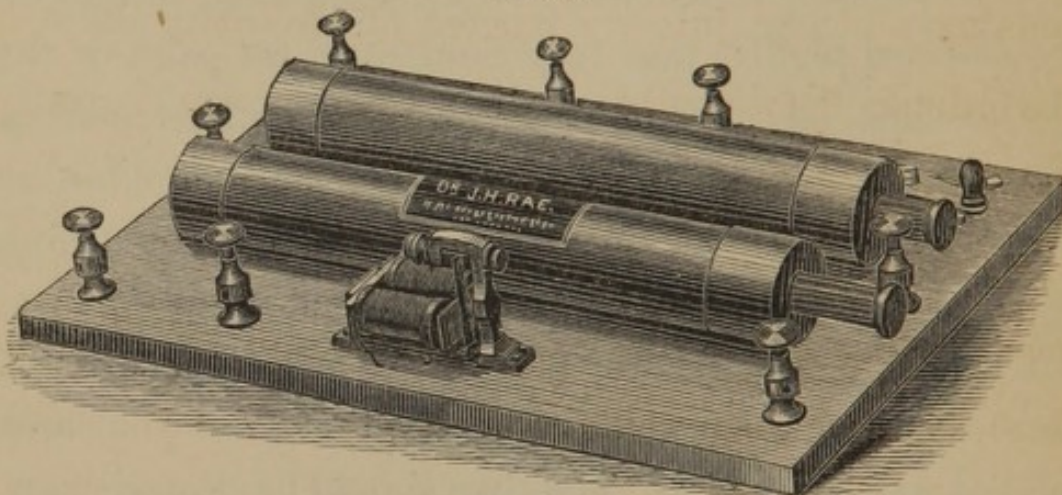
IMPORTANT.

Great care should be exercised in keeping all the connections, wires, standards, and thumb-screws free from dust and corrosion ; fasten the wires close and tight. The rheotome or vibrator occasionally requires cleaning, to remove the oxidized platina that may form upon the point of the platina wire. A piece of paper or card should be used in cleaning the hammer of the magnet. This machine, as well as any magnetic machine, requires close watching upon these points. The vibrator may occasionally stop, but generally a slight tap or jar will start it again. If the strength of the current decreases, throw out your acid solution and make new. The zincs should be cleaned every day or two, and should be kept well coated with quicksilver. Any magnetic machine requires the attention as described. Where a stronger current is required, it can be obtained by adding one or two more cells, but if too much battery power is applied the current jumps the insulation.

DR. RAE'S THREE-CURRENT ELECTRO-MAGNETIC BATTERY.

BOERICKE & TAFEL, SOLE AGENTS.

FIG. 6.



No. 1. Physician's size,	Price \$50.
No. 2. Family size,	" \$35.
No. 3. (Two-current Battery, one Helix),	" \$25.

These prices include one copy of Dr. J. H. Rae's *Hand-book on the Application of Electricity as a Therapeutic Agent*, giving full directions for use.

These batteries are brought out in elegant style, and in an unusually durable manner. If the plain directions "how to preserve them" are carried out, they will stay in serviceable condition for years.

All or any part of the machine can be duplicated by sending orders to Boericke & Tafel, 145 Grand Street, or to Dr. Rae's office, 51 Bible House, New York.

ELECTRO-MEDICATED MEDICINES.

Dr. Rae found, by numerous experiments, that by running a strong primary current of electricity through the ordinary homœopathic medicines their action is greatly intensified and their effectiveness increased.

