



Operating Instructions
**UNIVERSAL
CARBON ARC**
Ultra Violet Lamps



SECOND EDITION

JOHNSON

PAUL E. JOHNSON, Inc.
CHICAGO, U. S. A.

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PAUL E. JOHNSON, INC.

PATENTEE & MANUFACTURER

"UNIVERSAL" PHYSICAL THERAPY EQUIPMENT

MERCURY QUARTZ LAMPS

CARBON ARC LAMPS

RADIANT THERAPY LAMPS

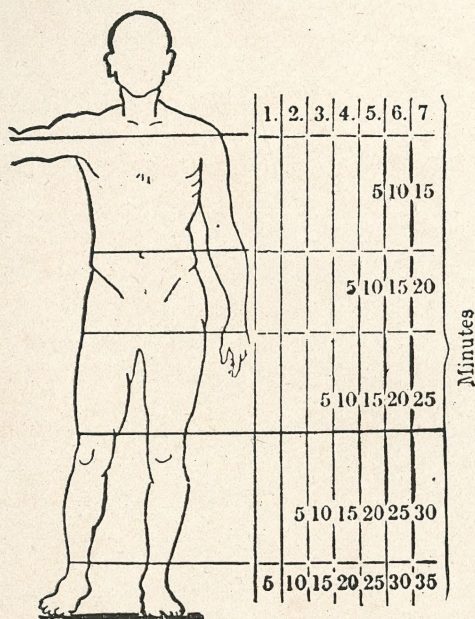
INFRA-RED LAMPS

1824-30 SOUTH ALBERT STREET

CHICAGO, U. S. A.

SECOND EDITION

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PAUL E. JOHNSON, INC.
CHICAGO



Diagrammatic Course of Sun Cure as Suggested by Rollier.

(Extracted from "Heliotherapy"
The Journal of the Kansas Medical Society
November 1928.)

Be sure to read Physical Instructions printed on tag attached to Lamp before attempting operation

(FOR PHYSICAL OPERATION SEE PAGE 10)



With some apology, we issue instructions for the clinical application of "Universal" Carbon Arc Ultra-violet Lamps.

Our reason for embarking into a field in which we obviously do not belong is that Medical Schools have only recently begun to include in their curricula Fundamentals of Light Therapy that will *ultimately* enable a physician to look at the Spectrogram of a given lamp and know when and how to apply its energy.

In the meantime, progressive Physicians find it necessary to use Light Therapy in order to do justice to themselves and their patients; and, not always having time to take a Post Graduate Course or to wade through voluminous Text Books, they turn to the pioneer manufacturers for a *concise yet authentic and practical guide*.

As will be noted, "Universals" give a continuous band spectrum, commencing in the far ultra-violet frequencies, and extending unbroken through the Violet, Blue, Green, Yellow, Orange, Red, Medium and far Infra-red bands, *producing a Sunlight equivalent that can be used any time, any place, and from any current*.

We take this occasion to thank Finsen, Father of Heliotherapy, Reyn, Rollier, Hess, Gauvain, Hill, Kellogg, Ochsner, Humphris, Lo Grasso, Eberhardt, Kenney, Snow, Donnelly, Granger, Steenbock, and the vanguard of scientists and clinicians who have unceasingly and unselfishly devoted their energy to the end that we might better alleviate humanity's ills.

REPETITION

Where pathology is listed in the customary manner there is unavoidable listing of a multiplicity of diseases and repetition in outlining treatment procedure, since an "itis" is an "itis" regardless of location; and we ask you to also bear in mind that practically all light therapy treatments are given with the idea of producing one or more of the following effects:

Stimulation

Sterilization

Elimination

Regeneration

It is not claimed that these *effects are self-sufficient to bring about a normal physiology (clinical cure) in every condition in which they are indicated, but at least they will be a big factor in producing one in any disease; *how big a factor will necessarily depend upon other attending conditions*, but that Light produces the effects mentioned is attested by Bovie, of Northwestern; the Rockefeller Foundation; Kellogg, of Battle Creek, and the leaders of the profession in all parts of the Civilized world.

*Energies or carbons best for producing these effects are shown under "guide", pages 8-9

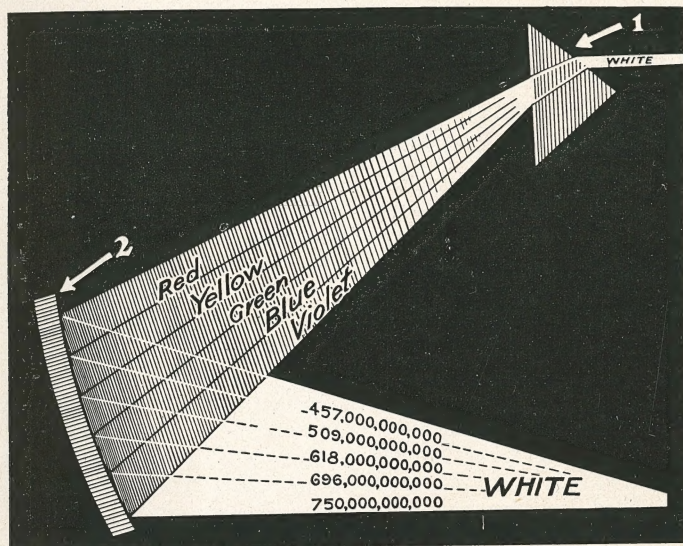


PHYSICS

Extensive incorporation of Light physics is purposely omitted for the reason that this Booklet is intended to serve as a practical guide for the clinical application of Light energies as delivered by "Universal Electric Sunshine" Carbon Arc Lamps and to in no wise replace the scientific treatises from which its contents are largely drawn.

DUPLICATES SOLAR SPECTRUM

At the outset, it is well to bear in mind that the therapeutic effects of "Universal" Carbon Arc Lamps are equivalent to those obtained from Sunlight or its substitutes, mercury arcs in quartz, radiant light and heat, so called, "Deep Therapy," infra-red generators, etc.



Above illustration shows visible white light passing through prism (Fig. 1) dividing into colors shown—striking reflector (Fig. 2) again merging into white light—Figures show relative vibratory waves.

Without the higher frequencies of visible and infra-red rays, the full benefit of the lower or ultra-violet frequencies is never obtainable and vice versa.

GREATER TOLERANCE

Another important point is that when using the complete Solar Spectrum, skin tolerance to ultra-violet rays is much greater, and the irritating sunburn that follows ultra-violet radiation from a source which gives little or no infra-red energy is never accidentally obtained from "Universal" Lamps. Skin



tolerance to ultra-violet rays, being so much greater when accompanied by visible and infra-red rays; it is oftentimes possible to double or triple the ultra-violet dosage before tanning or burning occurs.

VARIANCE

Ever keep in mind that, "Light varies inversely per ratio of the square"; for example, any lamp one foot from patient gives radiation four times as strong as it does two feet from patient.

Patients are perhaps the most variable of all factors entering into Light Therapy—blondes are much more sensitive than brunettes. Patients who have not been treated react differently to those who have been previously treated.

DOSAGE

Exact graduation of dosage can only be determined by individual reactions and experience; *therefore the duration of treatment set forth herein is based on the average.*

The first exposure, depending upon patient and pathology, should vary from thirty seconds to thirty minutes; to illustrate, if General Tonic Treatment is given in a pronounced cardiac insufficiency, thirty seconds to one minute at the start is oftentimes ample. The same is true in other conditions in which the physician realizes the necessity for great care in administering stimulants; on the other hand, an acute inflammation, infected wound, sprain, etc., can be properly treated with a beginning exposure up to thirty minutes.

In the treatment of Scar Tissue, the reduction of Keloids, and the treatment of marked Alopecia, general or areata, or in any case where a pronounced erythema is indicated, a thirty minute radiation is sometimes used from the start.

CAUTION

Be sure to explain to the patient that treatment may lead to a skin reaction similar to sunburn, fully explaining and assuring him that no harmful results or permanent discoloration are possible. It is best to do this at the CLOSE of the first treatment, as many patients who do not get this explanation become nervous and irritable when the erythema persists, and especially when treatment results in blistering and peeling, but in all such cases an improved complexion follows, and when the patient is told to expect such reaction, no dissatisfaction develops.

