

Program for Our
**Monthly Physiotherapeutic
Meeting**

Monday, March 9th, 1925

EMILE DU VAL, M. D., Chicago, Illinois.

"Industrial Physiotherapy"

Illustrated with motion pictures - - 10:00 to 11:00 A. M.

GUSTAV KOLISCHER, M. D., Chicago, Illinois.

"Malignant Tumors and Electrocoagulation"

Illustrated with motion pictures - - 11:00 to 12:00 A. M.

L. K. EASTMAN, M. D., Chicago, Illinois.

"Physiotherapy in Fracture Work"

Illustrated with lantern slides - - 1:30 to 2:30 P. M.

How to Get Here:

DRIVING—Follow Washington Blvd. west to Oakley Blvd., north on Oakley to Wabansia Ave., and one block west, or

BY ELEVATED—Take the Humboldt Park "L" to Western Avenue Station, walk one block north to Wabansia Avenue and a short block east to Claremont, or

BY SURFACE CAR—Western Avenue to Wabansia Avenue, and one block east to Claremont.

One of the most interesting and instructive programs ever offered at our meetings has been arranged for this date.

Physicians and surgeons are cordially invited to attend throughout the session or during those periods covering subjects in which they are especially interested.

In addition to the lectures, each speaker will be glad to answer any questions in connection with your own physiotherapeutic problems.

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FISCHER'S MAGAZINE



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365

FEBRUARY, 1925

I DO NOT THINK MUCH OF
THE MAN WHO IS NOT
WISER TODAY THAN YES-
TERDAY.

—LINCOLN

Fischer's Magazine

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

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Vol. IV.

FEBRUARY, 1925

No. 2

As We Travel Through Life

Not long ago a friend of mine—a chap of about thirty—who had just returned from a vacation trip to the Pacific Coast, dropped in to tell me his experiences.

He was full of enthusiasm, of course, over the wonders of the Grand Canyon, the "Movie Lots," Catalina—he had covered a great deal of territory in rather a brief period of time. But one phase of his experience struck me as peculiarly interesting. He complained that he had run across very few people of his own age in the course of his travels.

"Nearly all the other travelers I met were elderly," he explained, "and while they were splendid folks, of course, they weren't so much interested in me and my viewpoint and ideas; I was too young! So, I was more or less of an outsider in the various groups that formed from time to time among those tourists."

While I endeavored to show proper sympathy, I was not particularly affected by my young friend's complaint! He was brown as a berry, he had a sparkle in his eye, a snap in every movement that showed the five weeks and the several hundred dollars he had spent on his trip were well invested, indeed.

Rather, my heart went out to the stay-at-homes—among whom I am included! The business and professional men, who are plugging away, year after year, with hardly a let up, and who will do their traveling, no doubt, when they are "elderly," like the people my friend encountered on his trip.

Bromides and proverbs are somewhat out of fashion. Yet nearly always they express true ideas in brief and cogent form. So, I call to your attention, doctor, an old favorite—"As we travel through life, let us live by the way."

Wouldn't we all be happier—wouldn't we get a better return on the investment of work and worry that we make each year if we took time off, occasionally, for a *real* holiday, such as my young friend enjoyed?

Speaking for myself, I am going to do it. Yes, sir! I am going to take a good long trip up into the Canadian Woods, or perhaps to Europe—in just a few years, when I have attended to a considerable number of business details that are engaging all my attention for the time being!

Diathermy In Primary Carcinoma of the Urethra

There have been only 99 authentic cases of primary carcinoma of the female urethra reported in the literature, and in adding one case to this list, O'CONOR (*Jour. Urol.*, 1924, 12, 159) describes a very extensive urethral carcinoma which was locally destroyed with subsequent complete healing of the urethral and vulvar regions by means of diathermy. Complete urinary function was retained and local symptoms were completely relieved by the procedure. He is quite enthusiastic over the result and suggests that diathermy offers a method which is superior to any previously described in effecting the local destruction of carcinoma of the female urethra. This is especially true if we bear in mind the minimization of metastases by the complete sealing off of the surrounding tissues during the slow coagulation. The procedure is devoid of operative shock, a general anesthetic is unnecessary, postoperative discomfort is slight and even in advanced cases urinary control can be maintained. The treatments which have been tried heretofore for this distressing condition make us hope that diathermy will do in similar cases what it apparently has done in this particular case of the author.

Removal of Tonsils by Electrocoagulation

By ALBERT C. CARLTON, M. D.

177 Post Street, San Francisco, California

When advocates for the removal of tonsils by Electrocoagulation reported the possibilities of this method, the thought arose, was it not enthusiastically over-rated and were not some of its undesirable features suppressed. As any new method courts criticism from adherents of methods in vogue, it gave me the desire to investigate and the result of my observations are herewith presented.

The literature on the subject, which attracted my attention, gave one the impression of ease of performance as simple as an ordinary office treatment. It seemed as though the General Practitioner need only to acquire the special apparatus devised for the purpose and proceed to remove any and all tonsils that came his way without further ado.

While Electrocoagulation has some salient features to commend it, experience has taught me that it is not a procedure to be employed in every case by anyone, but might become an adjunct to those accustomed to performing tonsillectomies in certain selected cases, when the proper technic and understanding has been acquired.

The operation itself can be performed in the course of a few minutes under local anesthesia, but the after effects are of consequence and to destroy tonsils completely at one operation, requires skill and experience. Post operative conditions are comparatively the same as those following tonsillectomies,* varying with the individuality, and the attendant discomfort must be cared for, accordingly.

There is also the additional necessity for disposing of the tonsil slough and caring for the inflammation produced by the electric burn which in some instances, if one is not careful, affects the surrounding pillars.

*Most physicians find the post-operative reaction much less severe than after surgical tonsillectomy.

The acquisition of a working knowledge for the control of the current is incumbent upon the operator that he may keep it confined within the tonsil tissue to be destroyed. The current is invisible and unlike the galvano cautery which is red hot, shows only the result, the coagulated area affected by it.

Electrocoagulation may be defined briefly, as the application of the D'Arsonval high frequency current, measured by milliamperemeter, controlled by suitable apparatus, producing sufficient heat by resistance in its passage to coagulate and destroy living tissue.