He invariably made use of these remedies in the treatment as recorded in this book. We furnish two sizes of these medicine cases, containing twenty-four of the medicines called for in the book, at the following rates:

1 Case containing 24 two-drachm vials,	. \$4.
1 " " 24 half-ounce "	. \$7.

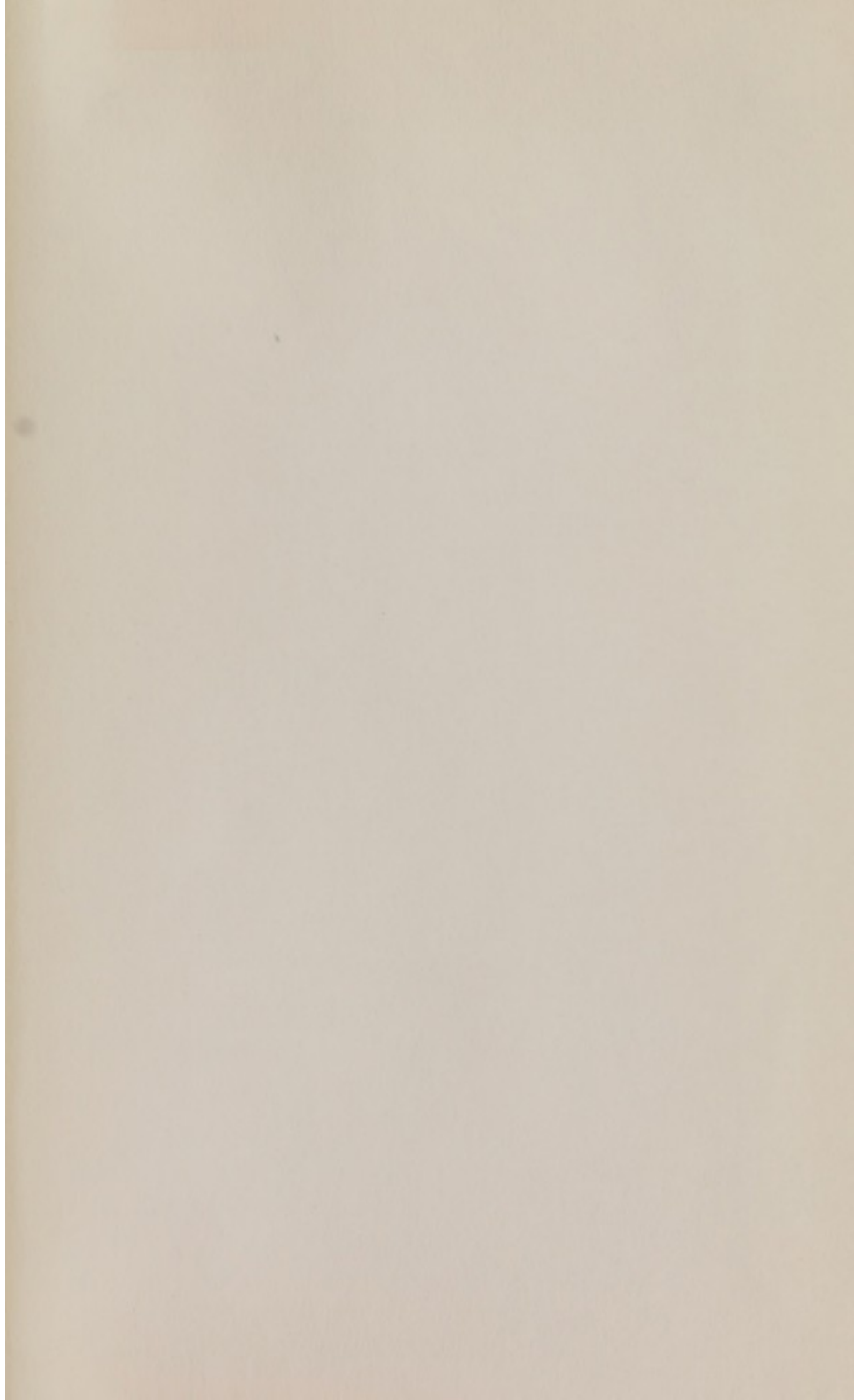
Address Boericke & Tafel's Pharmacies, at New York, Philadelphia, Baltimore, and San Francisco, or Dr. Rae direct, at 51 Bible House, New York.