FREQUENCY

The frequency of treatment listed herein usually allows ample time for the clearing up of marked skin reactions, at least in most cases; *but as a general rule reaction from one treatment should subside before another treatment is given.*



TIME EXPOSURE

Despite the speed as set forth on page.... which makes "UNIVERSAL" CARBON ARC LAMPS PRODUCE AN ERYTHEMA IN LESS TIME THAN MERCURY LAMPS REQUIRE TO BECOME READY FOR USE, we believe that when an erythema is indicated, it is best to obtain it from longer exposures to radiation from Biological Carbons, as Biological Carbons will produce an erythema of any degree desired if given sufficient time. Since every extra minute of radiation gives additional benefits from waves that are constructive in character, THE TIME OF BOTH PATIENT AND PHYSICIAN WILL DOUBTLESS BE WELL SPENT.

Contrary to general belief, an erythema is an index BUT NOT the object of treatment. The real objective is to normalize metabolism, fix or increase iron, phosphorus and calcium, to abate symptoms; or, in short, to normalize or restore function and natural immunity; thus, general tonic treatment is indicated in at least 95% of all diseases amenable to Light Therapy.

The reason that an erythema is produced as a part of most treatments is that rays which produce biological reaction are always accompanied by rays that are irritant and destructive (science knows no way of producing rays of given wave lengths wholly free from rays of other wave lengths, hence researchers employ screens, filters, etc., to isolate given bands and determine their specific action).

The longer or maximum dosage of biological energy will produce the best constitutional effects. Duration of dosage is fixed at the time required to produce an erythema, and to continue the treatment beyond this point would mean to develop a painful dermatosis and to destroy normal or abnormal tissue. Exposures of as great duration as is possible without producing these painful and destructive erythemas is favored by more than 90% of all physicians who have tried all methods.

SAFETY

It is believed by many users and research workers that erythema dosage is an index to progress, others believe an erythema is a defensive reaction that shows the skin has received up to its full tolerance. (How to produce an erythema is shown on page 23.) But many successful practitioners do not think an erythema necessary—others are bitterly opposed to erythemas and the use of ultra-violet rays shorter than those found in natural sunlight.

Dr. William A. Evans, Public Health Writer, Professor of Northwestern University Medical School, says: "No other person has investigated the question of ultra-violet radiation so thoroughly as *Dr. Hess".

CALCIUM FIXATION

Much evidence tends to support the contention that it is difficult to develop too much calcium and that irrespective of pathology, its location or duration, any treatment that normalizes absorption or fixation of iron, phosphorus and calcium is beneficial, it is obvious that longer treatment from



biological or sunlight carbons is a better method for producing calcium fixation than exposures to extremely short rays that possess maximum irritant action.

Vine and Groves in experiments at Cambridge, found that indolent ulcers which had resisted all forms of treatment, responded immediately upon raising the calcium index. Investigations were continued which led to the following conclusions:

"That balanced calcium metabolism is the most important factor in preventing or combating infection, irrespective of location.

"That decomposition of tissue does not take place where calcium is at par.

"That pus spores rarely, if ever, germinate if calcium metabolism is at par."

Coupled with the reports of Vine and Groves comes the more or less significant article by Dr. Ellice McDonald of Philadelphia—Medical Journal and Record, June 15, 1927, suggesting the biochemical theory of cancer and in the same issue of this Journal, Willy Myer, M. D., of New York City, states that calcium imbalance is present in rapidly growing cancers. **It seems that calcium imbalance is not the consequence of cancer but precedes the tumor growth.**

These findings do not detract from the value of cellulicidal and direct germicidal effects of ultra-violet radiation, but emphasize that biological action is doubtless the secret of the great value of ultra-violet radiation. (See Expectant Mothers.)

CELLULICIDAL ACTION

To carry radiation beyond a mild first degree erythema means to first produce regenerative and germicidal action then abiotic or cellulicidal action.

It is admitted that the shorter ultra-violet wave lengths have greater cellulicidal properties than those in the region 2900 AU; and that cellulicidal action is indicated in many cases; but it is obvious that abiotic effects are contra-indicated in the treatment of most diseases.

To produce Cellulicidal action on a previously unexposed skin, expose six to eight minutes to radiation from cellulicidal carbons, twelve to fifteen minutes to biological or sunlight carbons, at a distance of eighteen to twenty-two inches.

*Hess—Premier Research Worker and Clinician says:

That successful radiation may be given without any tanning and that pigment is an unessential factor, in the heliotherapy of rickets, and argues against Rollier's theory that the beneficial action of sunlight is due to and in accordance with the degree of pigmentation which is produced, pointing out that with carbon arc radiation, there is no tendency to superficial burns; Whereas, one has to be very careful in using mercury lamps to avoid burns, and it is difficult to gauge the correct dosage of light. When using the carbon lamp, almost no care need be exercised, in this regard. An infant, at the very outset, can be exposed for one hour at a distance of three feet and will manifest no signs of irritation of the skin on the following day; nor does the same care have to be exercised to avoid giving an overdose.

*Journal of the American Medical Association, Vol. 78.



GUIDE

TREATMENT TIME, DISTANCES, ETC., as listed in this booklet, are written chiefly for Biological ("A") Carbons, which the Bureau of Standards says is "Science's nearest approach to June Sunlight", but when other energies are specifically indicated, they are so listed.

BIOLOGICAL CARBONS (WHITE ENDS)

It is conceded that natural sunlight or radiation from Biological Ultra-Violet Carbons, sunlight's nearest equivalent, produce the best possible clinical results in all diseases in which Calcium, Iron or Phosphorus fixation, improving *elimination*, Tonic or *Regenerative* effects are their dominant indication.

BIOLOGICAL RADIATION

Will normalize metabolism, regenerate tissue. Break down bacterial toxins, increase hemoglobin. Improve glandular function. Accelerate elimination. Soothe the nervous system. Fix calcium, phosphorus and iron. Is a mild direct and strong indirect germicidal, because **WHERE CALCIUM METABOLISM IS BALANCED, PUS SPORES RARELY GERMINATE**. Average exposure time, ten minutes.

CELLULICIDAL RADIATION

Is the most potent bactericidal agent known to science that does not injure normal tissue if carefully applied. Abiotic effects that are decidedly surgical in character are produced by longer exposures or exposures at shorter distance. Average exposure time, six minutes.

CELLULICIDAL ULTRA-VIOLET CARBONS (BLUE, SILVER, OR BUFF ENDS)

These Carbons give a preponderance of germicidal or short destructive rays similar to those given by Mercury Arc Lamps; the superior germicidal effects are due to the ultra-violet rays being augmented by Infra-Red and Visible rays. The popular belief was "The shorter the wave length the greater its germicidal properties"; but Hill showed that Infusoria, when subject to the identical strengths of ultra-violet radiation, took three times as long to die as when more heat was associated with ultra-violet radiation (see "Sunshine and Open Air", by Leonard Hill, Director, National Academy of Medical Research, London).

Cellulicidal effects are indicated for direct *sterilization* and in the treatment of Keloids, Cervical Erosions, Hypertrophied Turbinates, Tonsils and Prostates and all other conditions where maximum cell destroying properties are desired.

INFRA-RED CARBONS (RED ENDS)

These Carbons generate large quantities of Visible, Red and Infra-Red rays; their radiation is particularly adapted where heat is the objective. Treatment of deep seated pelvic congestion, severe sprains, etc., produces unques-



tionable results. It is hard to over emphasize the *stimulative* value of radiant heat, which many believe offers greater all around value than any other radiation; however, this belief is incorrect, because the facts stated about ultra-violet rays have been fully substantiated. Heat radiation will, however, continue to hold a prominent place; therefore, perhaps the most general, surely the most logical conclusion is that since we evolved under energy of the whole Solar Spectrum which contains all rays, **THOUGH VERY FEW OF THE SHORT DESTRUCTIVE ONES**, the whole Solar Spectrum or its equivalent is best for general all around use. Reyn, Granger, Mayer, LoGrasso, Hill, Hall, Orndoff and scores of others share this belief, and if one studies the effects produced by different energies, particularly the biological effects; reason for its almost universal indication will be readily apparent.