Under the influence of a local anesthetic, coagulation is painless, hemostatic, sterilizing, without shock or physical taxation and commends itself to timid patients and to those who for constitutional reasons should avoid general anesthesia, loss of blood or mental stress.

Likewise to those who cannot afford hospitalization, loss of time from work or loss of income, electrocoagulation has its useful purposes.

The destruction of tonsils by the electric current is not new, but recent improvements in apparatus and methods have brought it into prominence and for the past eight months, it has been employed by me in at least fifty instances for the destruction of tonsils, turbinates and pharyngeal hypertrophies.

The apparatus used consisted of a Fischer Diathermy apparatus, with foot control, insulated cords, needle holder and flexible metallic needle as devised by Plank.

The local anesthetic employed in each case was a solution of Butyn one-half per cent with epinephrin, injected into the tissue to be destroyed, no topical application of any kind being used, and the anesthesia was instantaneous and sustained for several hours. Approximately two mils per tonsil was injected, without systemic reaction of any kind being noted.

The amount of tissue to be destroyed at one sitting is important. Small cryptic, imbedded, fragile tonsils or tonsillar remnants of previous operations, so difficult to dissect, are ideal for Electrocoagulation.

Hypertrophied tonsils are not as suitable for destruction at one sitting but can be done in two or more stages at intervals

of three to four weeks, because the smaller the area to be destroyed the less current is required and the less reaction results and the minimum discomfort exists.

Duration of the application depends upon whether the tonsil was soft, fragile or fibrous and bound with adhesions such as remnants left from previous operations. This, practice and the first insertion of the needle, alone will tell.

The character of the current is of utmost importance. The apparatus can be adjusted to deliver the same milliamperage with the different types of current. A coarse vibrating current may produce a greater invisible radiation effecting surrounding pillars, than a soft, smoothly adjusted current. While it would not destroy adjacent muscular structures, inflammation is produced which adds to the discomfort. Muscular tissue would be destroyed if the current exceeded 500 to 600 milliamperes, especially if its use was unduly prolonged. The softest current that will deliver 300 to 400 milliamperes by careful adjustment of the apparatus is most desirable.

The duration of the current can be best gauged by the appearance of the areola of coagulation about the inserted needle. A soft current needs a longer application of the same milliamperage than a coarse current which coagulates quickly, sometimes too quickly for best control. It must be borne in mind that the current passes into the tissue from the needle in all directions including the point and one must exercise care and judgment in the insertion of the needle as to depth and direction.**

The depth of the tonsil must be estimated and at least one-eighth inch radiation allowed for in all directions including the tip, so that no damage be done to pillars or floor.

The Plank needle is flexible and can be bent in the direction best suited to parallel the pillars, not point at or into them. On the average the needle need be inserted about one-fourth inch, and not in excess of one-half inch to destroy the small cryptic tonsil to the capsule, other sizes in proportion.

Thus, with the proper equipment, the patient, with tonsils

**If the needle employed is very thin there is very little radiation beyond the point.

anesthetized, seated in a non-metallic chair or auto condensation seat, with a good light to reflect into the throat; a wood or fibre tongue depressor and the assistant ready to read the milliamperemeter and note the time; consideration having been given to the size, depth and density of the tissue; the apparatus adjusted to deliver the milliamperage and character of current before mentioned; the operation is then quickly performed.

When the effects of the anesthesia have worn off, such pain and discomfort as may exist for the subsequent 24 hours or so, can be cared for as with tonsillectomies.

About the fourth or fifth day, the sequestrum formed from the coagulated tissue, partially liquifies and a fetid odor is noted from the necrosed tissue. This can be modified with antiseptic and deodorizing gargles. For this purpose, a gargle called "Formula B" has been used by me, as an antiseptic, analgesic and deodorant, with complete satisfaction.

Under no circumstance should the slough be forcibly removed or quantities of coarse food be taken during this period, as it will cause bleeding. When the slough separates it can be gently wiped out. The fossae should be cleared by the tenth or twelfth day and healing is complete within a few days thereafter, leaving the contour of the throat and pillars in normal condition, without deformity or adhesions. During the sloughing period the patient may resume his occupation with little discomfort.

Quite different from tonsillectomy, should for any reason, small particles of tonsil tissue remain, it is a very small matter to dispose of them by Electrocoagulation, without trouble to the operator or loss of time or expense to the patient. The removal of small particles of tissue cause little or no reaction and need no subsequent attention.

For patients with systemic disease due to focal infection with suspicion directed to tonsils having no visible evidences of infection where one is hesitant to incur unnecessary expense, Electrocoagulation can be recommended as an easy, economic method of disposing of a possible cause with the least amount of stress upon the already disease burdened system.

I venture to conclude that Electrocoagulation of Tonsils will find its place, when methods of operation and apparatus shall have become standardized, for selected cases as herein mentioned.

(Paper read before the Eye, Ear, Nose, and Throat Section at the Fifty-Third annual session of the California Medical Association, at Los Angeles, May 14, 1924.)

The Skin Resistance in Diathermia

J. Kowarschik, in the Wiener Klinische Wochenschrift, states that the human body interposes a high resistance to the electric current, and the strength of this resistance lies chiefly in the skin. In the consideration of points of practice the resistance of the remaining tissues may be left out of account. But the current belief that the skin resistance to diathermia is the same as that to galvanism or faradism is an error, and it is therefore incorrect to attribute high resistance on the part of the skin to the warmth produced by diathermia, as has been done by every authority.

In 1912, Wildermuth showed by his experiments that the skin resistance to diathermia was surprisingly small, being twice that of muscle but less than that of any other tissue. The author has found the resistance to fourteen volts of constant current to average seven to eight thousand ohms, while Dowse and Iredell in 1920 found that to diathermia to lie between four hundred and fifty and six hundred and fifty ohms, a difference of more than ten times as much for the former.

The latter observers further noted that resistance varies with the flexing and extending of the arm tested, being greater in extension and less in flexion. They also observed, as has the present author, that in diathermia moistening the electrodes adds nothing to the force of the current, in other words does not diminish resistance, although with galvanism it does so conspicuously.