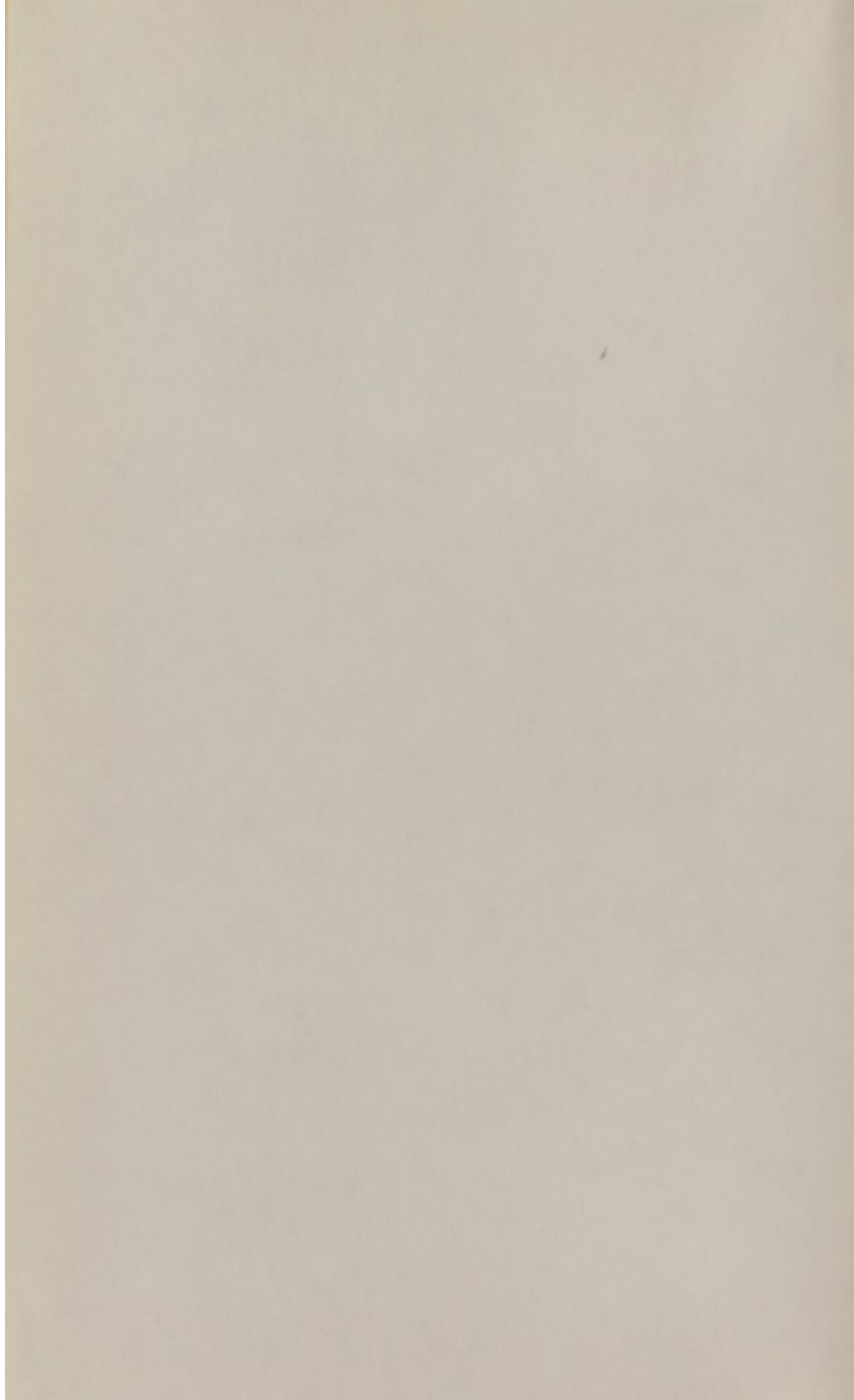
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