That there are indications for the other energies is unquestioned but a great majority of cases need biological or regenerative effects **most**.

INFRA-RED RADIATION

Will produce heat in both surface and subcutaneous tissue wherever applied; therefore, is stimulative and decongestive, depending upon duration of treatment; it may be used for derivative as well as direct treatment. Average exposure time, twenty minutes.

MASTER THE REACTION GIVEN BY THE DIFFERENT ENERGIES and you will know: What kind of rays are indicated, when indicated, when contra-indicated, **AND WHY!**

STABILITY

Radiation from "UNIVERSAL" Ultra-Violet Lamps remains constant, neither age nor burning hours ever cause the slightest variance in their strength or alter the character of their energy. Different strengths or kinds of radiation may be had by changing carbons, but only in that way.

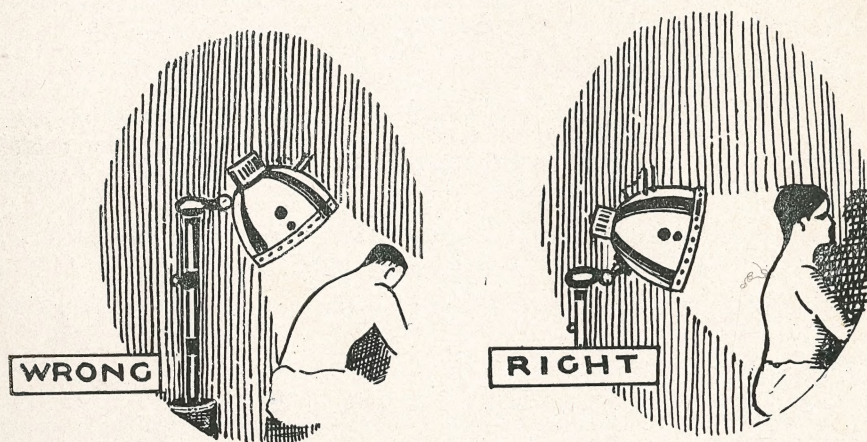
ACCURACY

The advantages of constant dosage are obvious and because of "UNIVERSAL'S" stability, **"FOR THE FIRST TIME IN HISTORY, STANDARDIZED DOSAGE IS POSSIBLE"**. It is unnecessary to stress the fact that **SCIENTIFIC MEDICINE CANNOT BE PRACTICED WHEN THE DOSAGE IS UNKNOWN**. You would not administer drugs, diathermy or x-rays without knowing their strength, and no one knows the true strength of ultra-violet rays given by Mercury Arc Lamps, because the **DECREASE IN RADIATION FROM MERCURY QUARTZ LAMPS, WHILE PROGRESSIVE, IS UNEVEN** and cannot be predetermined or measured, except by instruments found only in a few institutions in America.



PHYSICAL OPERATION

To use: Turn switch "off", select four carbons, two short and two long, that produce the indicated energy; place short carbons securely in lower holders; lower longer carbons into holes provided beneath oval opening. Have the ends of the long carbons meet and touch the lower carbons at center. BE SURE THAT BEADED CONNECTIONS ARE ATTACHED TO THE TOPS AND MAKE CONTACT, ONE END ON THE CARBON AND THE OTHER END ON THE POST ON BRIDGE BEHIND THE CARBONS. Turn switch "on", lamp will light and adjust itself. Reflector may be tilted about 25 degrees either forward or backward, but THE CORRECT OPERATING POSITION IS WHEN CARBONS STAND VERTICAL.



(Figure 1)

Showing right and wrong operating positions.

DO NOT OPERATE LAMP WITHOUT BEADED CONNECTIONS ATTACHED TO CARBON TOPS AND TO BRIDGE ON REFLECTOR. THIS IS IMPORTANT, AS THEIR ABSENCE WILL RUIN THE SEPARATION CLUTCHES. The deposit that settles in reflector is detrimental to operation, looks badly and should be cleaned each time carbons are renewed or changed. When switch is thrown, if carbons bob or jump up and down instead of lighting, turn switch "off", catch top carbon near beaded connection, rotate three or four times, grinding its lower end against upper end of lower carbon. When lamp is again lighted, jumping should disappear, but it is sometimes necessary to remove a small metal ball which sometimes forms in the top of lower carbon and causes the jumpy action.



When tops of lower carbons are within one-half inch of holders, raise to original position and when top carbons no longer make contact with lower carbons, remove, put in upper carbons, save stubs from the upper carbons for use as lower ones. Arc should be kept as near the center as possible, but lower carbons must never be above the center of oval plate.

It is not detrimental to operation, if one arc becomes longer or shorter, nor does it affect the ultra-violet output or current consumption. Arcs readjust themselves every time the switch is thrown, thus turning "off", then "on", will correct uneven burning; but, as stated, this difference is not detrimental to efficiency. On direct current, uneven burning may be corrected by reversing the plug at rheostat or service cord.

All carbons are marked at the butt ends. WHEN ORDERING, BE SURE TO SPECIFY THE KIND OF CARBONS DESIRED; ALSO NOTE THE KIND OF CARBONS YOU ARE USING, AND PUT THEM IN PROPER PACKAGES IF CHANGED BEFORE FULLY USED.

In addition to carbons furnished as standard equipment, many other carbons for producing different energies are available, including those for producing shorter ultra-violet rays of even greater intensity than those generated by the carbons furnished. Further data on carbons will be furnished upon request, but EXPERIENCE DICTATES THAT BEGINNERS SHOULD CONFINE THEMSELVES TO THE USE OF CARBONS SUPPLIED UNTIL THOROUGHLY FAMILIAR WITH THEIR CLINICAL REACTIONS, USES, ETC.

When combination reactions are desired, they may be produced by SIMULTANEOUS use of different carbons. The tonic effects from Biological Carbons will prevent cell stasis resulting from the use of Germicidal or Cellulicidal Carbons.

Carbons are furnished in standard packages of fifty or one hundred each. As a guide to selection, Biological Carbons have White ends; Cellulicidal Carbons have India Buff or Aluminum ends; Infra-Red Carbons have Red ends. Prices on any or all carbons will be furnished upon request.

MANY CLINICIANS BELIEVE THAT THE TONIC EFFECTS OF BIOLOGICAL CARBONS ARE ALWAYS "INDICATED".

COOPERATION

We take this occasion to ask you to join your fellow users in sending us reports on all cases you treat, giving full information, clinical history, etc., as well as detailed reports of how cases were treated.

We or any authorized dealer will be glad to cooperate with any physicians who desire to prescribe Ultra-violet Lamps for home use.



TECHNIQUE

ABSCESS

Open and drain. Give daily treatments locally for ten minutes. If abscess is just forming, a single treatment of thirty minutes or more will abort it. *General Tonic Treatment is usually indicated. Use "Biological" radiation.

ACNE

General Tonic Treatment is nearly always indicated. If pustules are large, open and evacuate before treatment. Apply rays locally from ten to fifteen minutes as close as patient can tolerate; use Cellulicidal carbons for local radiation. Give attention to personal hygiene.

Acne Rosacea also responds to Cellulicidal radiations—Give Intensive Local Application, then treat as you would a burn, repeating as soon as patient's condition will permit.

ADENOMA AND ADENITIS

Intense local Cellulicidal radiation of twenty minutes duration, with daily or thrice weekly General Tonic Treatments. Contact with localizer is indicated in some cases.

ADHESIONS

Commence with ten minute treatments over the area involved, repeat every second or third day, adding three to five minutes to each subsequent treatment. Where toxemia is present, such as in Pleurisy, etc., General Tonic Treatment should be given.

The ability of light to limit, if not altogether prevent adhesions in surgical cases can hardly be over-stated. ALL INCISIONS should receive daily radiations for at least ten days, and thirty days wherever possible, as a prophylactic against adhesions. Use "Biological" radiation.

AGANTHOSIS NIGRICANS

Have lamp as close as patient can tolerate, treat for ten minutes with "Biological" radiation. Repeat on succeeding days. If marked reaction is not produced by first treatment, double treatment time. Results have been reported in cases where other recognized remedies have failed.

*We or any authorized dealer will cooperate with any physicians who desire to prescribe Ultra-Violet Lamps for home use.

See illustration, page 21.