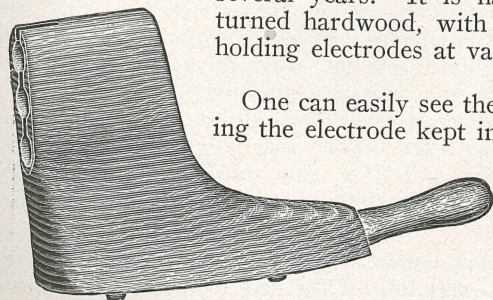
The explanation of these phenomena seems to lie in Gilde-meister's theory of the polarization of tissues, that is of individual cells.

Dr. Morse Designs New Internal Electrode Support

Ever since electricity was first used for rectal and gynecological work, a difficulty has been experienced because of inability to keep the internal electrode in position to procure the best results.

Various supports for the purpose have been devised and on account of their rigidity, usually being fastened to an operating table or floor stand, have been discarded.

Dr. Morse, of Boston, however, has designed for our friends an improved internal electrode support which really meets the indications in a convenient and efficient manner. It is similar to those he has used in his own work for several years. It is handsomely made of turned hardwood, with three apertures for holding electrodes at various heights.



One can easily see the importance of having the electrode kept in close apposition to the area being treated, whether it is a curved sigmoid, a glass one for high frequency or for diathermy.

It is especially useful for bi-polar, vaginal or rectal electrodes, all of which must be held firmly in place throughout the treatment.

The Morse Internal Electrode Support is manufactured and carried in stock by H. G. Fischer & Company.
The price is - - - - - **\$8.75**

Diathermy in Gynecology

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

Types of Infection

In discussing inflammatory diseases of the female organs, it is necessary to consider some of the etiological factors, or the types of infection commonly found. The most common of these are:

- | | |
|-----------------|--------------------|
| 1. Gonorrheal. | 4. Staphylococcic. |
| 2. Chancroidal. | 5. Streptococcic. |
| 3. Syphilitic. | 6. Tuberculous. |

Now in what way will heat react upon these micro-organisms? It is well known by all that these organisms thrive best at the temperature of the blood stream, although they will continue to multiply at temperatures somewhat higher. However, there is a limit to their tolerance. The gonococcus ceases to divide or multiply when subjected to a temperature above 104 degrees F., and is destroyed by a temperature of 140 degrees in 30 minutes. Sampson claims that it is possible to raise the temperature of the tissues to a temperature of 138 degrees F. without damage to them, so you can readily see what advantages we have in treating gonorrheal infections by diathermy alone.

The chancroidal bacillus, or bacillus of Ducrey, is destroyed by only moderate elevations of temperature, and as the lesions are easily accessible, diathermy should be almost a specific for this disease. All common types of streptococci are destroyed by temperatures above 125 degrees F. in from 10 to 20 minutes, while the staphylococcus will withstand 140 degrees for 30 minutes. The tubercle bacillus is also quite resistant to heat and chemicals, but succumbs to 140 degrees in 20 minutes.

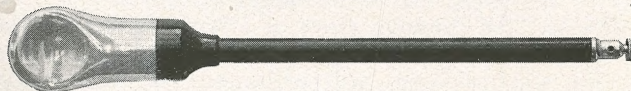
Taking these facts into consideration, one can readily see that the heat acts almost as a specific agent in combating the infective micro-organism as well as in producing the general beneficial effect that I have already mentioned.

Application of Electrode

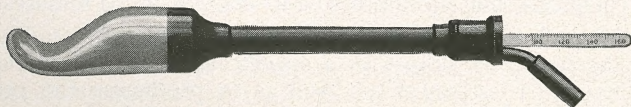
In applying the electrodes, we are guided of course by the location of the disease. In vulvitis and anterior vaginitis, a sponge electrode to the perineum and a larger plate electrode over the lower abdomen are indicated. In inflammatory organs the Chapman special vaginal electrode (see illustration) should be used. This instrument is introduced edgewise into the vagina and rotated into position. When properly applied, it automatically engages the cervix within the cervical bowl and elevates and supports the uterus, while the vulva closes over the insulated vulval groove and helps to hold it in position proper. This is of practical importance, as all other types of vaginal electrodes will work out of the vagina during treatment. Furthermore, the vaginal mucosa will tolerate temperatures greatly in excess of what the skin will stand, so with this electrode it is possible to elevate the amperage considerably above what would be possible if the non-insulated tip came into contact with the external skin. The knees are flexed and widely separated while the electrode is being inserted, but the legs are extended parallel with each other during treatment, and the attachment cord from the vaginal electrode passes down between them to one of the binding posts of the D'Arsonval connection. The larger indifferent electrode



Chapman Vaginal Electrode—Side View



Chapman Vaginal Electrode—Top View



Chapman Vaginal Electrode with Special Thermometer

should be of block tin or silver mesh. It should be about five inches in diameter and is applied over the lower abdomen midway between the anterior superior iliac spines, the lower edge about two inches above the pubis. This electrode is connected to the other D'Arsonval connection of the high frequency machine and the current turned on. I advance the current gradually to 800 milliamperes the first day, treat twenty or thirty minutes and then turn the current off gradually. The treatments are repeated daily at first, and the amperage elevated gradually to the patient's tolerance. Some patients will tolerate as high as 1500 milliamperes, but most of them complain of discomfort and a dragging down sensation in the lower abdomen under too high an amperage.

By the above procedure we treat successfully almost all acute inflammatory diseases of the female organs and a large percentage of the chronic. It is essential, however, that there should be free drainage.

Contra-Indications to Diathermy

Where there is a walled-off abscess within the pelvis, this treatment should never be used. Chief of these is an old pyosalpinx or abscess in the cul-de-sac of Douglas. Either of these conditions, if treated by diathermy, will break down rapidly and rupture inside of the peritoneal cavity. I have had this accident occur in my practice a number of times, but with more careful pelvic examinations I have been able to avoid it lately. The palpation of a small mass to either side of the uterus, or even a rigidity with slight deviation of the uterus to one side or the other, combined with some tenderness on pressure, should make one suspicious of an old pyosalpinx; and if we employ diathermy at all we must proceed very carefully, as one normal treatment will suffice to set it off. Even though there may be no pus present at the beginning of treatment, the increased heat to the affected area rapidly breaks down the devitalized tissue with pus formation. If the direction of least resistance is into the peritoneal cavity, the process will rupture into it with a consequent peritonitis with all of its attendant dangers.