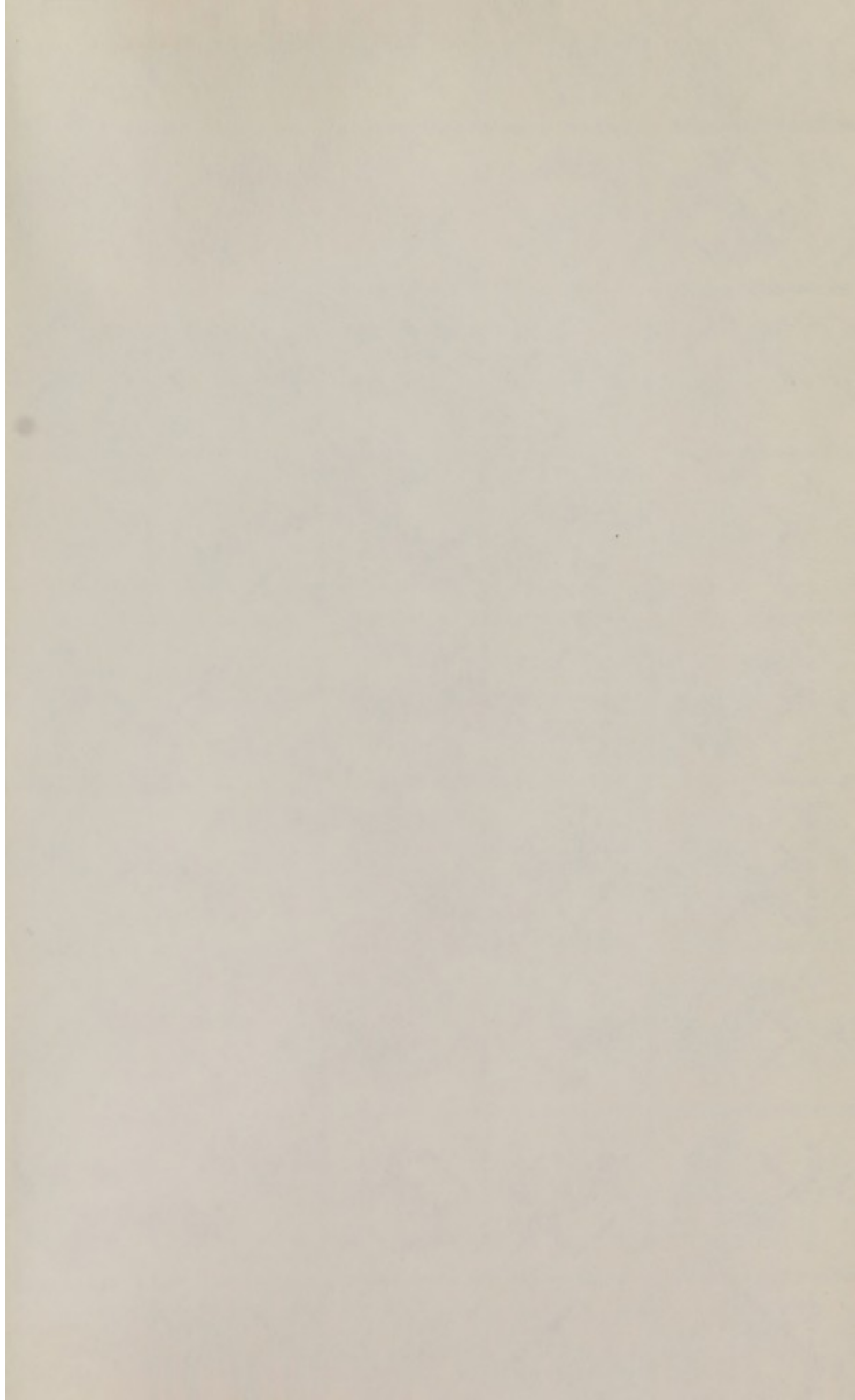
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