ALCOHOLISM

Give prolonged intensive applications of "Biological" radiation to the spine, accompanied by General Tonic Treatment. When the acute stage has passed, treat every other day. During both stages it is important that patient drink plenty water or other liquids. It is suggested that a saline be given.

ALOPECIA—GENERAL AND AREATA

That success will reward the operator in every case would be a far fetched claim; but that clinical experience shows good results in a majority of cases is the assertion of a number of unimpeachable authorities. It is perfectly safe to say that falling hair can be arrested and General Alopecia avoided in ninety-five percent of the cases. Recent cases, or those in which extensive atrophy has not occurred, naturally present the most favorable prognosis; but whether a recent or old case, pronounced erythema is necessary for success.

Treat fifteen minutes with "Biological" radiation or seven minutes with Cellulicidal radiation on the bare skin (see to it that no ointments, tonics, etc., are used before treatment), repeat when erythema subsides. Wherever possible have the hair cut short or shaved.

In Alopecia Areata, treatment with localizer alone frequently suffices, but it is the consensus of opinion that the entire scalp should be treated to prevent further development. If the hair is very long, put up on metal curlers, the greater number of portions, the greater certainty of results, because a larger area is exposed.

AMENORRHEA

Give five minutes local treatment through speculum two or three times a week accompanied by General Tonic Treatment with an exposure to the lumbar and abdominal regions, slightly longer than that given the rest of the body. Radiation is unexcelled as an adjunct in these cases, but is especially indicated if the patient is chlorotic or anemic. Use "Biological" radiation.

ANEMIA

Diet and hygiene are doubtless of first importance in these cases, but it is equally true that general vitality, appetite and the ability to assimilate is greatly improved as a result of General Tonic Treatment given daily. It is also desirable to feed the patient radiated food. (See Food Radiation.) Use "Biological" radiation.

ANGIOMA AND ANGIOMA CAVERNOSUM, ANGIOMA SER- PIGINOSUM

Have lamp as close as patient can tolerate. Treat from twenty to thirty minutes with "Biological" radiation or six to ten minutes with Cellulicidal radiation. Repeat when reaction subsides; time required will vary according to patient, but generally seven to ten days.



ANKYLOSIS

Give an eight minute Cellulicidal radiation around the joint involved, repeating once each week increasing each subsequent treatment five minutes, with lamp as close as patient can tolerate. General Tonic Treatment is also specifically indicated.

APPENDICITIS

ACUTE: When conditions make *operation* undesirable, place the patient in a Trendelenburg position. After localizing, apply Infra red rays for one-half hour. Repeat with sufficient frequency to keep down pain. Dilate rectum. Insertion of suppositories to induce evacuation is suggested. The patient should be confined to bed and kept on a liquid diet until twenty-four hours after symptoms abate; then treat as a chronic case.

CHRONIC: Have lamp thirty inches from patient.—Give daily applications of fifteen minutes duration. Put patient on liquid diet for the first ten days, on vegetable diet until the symptoms disappear; usually this will take from thirty to sixty days additional. The results in these cases are frequently very good, if operator and patient will be faithful. If a mechanical vibrator is available, use intra-rectal applications.

Treatment should be continued three times a week for one to two months following the clearing up of all symptoms—if accompanied by constipation, use rectal dilation or suppositories. If there are sharp pains during or after treatment, it usually indicates the presence of pus. This may not be noticed until you reduce the distance between lamp and patient, which will be done gradually after first ten days of treatment. Use Biological radiation.

ARTERIOSCLEROSIS

General Tonic Treatment is highly recommended by many users. At first keep the lamp fully thirty inches from patient, shortening the distance as treatment progresses. Watch personal hygiene.

ARTHRITIS

Give General Tonic radiations daily, and prolonged treatment around the joint involved. Repeat when reaction has subsided. Local stimulation and general elimination being important factors in these cases, there is no question about "Biological" radiations' efficacy. Gonorrheal Arthritis yields in a most gratifying manner; and the immediate elimination of pain and its absolute control, generally prevail.

ASTHMA

There is a conflict of opinion about the indications for radiation in Asthma and allied conditions; however, we continue to get reports that indicate positive efficiency in the treatment of Bronchial Asthma, Bronchitis, Bronchial Catarrh and Emphysema. We believe the practitioner who gives systemic radiation, as well as local treatment, will get best results. Give General Tonic Treatments daily.



REDUCING HYPERTROPHIED TONSILS

AUTO-INTOXICATION

Give General Tonic Treatments daily or on alternate days accompanied by three to ten minutes' radiation over the spleen. Give diet as in Chronic Appendicitis. Colonic irrigations are suggested. See Bath Cabinet Effects.

BARTHOLINITIS

Apply "Biological" Radiation for ten minutes. The last half of treatment should be given with lamp as close as patient can tolerate. Daily treatments are indicated.

BATHER'S EAR

Local "Biological" radiations for fifteen minutes. General Tonic Treatments daily.

BATH CABINET EFFECTS

Cover the body with a sheet attached to bottom of reflector. A general sweating, just as profuse as that obtainable from a bath cabinet will be produced, and the treatment is more beneficial, because inasmuch as patient is lying down, he is relaxed, and while the visible and infra-red energy is

Your attention is directed to articles by Doctors Cottle and Hollender bringing out the close relation of calcium deficiency in Hay Fever and Rhinitis, and it occurs to us that similar relation may exist in this class of cases. For local treatments see Hay Fever.

("Physical Therapy in Diseases of the Eye, Ear, Nose and Throat," by Drs. Abraham R. Hollender and Maurice H. Cottle, commends itself to every thinking physician.)



producing the sweating effects, the violet side of the spectrum is toning up the entire system. *Indicated in Ptomaine Poisoning, Auto-Intoxication, Obesity, etc.* Use Infra-Red radiation.

BLOOD PRESSURE

General tonic radiations with a fifty percent increase in treatment time. Repeat as soon as erythema subsides. Whether the case be one of high blood pressure or low blood pressure it is generally normalized. The general response seems to be quicker when accompanied by Nephritis.

BOILS

See Abscesses.

BOWEL IRREGULARITIES

General Tonic Treatment, double the usual period during the first ten days of treatment, given over the abdominal area produces results in a large variety of cases, the more prominent of which are Constipation associated with Intestinal Tuberculosis and Lesions of the small bowel, Diarrhea from the large bowel, and Intestinal Tuberculosis.

BRONCHITIS—ETC.

See Asthma.

BUISES AND HEMATOMA, TRAUMATIC INJURIES

A twenty minute exposure of the affected areas to "Biological" radiation will reduce pain and stiffness, and, due to the marked increase in circulation, will quicken the rate of absorption. Rapid healing can be depended upon. Distance, 25 inches. Radiate daily.

BUBO

Daily treatment with lamp twenty-two inches from patient. Treatment duration ten to fifteen minutes. Use Cellulicidal Carbons.

BURNS

A thirty minute Biological radiation will generally remove pain and reduce inflammation, especially if burn is one sustained from oil or gasoline. A small radiant light and heat lamp, such as "Universal Glolite" offers valuable auxiliary treatment, as it may be employed for over night or for continuous treatment until inflammation subsides.

BURSITIS

About the same as Arthritis. Give General Tonic Treatment.

CARCINOMA

Relief from pain in many cases is all that is claimed. General Tonic Treatments with local treatments over the spleen are recommended by some users who report such procedure of undoubted value in arresting spreading and preventing recurrence. Also see calcium fixation, page 6.



We suggest that you add "Biological" radiations to whatever else you are using and keep a careful check on your results. Give local radiations and General Tonic Treatments daily if convenient, otherwise as often as can be arranged.

CARBUNCLES

Intensive treatment as in Boils—drainage is essential. (See Boils.)

CARDIAC DISEASES

Whether Hypernea, Tachycardia or Dyspnea are greatly relieved, Hypertension and Hypotension are regulated and normalized. (See Blood Pressure). Give general body radiations with a fifty percent increase in treatment time. Repeat as soon as erythema subsides.

CATARRH

Repeated local treatment sufficient to produce marked erythema. General Tonic Treatments three times a week. Local Infra-Red radiation is of great value. (See Asthma.)

CATARRH OF THE CERVIX—UTERI

See Gynecological Pathology.