Treatment of New Growths

The treatment of neoplasms brings us to a field of surgical diathermy or endothermy which differs from medical diathermy only in the degree of heat concentrated at one electrode. By using a finely pointed electrode the heat may be so concentrated that it will produce a coagulation, a desiccation or an actual charring of the tissues according to the amperage employed or its method of application. In removing small tumors of any kind from the external genitalia, I employ the following technique:

Touch the tumor near its base with an applicator dipped in pure carbolic acid. A white spot is formed which is anesthetized to the introduction of an injection needle. Using a novocaine solution from one-half to two per cent in strength, according to the field to be anesthetized, thoroughly inject the tissues underneath and about the tumor. If this is carefully done, the patient will feel no discomfort whatsoever from the treatment. I employ the autocondensation pad for the indifferent electrode, or have the patient hold the autocondensation handle in her hands. I believe, however, that I obtain more accurate results when I employ the silver mesh or large block tin electrode over the abdomen as in medical diathermy. This indifferent electrode is connected, of course, to one binding post of the D'Arsonval connection, while the pointed instrument is attached to the other. The machine is set to deliver 300 or 400 milliamperes of current at a very low tension. Insert the point into the tumor near its base, and using the foot switch apply the current until the tissue immediately around it turns white, then switch off the current and insert at another point. Repeat this procedure until the mass is thoroughly cooked. It may be removed immediately or allowed to slough out.

This same method may be employed in removing tumors of the cervix, but unless the growth is attached to the walls of the vagina I usually incise it and cauterize the base with the electric cautery. In working within the vagina a glass speculum is very handy, but I employ the common metal speculum when

using the cautery. In treating the cervix no anesthetic is required, as it is already anesthetized enough and one can burn it with impunity without discomfort to the patient.

The above procedures are applicable to both benign and malignant growths. They may also be employed in the treatment of neoplasms within the abdominal cavity.

Summary

1. Diathermy is not a complicated electrical modality but merely heat caused by the resistance of the tissues of the body to the passage of an electrical current.

2. This so-called diathermy or "internal heat" does not differ from other kinds of heat except by its location within the tissues. Heat applied externally is neutralized by the blood stream so that the deeper tissues are affected only reflexly.

3. Owing to the exceedingly rapid passage of the oscillations of the high frequency current, there is no response to the electrical stimuli in the form of work, and the chemical or metabolic reaction that occurs is due more to the increased temperature than to any catalytic action of the current.

4. In the treatment of inflammations, diathermy has the following gross effects: (a) Bacteria are either killed or attenuated according to their power to resist high temperatures. This is especially true of the gonococcus and the bacillus of Ducey, which are destroyed or their growth is inhibited by moderately low temperatures. The tubercle bacillus and the staphylococcus, however, will withstand temperatures almost in excess of the tissue tolerance, but are attenuated in virulence and rendered quite susceptible to phagocytic activity. (b) Diathermy increases the vascularity of the part with a concentration of opsonins, agglutinins and other bacteriolytic enzymes of the blood; it raises the opsonic index. (c) It accelerates the absorption of waste products and hastens repair. (d) It leaves no bad after effects.

5. Surgical diathermy constitutes the best and safest method employed in gynecology at the present time for the removal of either benign or malignant new growths.

(*Journal of Radiology.*)

Galvanism

By J. U. GIESY, M. D., Salt Lake City, Utah

In these days of intense interest in High Frequency and Actinic Light Therapy, it behooves the student of physiotherapeutics to remember that these are only modalities applicable to the treatment of certain conditions after all, and not forget the oldest established modality of them all.

Galvanism, thirty years ago, was a well recognized and used form of electric energy, with a technic even then fairly well worked out. Many men, of whom I am fortunate enough to be one, have used this form of current over the years since, and found it a reliable and faithful servant when applied in the proper method, to the proper condition, or in other words when properly PRESCRIBED.

Galvanism is after all the only *chemical* electrical modality still possessed by the medical world. Through its unidirectional nature, being a straight flow current with a permanent negative and positive polarization, whereby its ionic effect is definitely established, it still presents the only certain method of gaining ionic effects. And these very effects are the ones most desired in certain conditions which the practitioner meets almost daily in the patients who may come to him for relief. Any doctor not familiar with these truths should investigate. In the parlance of the day he will be "surprised". He will find the scope of galvanic application wide, and the current itself superior to any other modality he may employ. He will find, too, that it will pay him largely to cling to the old gods, even while employing the new which offer him a wider scope of usefulness, rather than any substitute of choice. Because for the galvanic current there is no substitute. It stands alone by itself. And, recognizing this fact, there are today on the market several excellent machines delivering a splendid unidirectional current, which may be obtained and added to the doctor's equipment at a reasonable price.

Frankly this paper is written to recall interest in this current among those who may have in a measure forgotten it in their

employment of the later developed modalities, and to excite interest in those who have never employed it as yet. Galvanism is the granddaddy of the physiotherapeutic family. It will never be anything else. Through it and its modification as the Sine Wave, results can be obtained that are both amazing and gratifying. This statement is made after eighteen years of constant experience. Later in these columns I shall hope to have an opportunity of reciting some of the actual records of cases treated, their type, the technic employed and the end results. They are interesting to anyone engaged in the use of physiotherapeutic methods—they should open the door to that greater interest in this particular method, which I am hoping to excite.

Diathermy of the Rectum

By P. F. JAMES, M. D., Peoria, Ill.

Surgical diathermy differs from medical diathermy only in degree. Diathermy or the passing of an electrical current through tissue increases the metabolism of the parts to which it is applied and raises the temperature locally. The range of diathermy, both medical and surgical, is very wide and its field of usefulness very great.

In this discussion I shall confine my few remarks to surgical diathermy of the rectum. In using diathermy for rectal treatment one has the advantage over surgery in that the patient is not laid up or compelled to be confined in the hospital. Moreover, the patient that refuses surgical operation for hemorrhoids can be relieved and cured by the use of diathermy.

In using diathermy for the relief and removal of hemorrhoids the patient is asked to take an enema the previous night and eat a very light breakfast on the morning of the operation. The field is prepared as for surgical operation. Each hemorrhoid is injected with 1½% novocain until blanched or distended. Then proceed with the diathermy and literally cook the tumor. The current is best controlled by a foot switch—in fact this is essential. The tumor turns white when thoroughly destroyed and can be left to slough off and come away of its own accord.