CELIAC DISEASES

"Biological" radiations will correct calcium metabolism and aid normal Bowel action. General Tonic Treatments.

CERVICAL EROSIONS AND CERVICITIS

See Gynecological Pathology.

CERVICAL LYMPH GLANDS

Local treatment as intensive as patient can tolerate. Results have been so uniform that many authorities now prefer ultra-violet radiation to surgery; but, of course, there remain many cases in which operation is essential. In these cases, local and general radiations have been used to advantage following surgical procedure. Use "Biological" radiation. See General Tonic Treatment.

CHANCRE

Intensive treatment is indicated with compression for glandular enlargement. Fifteen to twenty minute radiations repeated when erythema subsides give very satisfactory results. Use Cellulicidal radiation.

CHILBLAIN

A twelve minute "Biological" radiation will generally relieve intense itching in both the neurotic and cold induced types. In some cases a second or third radiation is necessary for relief, but perhaps fifty percent of the cases yield to one treatment. General Tonic Treatment is suggested for all neurotic or deficiency cases.



CHLOASMA

Intensive local treatment, ten to twenty minutes brings ready relief; however, ultimate cure depends on efficient treatment of the underlying cause. Use Cellulicidal Carbons.

CHLOROSIS

General Tonic Radiations, with a twenty-five percent increase in treatment time will generally be of great value if persistently carried out. Radiated food is recommended. See Page 15.



TREATING OTITIS MEDIA

CHOLERA

Give General Tonic Treatments daily for two weeks, and thrice weekly thereafter. Give careful attention to personal hygiene.

COLDS

Ten minute applications to chest, front and back, usually relieve acute congestion, oftentimes aborting Pneumonia. Wherever Pneumonia is suspected, patient should be kept in office for an hour and have treatment repeated, then removed to hospital or home where over night radiations from "Glolite Infra-Red Generator" will be of great value.



Restrict diet to citrus fruit juices. A good cathartic and two or more days in bed should be prescribed.

For head colds, wrap a sheet or towel around bottom of reflector with the other end tucked in a manner to expose the face, but arrange to exclude outside air. Radiate the patient's face through this pocket, which at the same time will force inhalation of breath that has been subjected to chemical change through exposure to ultra-violet radiation. This exposure lasting five minutes twice daily will form a sort of anti-toxin and generally gives most gratifying results. Use "Biological" radiation.

COLITIS

Daily local and general applications commencing with a seven minute exposure, adding two minutes each day until thirty minutes has been reached. Thereafter treat three times a week. During the first week high enemas of hot water colored with green aniline dye should be given. Fruit, other than citrus, and a vegetable diet are indicated. Use "Biological" Radiation.

CONJUNCTIVITIS

Apply direct to eyes with lids down, but not tight. After second or third treatment of one-half to one and one-half minutes' duration, patient will be able to open eyes for the last half of treatment. Have lamp forty inches from patient, gradually shortening the distance during subsequent treatments. Treat every three or four days. Good results have been reported in Gonorrheal and Phlyctenular types. Use "Biological" Radiation.

CONSTIPATION

See Colitis and Bowel Disorders.

CORNEAL ULCER

Success in a number of cases has been reported. Same technique as Conjunctivitis.

CYSTITIS

Radiation through the rectum, or vagina, often relieves painful urination during the first week of treatment. Treatment should be given daily until pain disappears, every other day for a couple of weeks thereafter, then once or twice a week. General Tonic as well as local treatment should be given. Use Biological Carbons.

DEBILITY

"Biological" radiation over entire body develops tonicity, encourages all vital processes and increases the rate of metabolism. See Rejuvenation—impotency.

DECALCIFICATION

Decalcification may be prevented or corrected by General Tonic Treatment and the increasing recognition that calcium imbalance is of tremendous



importance in Pyorrhea and all infections as well as most systemic diseases makes General Tonic Treatment the best remedy, particularly where cause is unknown. See Expectant Mothers.

DENTAL INDICATIONS

See Pyorrhea, Page 39. Other indications are:

Bleeding dead teeth.

Whitening of the teeth after scaling.

Marginal Gingivitis.

Acute Periodontitis.

Pulpitis.

Differential Diagnosis.

Neuralgia—Neuritis.

Infection of the Maxillary Sinus, etc.

Special data on dental conditions will be supplied on request.

DIABETES MELITIS

Give General Tonic Treatment.

Discoveries by Dr. D. H. Bergey of the University of Pennsylvania, indicate that Diabetes Melitis is caused by the toxic action of a filterable virus. The abiotic action of ultra-violet rays should lead to good results from Cellulicidal radiation. In addition, we have the upbuilding effects and normalizing tendencies derived from "Biological" Ultra-Violet Therapy. Infra-Red radiation is especially indicated in Diabetic Ulcer.

DIARRHEA

See Bowel Irregularities.

DIPHTHERIA

Ultra-violet radiation through localizer has given good results. Although many feel two to three radiations are ample, we believe local and General Tonic radiations for at least ten consecutive days after symptoms disappear better procedure. Each spot should be treated. Local radiation 5 minutes, cellulicidal carbons.

DISEASES OF CHILDREN

Drs. Hess of New York, Gerstenberger of Cleveland, Brenneman of Chicago and many other famous specialists have reported remarkable results in practically all diseases of childhood.

General tonic radiation insures normal growth, stimulates glandular development and increases mental agility.



Growing Bodies Need Sunlight

Prescribe "Electric Sunshine," the lamp shown in accompanying illustration.

Electric Sunshine is a small but highly efficient lamp designed especially for B use — its cost is surprisingly low.

GROWING BABIES NEED SUNLIGHT

At Alton, England, children who were behind in their studies, when given Ultra-Violet Radiation daily, not only caught up with, but in many instances, surpassed their classmates.

Many authorities believe the reason for Light's ability to produce almost miraculous results in children is because of the manner in which it influences nutrition.

DYSMENORRHEA

General Tonic Treatments with a fifty percent increase in treatment time accompanied by local cellulicidal applications through Quartz Speculum or Urethral applicator sufficiently prolonged to produce a hyperemia nearly always give relief, which is sometimes permanent. Treat two or three times a week. If the menses are scant a course of General Tonic Treatment is advisable.

Do not give Cellulicidal radiation through specula or applicator in suspected pregnancy because such radiation induces miscarriage or abortion.

DYSPEPSIA

Same diet and treatment as given for Gastritis.

ECZEMA

Favorable results and probable clearing up of most forms of Eczema may be expected. Where lesions are exuding serum or pus, clean before radiation. Correction of calcium metabolism will usually reduce or remove this type of lesion. Give daily tonic treatments with local applications whenever



necessary. Persistent conditions may be more quickly cleared up by producing a second degree erythema, although existing evidence favors systemic rather than local correction.

Where Bronchial Fistula exists, or in pronounced cases of Eczema Rubrum, great care should be used to avoid local irradiation and to develop resistance and correct metabolism by radiation of surfaces not under lesion. Special attention should be given to personal hygiene.

ELIMINATION

Irrespective of effects sought, constitutional benefits derived are dependent at least in part upon elimination, and since elimination as well as absorption is augmented by the visible and infra-red rays that accompany biological ultra-violet radiation we have another valid reason for longer exposures and the use of biological or sunlight carbons. To improve general elimination—give General Tonic Treatments. See bath cabinet effects.

EMPHYEMA

Give General Tonic Applications, either daily or thrice weekly, drainage and local application are necessary in many cases.

ENDOMETRITIS

See Gynecological Pathology.

ENURESIS

General Tonic Applications, nearly always bring good results. Treat three times a week. Short intensive applications over twelfth dorsal and fifth lumbar regions are of great value.

EPIDIDYMITIS

Place patient in reclining position, treat ten to fifteen minutes. Repeat as often as necessary. Pain is dissipated and swelling reduced during the first treatment. Infra-Red and "Biological" radiation should be used.

ERYSIPELAS

Intensive local Biological radiation accompanied by General Tonic Treatment. Results are practically certain.

ERYTHEMA—INDURATUM—MULTIFORME—PERNIC—X-RAY

In all save where erythema is induced by x-ray, intensive radiation is indicated, and will give gratifying results. X-Ray Dermatitis also responds, but mild treatments are indicated. (See X-Ray Burns.)