Thus the hemorrhoid is entirely cured. The slough occurs in from three to ten days and leaves a clean, smooth wound. During the interim from the time the diathermy is used till the tumor comes off, the patient experiences no discomfort or pain and is up about his business.

The anesthetic may, in some cases, be dispensed with, but it is better to use a small amount, and this avoids any pain. The high frequency current soon anesthetises the part and one may proceed to a considerable depth without severe pain and with very little discomfort to patient. Hemorrhage is absent in electrical removal of hemorrhoids. The field being clear one is less apt to overlook a small hemorrhoid. If papillae are encountered they are quickly and easily destroyed by the current. There is little or no traumatism and no open gaping after the destruction of the hemorrhoid by the current.

The one disadvantage of this type of operation is the inability of the operator to see the depth of the actual destruction and thus be able to know when to stop. This knowledge comes through experience. One must treat several cases and note the amount that later sloughs off to be able to judge when enough tissue is destroyed; also to make allowance for the increase in size of tumor due to the infiltration of the novocain. A safe rule to follow is go slow. Select the hemorrhoids causing the patient the most trouble and destroy those first, leaving less offensive ones for a later sitting. Sometimes one is surprised to find them gone when he later prepares to operate. If not, these can be removed when the patient's condition permits.

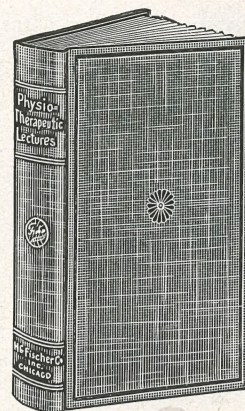
(Journal of the Am. Assn. for Medico-Physical Research, Aug., 1924.)

(See also: Electro-Surgical Removal of Piles, By W. B. Chapman, M.D., on page 28.)

Motion Pictures and Lantern Slides

—will feature the monthly physiotherapy meeting at 2335 Wabansia Avenue, Chicago, Monday, March 9. Full details on back cover page of this magazine.

You're Invited, Doctor!



This big, new volume is packed full of information on the latest in theory and practice of ALL the electrical modalities—

**Diathermy
Quartz Light
X-Ray**

Physiotherapeutic Lectures

A handsome cloth bound book of some 700 pages, containing reports of Lectures and Clinics given at the Third Annual Physiotherapeutic Meeting held at Logan Square Masonic Temple, October 20th to 24th, 1924. Many of the best known physiotherapists in the country are represented in this book, which deserves a place in the library of every physician and surgeon. Limited edition of 1500 will soon be exhausted. If interested, send your reservation on the enclosed card. Price \$9.00.

H. G. Fischer & Company
2335 Wabansia Ave. Chicago, Ill.

Surgical Diathermy

Treatment of New Growths of the Face and Mouth

By ALBERT F. TYLER, M. D., Omaha

The name "surgical diathermy" gives some idea of the method of action of the current, that is, we have a heat through the tissues. I may illustrate this a bit more graphically, perhaps, by calling your attention to the filament in the ordinary incandescent light bulb. In the light bulb, a fine wire filament made of material which is a poor conductor of electricity is compelled to carry the current. As a result of the resistance to the flow of the electric current the wire becomes white hot.

In the use of surgical diathermy the electric current is forced through the tissues. The tissues are poor conductors of electricity and because of this fact they become heated to the point of dehydration with death of the cells.

During the application of surgical diathermy the electrode is cold, the heat originating in the tissues themselves, and later, after prolonged use, slightly warming the metal electrodes by radiation to it. This is in strong contrast to the red-hot soldering irons or the Paquelin cautery so frequently used by the surgeons.

Method of Application

In surgical diathermy a large indifferent electrode, usually a piece of block tin, is placed in good contact with the bare skin on the body some distance away from the field of operation. For example, if one wishes to operate upon the face or mouth the indifferent electrode can be placed on the back between the shoulders. Since the amount of current passes through both electrodes, the small or active one will become the one around which the tissue is destroyed. After the parts to be treated have been thoroughly anesthetized, preferably using 0.5 of one per cent novocaine solution to which has been added 1/1000 adrenalin solution, the active electrode is placed in contact with the tissues and the current turned on. As the tissue blanches about the needle it is pushed slowly forward into the tissue

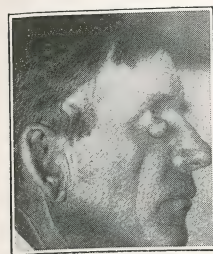


Fig. 1

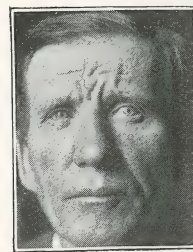


Fig. 2

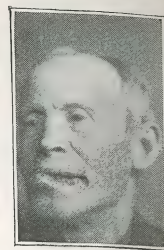


Fig. 3

Fig. 1—Sebaceous cyst arising from the lower eyelid, successfully removed by surgical diathermy.

Fig. 2—Same patient after removal.

Fig. 3—Photograph of a patient suffering from extensive destructive epithelioma of the left half of the lower lip. Successfully treated by surgical diathermy. Photograph taken following removal.

until destruction has occurred to the desired depth. The needle is then removed and an adjacent area is treated in the same manner. This process is repeated until the entire area is covered.

If the mass of tissue is small it may be brushed off with a piece of gauze. If it is large, a pair of curved scissors may be used to advantage to trim it off, being careful to keep away from bleeding. The wound is then dressed with a moist mildly antiseptic dressing which encourages rapid separation of the slough and keeps the parts free from infection. Within a few days after the treatment the tissue which has been dehydrated begins to separate from the normal tissue underneath. The normal tissue appears red, and vigorous granulations soon spring up. This leads to rapid healing, resulting in epidermization with a small pliable scar.

In cases where a large surface has been destroyed, healing may be hastened and considerable time saved after the slough has come off by sterilizing the wound with a few applications of ultra-violet rays from the water-cooled quartz lamp. When the wound is sterile a perforated celluloid window may be placed over it to keep the dressings from touching the granulations. In moderate sized wounds the celluloid shield sold to

protect vaccination wounds has proved valuable. This is easily obtained, readily applied and can be retained without difficulty. Heavy dressings moistened with strong antiseptic solutions retard the advance of granulation tissue in wounds. Given air and a dressing which does not injure them, their growth is remarkably fast. Of course, as soon as the wound becomes level with the skin surface, the growth of the granulations must be retarded so that epidermization can take place. Skin will grow only on a level surface, refusing to extend into a hole or up over a hump.