Illustration herewith, also at "right" on page 10 show correct methods of producing an Erythema Quickly.

See "Safety" page 7.

ERYTHEMA (PRODUCED QUICKLY)

Put in or "trim" with four ultra-violet or cellucidal carbons, that is, carbons with Silver, India Buff, or Blue ends. Have patient bare the upper portion of leg, arm, or chest, or some part of the body ordinarily covered by clothing that has not received a previous or recent exposure to sunlight or artificial sunlight. Turn switch and light lamp. Carbons should separate from three-eighths to five-eighths of an inch.

Have part being radiated within twenty inches from the arc flame, not directly in front of the arc, but in line with the center of the lower half of the reflector, the part being in front of, but slightly below the arc flame. See figure 1. Page 10. Treat four to five minutes.

An erythema will be produced nine out of every ten times if above directions are followed. However, do not confuse with hyperemia produced after a few minutes exposure, as ultra-violet erythema makes its appearance in four to five hours following exposure. Occasionally a patient will require slightly longer treatment, but seldom; likewise, there is an occasional patient that the same treatment will practically blister. But there are more patients who receive a stimulative erythema exposed at this distance and time than there are that would not receive an erythema.



"UNIVERSAL"

Ultra Violet
Carbon Arc

L A M P

GENERATES
SCIENCE'S
NEAREST
DUPLICATION
OF JUNE SUNLIGHT



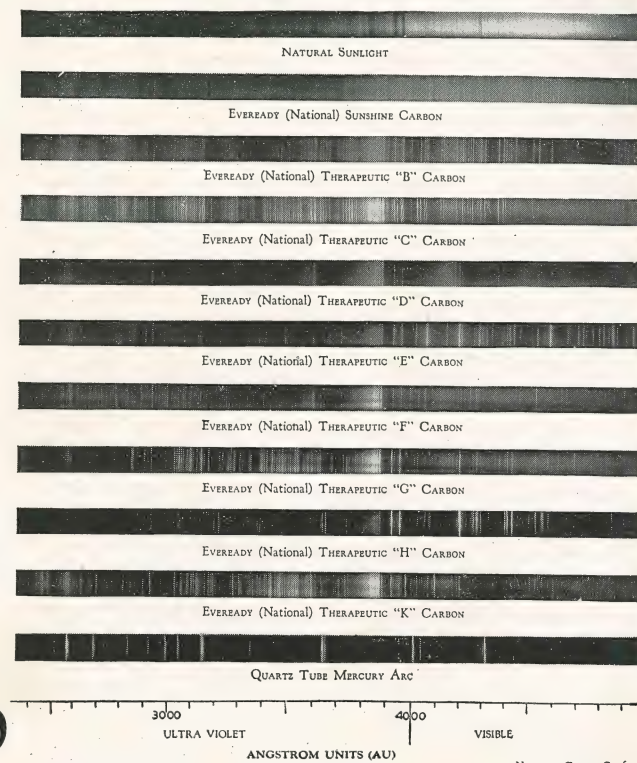
The First Lamp

That Included Applicators for Localized and Orificial Treatment.
That Generated a Complete, Uniform and Constant Solar Spectrum.
That was Designed to be used Effectively at both Office and Bedside.
That Operated on either Direct or Alternating Current.



Illustrations herewith, offering, as they do, an opportunity for exact comparison, conclusively show that the energy given from "Universal" Lamps, although richer in the biologically active ultra-violets below 3100 A. U., much more nearly duplicates the actual solar spectrum than the energy given by any other lamp.

SPECTROGRAMS
EVEREADY (National) SUNSHINE AND THERAPEUTIC CARBONS
NATURAL SUNLIGHT AND QUARTZ MERCURY ARC





Anyone following the above directions will find that the elapsed time required to produce an erythema is less than the time required for a Mercury Arc Lamp to "build up" (get ready for use), and when considering that the use of "Universal" lamps does not call for any waiting for "build up" nor preceding with radiation from Deep Therapy or Infra-red lamps in 90% of the cases—it is readily understood that their use actually requires less of the operator's time than is required when using Mercury Arc Quartz lamps.

Where the strongest short wave ultra-violet carbons are used one secures the largest quantity of cellulicial rays possible to get from a Carbon Arc Lamp. These rays are even more intense than those obtained from the silver end carbons. Skin reaction or erythema is obtained in the identical manner as obtained when regular cellulicial carbons are used, except that it requires about 20% less time.

ERYTHEMA (PRODUCED SLOWLY)

Where Biological carbons are used the ultra-violet radiation corresponding with that of sunlight is generated, and treatment is given under the identical conditions explained above, except that the treatment time is doubled. Biological carbons have white ends, and unless one is careful they will mistake them for cellulicial carbons and vice versa. To mistake the biological for the cellulicial will do no harm, although desired erythema will not be produced, but to mistake the cellulicial for the biological and give a long treatment will result in a second or third degree erythema, from an eight to ten minute exposure.

Where the skin has been previously exposed, longer treatments are necessary, how much longer, of course will depend upon how much resistance the previous exposure has developed. Remember that after the skin develops a defensive mechanism in the form of pigment it can take even the strongest ultra-violet radiations, up to many hours daily, providing, of course, that the build up has been gradual.

The diseases indicative of calcium deficiency are oftentimes cleared up when calcium metabolism is corrected and balance maintained. Some types respond better where erythema is avoided.

EXPECTANT MOTHERS

It has been pointed out that the unborn baby draws heavily on certain mineral salts and in order to prevent injury to the teeth and bones and other calcium disturbances that most mothers suffer, radiation during pregnancy has been suggested and successfully used. Hess reports that the blood and milk of prospective mothers who were treated by ultra-violet radiation developed anti-rachitic properties and that this anti-rachitic quality continued in the milk to the benefit of the baby.

It has been abundantly established that Ultra-Violet or Sunlight radiation to expectant mothers prevents decalcification and insures normal lactation.



Nursing mothers who continue the treatment offer a large degree of protection to their babies, hasten the return to normalcy of their pelvic organs, as well as prevent the nutritional disturbances and accompanying ill effects that are too often associated with child-bearing and where radiation is continued for a few months after delivery its effects preserve normal contour.

General Tonic Treatments should be given, commencing during the first part of the last half of pregnancy, extended to within two weeks of delivery and resumed one week later.

FEVER

General Tonic radiations bring about a quick reduction in many cases. This is especially true of fever in tuberculosis.

FOOD RADIATION

Radiation of cereals, vegetables (cooked or uncooked), butter, cottonseed oils, orange juice, milk, and many other products, has been advocated by such eminent authorities as Steenbock, Bovie, Hess, of New York, Hill, of the Royal Academy, and many other prominent research workers. It is the unanimous opinion that vitamin "D" is increased where it already exists, and is found in food *after radiation* where it could not be found before; the nutritive properties are increased, and the foods thus radiated, when fed in cases of Rachitis have in many instances cured the disease.

The indications for radiated foods include: Rickets, Anemia, Lukemia, Tuberculosis, Impotency, Gastric Ulcer, Marasmus and *all diseases of impaired nutrition*.

Food radiation is accomplished by directing "Biological" ultra-violet radiation over the food or substance at a distance of 12 inches, with only air intervening. The exception to this rule, is where the intervening substance is made of quartz or the newer materials that have a high ultra-violet transmission. Time for irradiation should be thirty minutes to two hours. Foods, except cereals, oils and meats, should be used the same day as irradiated. Use dark or opaque containers, *after irradiation*.

NOTE: Ordinary glass will not transmit ultra-violet rays and while foods that are charged through ultra-violet radiation do not seem to lose their increased nutritional properties through storage, great care must be exercised to prevent carrying the radiation beyond the point of saturation, for after this stage is reached, the same radiation seems to cause a decrease in nutritive power. Write us for reliable quartz glass.

FRACTURES

General Tonic Treatment not only assists in early knitting but maintains muscular tone in immobile cases. Where the osteology is near the surface, intensive local radiation is also indicated. Ultra-violet therapy is especially indicated for elderly patients, or where there exists a tendency to osteonecrosis or osteomalacia.