Daily applications with radiant heat from a therapeutic lamp increase the blood supply and are conducive to the best results. We have found great value in gentle massage administered directly after the application of radiant heat. The massage not only increases the circulation but restores the parts to early mobility and promotes the formation of a soft pliable scar. This is especially important in treatment about the face.

Cases Suitable

Small Lesions: Surgical diathermy is valuable in the early treatment of small lesions on the skin of the face. These can be removed quickly, painlessly, without hemorrhage and no post-operative dressing is necessary. The spot left after the treatment will be no more noticeable than the growth was before treatment and in many cases much less noticeable. The patient can wash the face as though nothing had been done. Healing is complete in a week or ten days.

Operable Lesions: In these the patient has the choice of surgical diathermy or the knife with the same advantages in favor of surgical diathermy as mentioned above.

Inoperable Lesions: These are usually called inoperable, (a) because of location in some difficult or inaccessible place; (b) because they involve an extensive area the removal of which would result in too much mutilation; (c) because they are so vascular that death might occur from hemorrhage during surgical removal.

(a) **Inaccessibility:** The various types of applicators used in surgical diathermy make it possible to reach any portion of the face or mouth or even in the nose where ordinary instru-

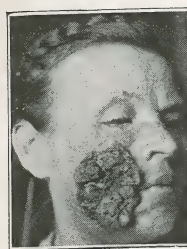


Fig. 4



Fig. 5



Fig. 6

Fig. 4—Side view of extensive cauliflower epithelioma involving the right cheek.
Fig. 5—Front view of the same patient showing the thickness of the growth which extended through the mucous surface of the cheek with a small fistula.
Fig. 6—Same patient after successful removal by surgical diathermy.

mentation is possible. The needle electrode is especially well adapted to the treatment of growth on the eyelid or at the inner canthus, or on the lips or cheeks. A longer hat pin electrode covered with rubber gives access to the nares and nasopharynx. In especially difficult cases the rubber covered wire, such as is employed in urological work, can be used.

(b) **Extensive Involvement:** Here the entire mass can be isolated by going around the margin of the growth well out into the healthy tissue. The action of the electric current seals the lymphatics, thus blocking danger of cells passing beyond the operative field during the manipulation incident to removal.

(c) **Vascularity:** Not only are the lymphatic vessels sealed but the blood vessels as well. In vascular growths nourished by vessels up to 60 mm. in diameter, the mass can be removed without loss of blood. In cases of this character the patient should be hospitalized for a few days until the danger of secondary hemorrhage has passed, although this very rarely occurs when proper technique is employed.

Advantages

These may be briefly summarized as follows:

1. **Accuracy of Control:** The current used for this work can be adjusted to any desired effect so that work may be done with perfect safety on the margin of the eyelid, about the inner canthus of the eye, in the nares or the nasopharynx.

2. No Bleeding: The current seals the vessels as the work is being done so that no loss of blood occurs. This is especially valuable in very vascular growths or in the enfeebled patient where loss of blood would be a serious drain upon his vitality.

3. Painless: The great majority of the work can be done under novocain-adrenalin anesthesia with occasional use of cocaine application to mucous surfaces. When general anesthesia is necessary, remove all ether from the room before starting actual work, as a light spark may cause a serious fire.

4. Absence of Afterpain: Patients remark about the absence of pain following the treatment. Even in amputation of the tongue the patient is quite free from pain other than the soreness on movement or touching.

5. Scar: The scar is small compared to the work done and is pliable. Where large areas have been removed, plastic surgery is a great help in restoring the parts.

New Book on Genito-Urinary Diseases Now Available

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This new book was written for the purpose of familiarizing both specialist and general practitioner with the tremendous value of diathermy in the treatment of genito-urinary diseases in both sexes. The medical and surgical methods of its application to these diseases are given in detail.

This compilation embraces over five years of study of these methods. Both experimental and clinical results are given. The text includes a full description of the original instruments devised and the technique followed.

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Treatment of Enlarged Tonsils by the Indirect Method

By H. B. THOMSON, M. D., C. M., Lansing, Mich.

In the course of my reading I had seen articles on the use of the High Frequency current in treating throat conditions by the indirect method, so upon the first suitable case that prescribed itself I grasped the opportunity to try it. It was a case of enlarged tonsils that were obstructing the lumen of the fauces to such an extent that it was impossible to get a view of the posterior wall of the pharynx. The tonsils were very red and covered with a coating of mucus, but the follicles were not inflamed. The uvula was long and soft, hitting the back of the tongue, while the arches were red and eroded.

I was prepared for action, but not for the surprise I got. While using a wooden tongue depressor on the tongue and applying the electrode to the tonsil the whole field of operation became illuminated from the rays passing through the electrode. Within thirty seconds the first tonsil had receded or shrunk to normal proportions, the second did the same as quickly. The whole fauces could now be plainly seen and examined. After applying the electrode to the remaining surfaces the uvula shortened up and became less flabby while the arches bleached out and became normal in color. The patient remarking about the relief that was felt in the throat.

Upon examining the throat a few days later every part of it was found to be in a normal condition, with no recurrence of the tonsil enlargement.

The whole proceeding took such a short time and the ultimate result was so good that I considered it the best treatment for tonsils I had ever used.

Since then I have used this treatment on many other cases of acute and chronic conditions of the throat and have yet to see it fail to relieve these conditions.

The technique is as follows:

Place your patient on the autocondensation chair, or pad. Attach the pad to the high frequency machine at the center

post on the front of the machine by a well insulated cord. (The central outlet from the Tesla coil.)

Before turning on the current have the patient hold the vacuum electrode which has been placed in contact with the part to be treated. This avoids any sparking when you take hold of it. Use a wooden or insulated tongue depressor to keep the tongue out of the way. Now grasp the electrode with one hand and turn on a fairly strong current with the other. As soon as the current begins passing from the patient to you, the field will become illuminated. Do not keep the electrode on one spot, as considerable heat is generated, but keep it moving slowly over the surface of the tonsil until it has receded to near its normal size. This treatment may be repeated in a day or two, but it is not likely to be required.

(Journal of the Am. Assn. for Medico-Physical Research, Aug. 15, 1924.)

Electrocoagulation in Occlusion of the Rectum

By DR. H. BORDIER, Associate Professor of Medicine at Lyons University, France

L....., 17 years of age, hospitalized February 3rd, 1923, for acute appendicitis, diagnosed by Dr. Foyse, operation was decided upon for the following day and was performed by Dr. Olivier. The patient left the hospital apparently well the 20th of February.

She was readmitted the 3rd of March with symptoms of intestinal obstruction. Rectal examination revealed, above the rectal ampullae, about a finger's length, an intestinal stenosis, due to an obstructing membrane centrally perforated and only admitting one finger. A rectal fistula was made under anaesthesia.

On June 6th she was again hospitalized and operated on. The anal pouch was reopened and relief was immediate.

On June 19th, rectal examination still showed a tight constriction above the ampullae, hardly admitting a finger. It was then decided to dissect this obstruction with the Bordier cautery knife.

Under chloroform anaesthesia, the anus was dilated, in order to separate the rectal walls and expose a clear operative field. A thin tin electrode was placed under the patient. I introduced the sharp edge electrode through the small opening of the stricture and fixed it obliquely on the membrane, in a direction corresponding to the minute hand of clock at twenty to the hour. The current was turned on and regulated till an intensity of 800 M.A. was reached; a small amount of sparking was observed when the tissues came in contact with the diathermy blade in spite of the efforts of the surgeon to prevent this. A minute later the current was turned off and the blade fixed on the membrane in a direction indicated by the minute hand at twenty after the hour, in an oblique direction, from left to right and from above downward.

The above procedure was repeated a second time, with the same duration but the intensity exceeding 800 M.A.

The mal-effect of the intervention of diathermo-coagulation was slight; a very mild thermic reaction was noticed the first day and that was all. A rectal lavage, consisting of boiled and oxygenated water, was prescribed daily.

Seven days after the diathermy treatment, rectal examination showed that the stricture had entirely disappeared. Passage of fecal matter was no longer hindered and the anal pouch was gone.

I have reported this case specially to show that the surgeon can, in many cases, substitute his bistoury for the cautery knife to great advantage in producing a bloodless procedure caused by the vasoconstriction action of the current coming into contact with the tissues and avoiding difficult ligations when the operative field is far from a natural orifice.

(Reprinted from American Journal of Physical Therapy, Dec., 1924)

"Malignant Tumors and Electrocoagulation," lecture by Gustav Kolischer, M.D., Monday, March 9, at 2335 Wabansia Avenue. Other speakers are Du Val and Eastman. Don't fail to attend. (Motion pictures.)

After Activity of the Galvanic Current Therapeutically Administered

S. Erben, in the Medizinische Klinik, says a current passed through a living body leaves there electrical energy hitherto unsuspected so powerful as not only to be perceptible by ordinary galvanometric methods, but even to cause recognizable nerve reactions. After application of a current of thirty to sixty milliamperes Brandenburg has been able to obtain from the skin a current of opposite polarity of a strength, ten minutes after a half-hour treatment, of 0.05 milliamperes, and seventy-five minutes after, of 0.01 milliampere.

The author finds the electrical tension left behind by "Stabile galvanization" much greater than that observed by Brandenburg and not confined to the skin. This secondary current may be readily detected by the reactivity of the vestibular apparatus. When an electrode is placed before or behind the ear, this reaction becomes appreciable on administering a current of five or ten milliamperes. The resultant excitation of the vestibular nerve is evidenced by the inability to maintain a fixed position of the head, trunk or arms. Erben has found this static disturbance to be demotion. The individual is seated with closed eyes and is unaware of the passage of the current so long as its strength does not exceed that mentioned. When the anode is at the ear the uplifted arm on that side falls involuntarily, while the other arm remains raised and instead moves gently toward the midline. Both arms are affected in a special way by the excitation of the sensory vestibular nerve, one moving vertically, the other horizontally. On reversing the current so that the cathode is at the ear, these movements are also reversed, the arm on the same side moving horizontally, the opposite arm falling involuntarily.

If, after obtaining this effect, the current be turned off slowly, the individual is still unable to maintain his arm in abduction, but the special motions are reversed as on reversal of polarity. This must be due to a current contrary to the exciting current. The phenomenon is not immediate; even

five minutes after turning off the current, the reaction may remain unchanged; but a half-hour later it has mysteriously altered. Because of this delayed manifestation the author came to the conclusion that it is a polarity current. The passage of the galvanic current causes a change of concentration in the tract between the electrodes in consequence of the migration of ions. Such polarity currents have been observed by Hering and Hermann in experimenting on extirpated nerves.

The body fluids may be considered an unstable combination of aluminum and changeable metals, varying in ionic composition. The colloid albumin is negatively charged and gravitates on the passage of a current to the anode, while sodium, potassium, calcium, and the rest are positive and gravitate to the cathode. These metallic cations move more rapidly than the colloids and consequently produce a difference of electrical concentration in the affected area. The vicinity of the positive anode becomes electronegative, that of the negative cathode becomes electropositive, and the urge of this difference in polarity to equalization is the cause of the after current.

West Coast Physiotherapy Meetings

Los Angeles, February 23, 24, 25

San Francisco, February 26, 27, 28

A series of highly interesting clinics and lectures for the physician in general practice as well as the specialist, will be held in Los Angeles and San Francisco on the dates specified above.

Physiotherapeutic problems will be covered in detail, and latest technic and information as to methods and modalities will be discussed by experts.

All physicians who are interested are cordially invited to attend these meetings. No charge—no obligation. For further details, write to Robert A. Fischer, 1044 West Sixth Street, Los Angeles, California.

Detailed information on request.

Electro-Surgical Removal of Piles

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

Hemorrhoids or piles may be classified according to their location, appearance, cause, character, or the symptoms that they produce. To the surgeon, the only question of importance is their safe and effective removal.