FOLLICULITIS

General Tonic Treatment accompanied by intensive local radiations. Treat from two to three times each week.

FURUNCULOSIS

See Boils and Carbuncles.

GANGRENE

Where the process of disintegration has not progressed too far, "Biological" radiation is of undoubted benefit. General Tonic radiations and intensive local applications as often as patient can tolerate are indicated. Dr. U. G. Dailey, of Dailey Hospital, Chicago, reports success in a very obstinate case. Dr. Haldor Carlsen, Lutheran Memorial Hospital, reports success in a case of B. Welchii (gas gangrene). Both the lethal effects of light on micro-organism and the bactericidal and biologic value of ultra-violet rays play important roles in cleaning up these conditions.

GASTRITIS

Give daily local radiations and General Tonic Treatments with the same diet given in Colitis.

GASTRIC ULCER

Same as Gastritis, only it will take a longer time to bring about recovery. General improvement in physical well being and a marked increase in appetite will be noticed.

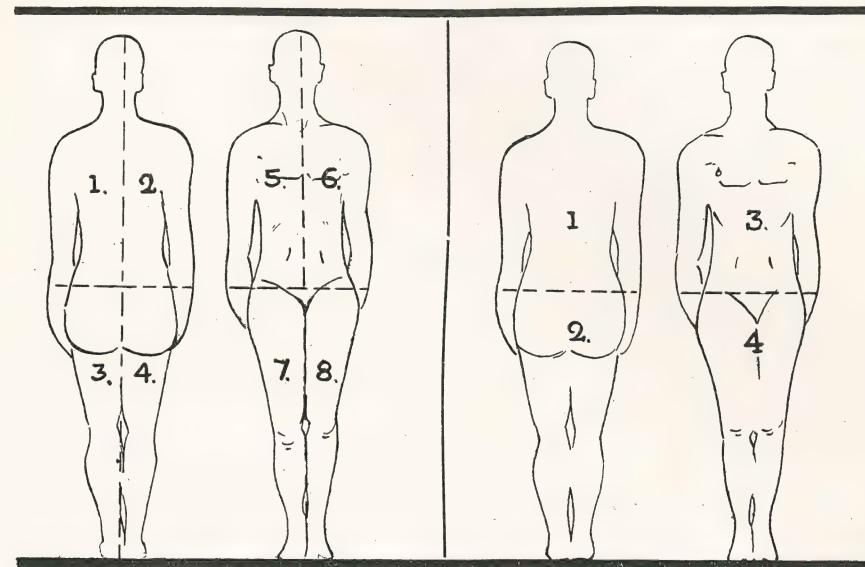
GENERAL TONIC TREATMENT

General Tonic Treatment should be given as prophylaxis to increase the general vitality and physical fitness of either sick or well people. It has also been shown that General Tonic Treatment improves mentality and adds to the expectancy of life.

To give General Tonic Treatments, bare the body entirely, or from the waist up. First treat the back for five minutes, then treat the front for five minutes. Treat daily or on alternate days. Increase treatment periods two minutes each until they reach twenty to forty-five minutes for either technique.

In Europe the following technique has proved very efficient: Have patient come daily, treat sections of the body, in the order shown in sketch Fig. 2. This will require nine or ten days before the second exposure of the part first radiated, depending upon whether or not treatment is administered on Sunday. Where the patient will come on alternate days, then treat in the order shown on sketch as No. 3.

As many people are very susceptible to ultra-violet radiation, the duration of treatment should be six minutes at twenty-two inches, and a mild first degree erythema should result. Many American users now prefer the European method.



(Figure 2)

(Figure 3)

Charts Above Show Body Divided Into Sections For
GENERAL TONIC TREATMENT

For either technique, have lamp 22 inches from patient and insist upon patient drinking plenty of water or other liquids.

We recommend maximum treatment from biological carbons in practically all diseases, because biological carbons contain more constructive ultra-violet rays in proportion to destructive ultra-violet rays than are obtainable from any other source.

We know in advance that an eight to ten minute exposure at the same distance will be necessary to produce a first degree erythema on many patients, but we advise proceeding cautiously for the reason that it is better to give an exposure slightly insufficient than it is to "over-do" it. Always caution patient as suggested on page 5, and see or talk with the patient on the following day to find out if the time given is within his safe tolerance.

The specific effects to be obtained from General Tonic Treatments are:

1. Increasing Iron, Phosphorus and Calcium.
2. Stimulating and improving glandular activity.
3. Improving and increasing metabolism.
4. Re-establishing normal circulation.
5. Improving and increasing elimination.



6. Lowering arterial tension.
7. Lessening the quantity of blood in congested areas.
8. Elimination of products from impaired metabolism.
9. Aiding and relieving an overworked heart.
10. Building up general resistance.
11. Stimulating every vital organ.
12. Aiding the system in combating any specific disorder.
Because, as shown by Vine and Groves, "Pus spores rarely, if ever, germinate where calcium metabolism is at par. (See Calcium Fixation, page 6.)

Where these effects and those listed under guide page — are understood, any pathology not mentioned herein may be treated with the expectancy of results. We also suggest reference to some similar pathology and cannot too strongly urge that the physician give General Tonic Treatments as an auxiliary to the treatment of all local infections. Experience has shown that while local infections yield readily to specific treatment, the percentage of recurrences is twice as great where local treatment is not accompanied by General Tonic Treatment.

Reports justify saying that unless the local condition is acute or the inflammatory symptoms annoying, General Tonic Treatment should be given and local treatment dispensed with, i. e., a skin eruption resulting from some underlying toxemia, will heal from local treatment, but freedom from recurrence can only be had from General Tonic Treatment. In the different forms of surgical tuberculosis, tuberculous glands with sinus, etc., local treatment is employed, but General Tonic Treatment should always accompany it.

In Germany and England, where light has been employed therapeutically on a larger scale than in the United States, clinics for administering General Tonic baths are being established. These clinics treat no specific disorders, but are widely used by the populace as an aid to general health. One such clinic is in successful operation in New York City. Many leading American authorities have joined eminent Europeans in prescribing radiation for the preservation of general health, adding to the sex appetite and the ability to function properly (see Impotency), the expectancy of life; and prescribing "Universal" ultra-violet lamps for patients' use at home is becoming more common.

In the accompanying pages, "GENERAL TONIC TREATMENT" may be referred to as "General Tonic Treatment", "General Body Radiations", "General Tonic Radiations", or "Biological Radiations," but in each instance, treatment should be given as specified in "General Tonic Treatment".

GLANDULAR INSUFFICIENCY

General Tonic Treatment with local applications will give satisfactory results in both lymphatic and pituitary insufficiencies. Many European as well as American observers have reported marked increase in mental agility



resulting from General Tonic Treatments, and emphasized their belief that this desirable improvement is due to beneficial influence on glandular function. Backward children readily respond to the treatment. See Impotency—Rejuvenation.

GONORRHEA

Local Cellulicidal radiations through suitable applicator accompanied by General Tonic Treatments from Biological Carbons will produce very favorable results in both male and female patients. Treatment given within two to three days from the beginning of discharge is of course, more successful. Regardless of stage, General Tonic Treatments as an auxiliary, are most valuable in Gonorrheal Arthritis. Prophylactic Radiation is advised.

GOUT

Give General Tonic Treatments daily. Great benefit to faulty heart action will be noticed; blood pressure will be lowered and metabolism improved. Correct Diet.

GUN SHOT WOUNDS

See Wounds.

GYNECOLOGICAL PATHOLOGY

Where the infections involve the mucous membrane, intensive local radiation is necessary. Compression should be employed in extreme cases. General Tonic Radiations are always indicated. Surgery and other methods should not be neglected, though "Cellulicidal" radiations have proven a valuable adjunct in Neisseria, Dysmenorrhea, Vaginitis, Pelvic Cellulitis, Granularis, Myomata of the Uterus, Pruritis Vulva, Cervical Erosions, Endometritis, Leucorrhea, Ovaritis, etc.

HAIR

See Alopecia.

HAY FEVER

Favorable results will only be had through careful technique. Clean nasal passage and treat with radiation through suitable applicator. High frequency as an adjunct seems desirable. The nasal passage, or as much of it as possible, should receive daily radiation. Sneezing usually ceases at the end of a week. (See Colds and Asthma.) Use Cellulicidal local treatments and Biological general treatments.