During the past two years I have performed quite a number of hemorrhoidal operations by surgical diathermy or electro-coagulation, and the success that has been attained convinces me that this is the operation of choice. The technic is simple and is as follows:

Cleanse the field and paint over with Tincture of Iodine. If the hemorrhoid is inside the rectum it may be exposed in a woman by inserting a finger inside the vagina and exerting pressure on the rectum. If a man, the suction cup as suggested by Granger is quite effective. When the pile is exposed, grasp it with the thumb forceps and, using 2% Novocain solution, inject a few drops underneath the tumor. The thumb forceps should be rubber-tipped to prevent pinching. I usually cut short lengths from an old rubber catheter and slip over the ends of an ordinary tissue forceps.

For the operating instrument a sharpened Plank needle is very good. Any kind of a needle will do, but I employ the short pointed electrode that comes with the Diathermy operating set. This becomes the active electrode of the D'Arsonval circuit, while for the large indifferent electrode I employ a large piece of block tin which is warmed and held in place by sandbags. No soap lather is required for contact, and it makes little difference where it is applied. It is also possible to use the auto-condensation pad or handle as the indifferent electrode.

Using a High Frequency machine at low tension, set the controls so that the meter will read about 800 milliamperes when the pointed electrode is brought into contact with the indifferent electrode. By contact, I do not mean actual contact but close enough for the current to stream across. If the machine is

properly adjusted the current should not jump farther than a quarter of an inch.

With the current adjusted, the tumor anesthetized, and the indifferent electrode in place, insert the point of the operating needle into the pile and, using the foot-switch, apply the current until the pile turns a steel-grayish color. This only requires a few seconds. The injection solution inside the pile gets boiling hot and by scalding the walls of the dilated blood-vessel causes a coagulation and consequent disappearance of the tumor by absorption.

Hemorrhoidal tags or "sentinel piles" are large fibrous tissue and should be coagulated until white. They separate after about ten days and the base heals over with little or no scar. After coagulation, the hemorrhoids will protrude and should be bathed twice daily with hot boric or lysol solutions. This limits the swelling, prevents infection, and relieves pain and soreness. If there is much after-pain prescribe a suppository of cocoa butter containing one grain of opium and two grains of belladonna. These suppositories are on the market and can be secured from any druggist on prescription. I instruct the patient to insert one into the rectum on retiring, and they may be used as often as required to ease the pain.

By the above procedures it is possible to treat successfully any case of piles and the patient go about his daily work. It is best to coagulate only one tumor each time, the patient returning for another treatment as soon as the soreness from the last is gone. Three or four treatments usually suffice to clean up even severe cases, as the coagulation of one tumor often impairs the blood supply to several other hemorrhoids, causing them to disappear also; I have in mind a case where one treatment cured a case of hemorrhoids that was so bad that the man was incapacitated from earning a livelihood and was confined to his bed a good portion of his time. Another thing, with this operation there is not the danger of hemorrhage, embolism, or infection that attends the old operative procedures and the end results are more satisfactory.

(See also: Diathermy of the Rectum, By P. F. James, M.D., on Page 15.)

New Schedule of Waggoner Physiotherapeutic Clinics and Lecture Courses

By Mel R. Waggoner, M. D., Cedar Rapids, Iowa

Doctors who are keeping pace with the development of physiotherapy will find these lectures and clinics a most valuable source of new information and up-to-date practices.

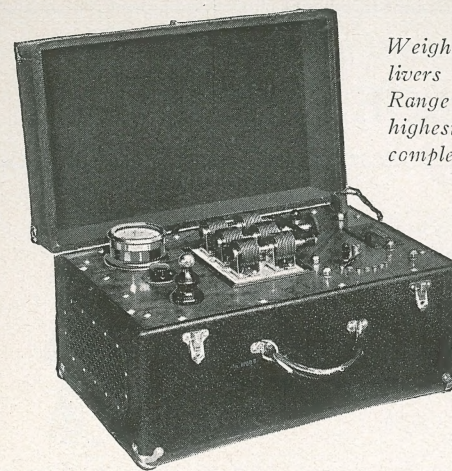
Classes for the Coming Season Follow:

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Atlanta, Georgia	- - - - -	March 9th to 14th
	(Piedmont Hotel)	
Charlotte, North Carolina	- - - - -	March 16th to 21st
	(Charlotte Hotel)	
Memphis, Tennessee	- - - - -	April 6th to 11th
	(Chisca Hotel)	
New Orleans, Louisiana	- - - - -	April 13th to 18th
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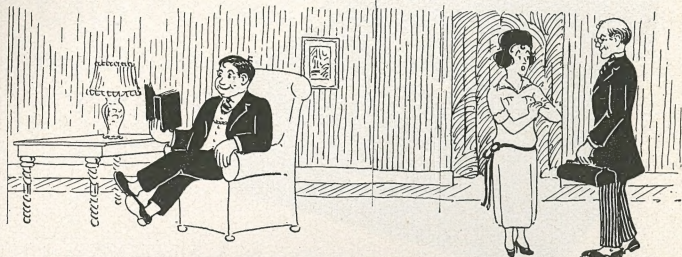
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A PAGE OF FUN



Anxious Wife: "Doctor, I'm worried about my husband. He seems so absent-minded and muddled of late. Why, I can talk to him for a half hour straight and afterwards he can't even tell me what I've been talking about."

Doctor: "Madam, that's not a sickness, it's a downright gift."

□ □ □

Woman (talking over the telephone): "Send up a bale of hay."

Feed Merchant: "Who's it for?"

Woman: "The horse."

□ □ □

Hospital Superintendent: "What's all that clatter and bang at the end of the hall?"

Nurse: "That's the janitor nailing up silence cards."

□ □ □

The auto, traveling at a tremendous speed, was just about to turn a very dangerous corner.

"Do people lose their lives here frequently?" asked the nervous passenger.

"Not more than once!" said the driver, as he took a firmer grip of the wheel.

Friend (to business man interviewing prospective typists): "But why so particular old man, that she should have light reddish hair?"

Business Man: "Because that's the color of my wife's."

□ □ □

Superintendent of Sunday School (whose enthusiasm runs toward regular attendance): "Out of the entire school, only one pupil is absent today—little Kitty Morgan—let us hope that she is ill."

□ □ □

"Why do bagpipers always keep walking up and down while they are playing?"

"Because it makes them harder to hit."

READ NOT TO CONTRADICT AND CONFUTE, NOR TO BELIEVE AND TAKE FOR GRANTED, NOR TO FIND TALK AND DISCOURSE; BUT TO WEIGH AND CONSIDER.

—BACON