HEART DISEASES

General Tonic Radiations are indicated, but we again remind you that short radiations stimulate, long radiations sedate, and prolonged radiations inhibit. General Tonic Treatments will increase oxidation and metabolism in general, normalizing blood pressure and aiding the heart in its functional activity.



HERPES ZOSTER

Much relief will be had from intensive local radiation over affected parts. Erythema reaction is indicated.

HYSTERIA

Give prolonged Infra Red Radiation to spine for immediate results, General Tonic Treatments where the condition is chronic. (See Neurasthenia.)

HYPERTENSION

Give General Tonic and intensive local radiations daily for first ten days, two to three times a week thereafter.

HYPERTROPHIED TONSILS AND TURBINATES

Intensive local Cellulicidal radiations direct to turbinates twice weekly with daily General Tonic Treatments have resulted in marked reduction in a number of cases.

ICHTHYOSIS

Give intensive General Body Treatments daily or when erythema subsides. Mild radiations will be of little or no value.

IMPETIGO

Same general treatments as in Ichthyosis, with the addition of intensive local Cellulicidal radiation.

IMPOTENCY

General Tonic Radiations with local applications to the prostate, scrotum, and testicles, in male, and to the general pelvic region in female, will undoubtedly produce results PROVIDED General Tonic Radiations are persisted in daily for at least two months, preferably three months, and thrice weekly for a period of not less than six additional months.

Impotency does not just happen, but is nearly always associated with general lowered vitality as a result of systemic abuse. Donald McCaskey, M. D., N. Y., reported successful treatment through ultra-violet radiation and Leo C. Donnelly, M. D., of Detroit, reports that ultra-violet radiation will remove pelvic tenderness and increase sexual desire and the ability to function properly in both males and females. (See Rejuvenation.)

INFANTILE PARALYSIS

General Tonic Treatment will result in improvement of general health. Sinusoidal current should be employed.

INFANTS PREMATURELY BORN

See Marasmus.



INFECTIONS

Intense local Cellulicidal treatment is indicated in any type of infection and General Tonic Treatment is always of value. (See General Tonic Treatment and Calcium Fixation.)

INFLUENZA

See Colds.

INSOMNIA

General body radiations same as in General Tonic Treatments, with one-third increase in treatment period, will usually induce sleep in from one to three treatments. Treatments should be continued for at least a month.

INTESTINAL OBSTRUCTIONS

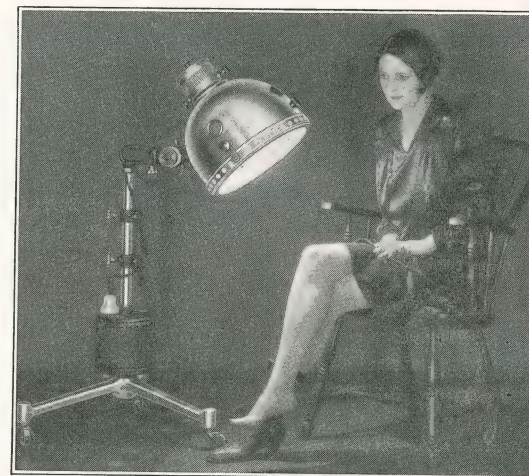
Same treatment as given for Colitis.

INTESTINAL STASIS

See Colitis.

INTESTINAL TUBERCULOSIS

See Bowel Irregularities.



TREATMENT OF BURSITIS

KELOIDS

Intensive local cellulicidal radiation. Extreme cases require focus and compression through quartz condensing lens. Avoid overlapping where lesions are treated with condensing lens. ALL WOUNDS, BURNS, ETC., SHOULD BE ACTIVELY RADIATED TO PREVENT THE FORMATION OF SCAR TISSUE.



LARYNGITIS

Local application through speculum, with intensive external radiation. Mild reaction is beneficial, but marked internal reaction is to be avoided; however, marked external erythema is of benefit.

LETHARGIC ENCEPHALITIS (Sleeping Sickness)

Biological Therapy may be successfully used as an adjuvant to any other treatment for the purpose of developing resistance to infection, building metabolism, encouraging production of anti-bodies, etc. Radiation should be continued several weeks after patient has recovered in order to maintain anabolism. Give General Tonic Radiation.

LEUCORRHEA

See Gynecological Pathology.

LICHEN

General Tonic Treatments daily, with intensive local applications thrice weekly.

LUKEMIA

General Tonic Treatments. (See Anemia.)

LUPUS —

LUPUS ERYTHEMATOSIS—VULGARIS—SCROFULODERMA

Draw lamp as close as patient can tolerate. Treat intensively for twenty minutes to one-half hour. It is frequently necessary to use a quartz condensing lens, concentrating the rays on the lesions until blistering is obtained. General Tonic Radiations are essential for the prevention of recurrence.

LUMBAGO

Give General Body Radiations particularly over lumbar region. Relief from pain will be noticeable immediately. General Tonic Treatment should be given at least twice a week for a period of at least two months or more after pain has been dissipated. This technique has met with marked success in prompt relief and the prevention of recurrences.

LYMPHANGITIS

Heroic measures must be resorted to in many cases. In the more acute stages, give local radiations twice daily, General Tonic Treatments, daily or thrice weekly. "Biological" radiation seems to develop Lymphagogue, by establishing relaxation in congested tissue, lymph drainage is increased.

MAMMARY INSUFFICIENCY

Give radiation for three minutes over back and six minutes over breast. Repeat each day until desired results are obtained. Six treatments are usually ample. (See Expectant Mothers.)



MARASMUS

General Tonic Radiations daily for the first two weeks and thrice weekly thereafter show most favorable results. No one who observes the marked increase in metabolism as illustrated by these cases will question the indication for "Biological" radiation in any metabolic insufficiency. (See Food Radiation.)

MASTOIDITIS

Intensive local treatment is of great value, and both local and General Tonic Radiations are advisable following mastoid operations, as they shorten the duration of convalescence.

MENSTRUAL DISORDERS

See Dysmenorrhea.

METABOLISM

Frequent general tonic irradiation will normalize metabolism by increasing anabolic rate. (See page 28 General Tonic Treatment.)

METRRORRHAGIA

See Gynecological Pathology.

MUMPS

Intensive raying of the affected parts and the scrotum will invariably arrest pain and shorten duration of the disease.

MYOSITIS

Give thirty minute radiations, repeating as soon as erythema subsides. Good Results are reported.

NAEVUS VASCULAR

Radiation concentrated over the lesions involved through the medium of a quartz condensing lens will bring results, especially in cases that disappear under thumb pressure. In the heavier types, carbon dioxide snow is undoubtedly the best remedy available. (See Keloids.)

NEISSERIAN INFECTIONS

See Gynecological Pathology.

NEPHRITIS

Give intensive General Tonic Treatment. Begin with twenty minute radiations and repeat as often as patient's condition will permit.

NEURALGIA

Intensive Biologic radiation over the area involved. Repeat when erythema subsides, at the same time giving General Tonic Treatment.

NEURASTHENIA

General Tonic Radiations have proven very effective in practically all neurotic conditions. Treat daily in the beginning, gradually reducing treatment frequency to twice each week. Results in neurotic conditions will sur-



prise even the most optimistic. Psychology is undoubtedly a factor but normalizing metabolic action and improving glandular function is the real secret of the success obtained. See General Tonic Treatment.

NEURITIS

Treatment same as Nephritis plus local radiation.

NEUROSIS

Same treatment as Anemia.

ONYCHIA

Intensive local treatment to the point of blistering or third degree erythema is desirable. Repeat as soon as erythema subsides.

ORCHITIS

Daily radiations of fifteen minutes' duration with Biological Carbons.

OSTEOMYELITIS

General Tonic and intense local radiations are of undoubted value. Many cases of long duration have shown marked improvement.

OTITIS MEDIA

General radiations daily to the side involved are ample unless the case is very acute, and in such instance apply locally to area through suitable applicator. Many cases respond even though on the verge of suppuration. General body radiations, especially in children, are desirable.

OVARITIS

See Gynecological Pathology.

OVER-DOSAGE

Hess and many others point out the tendency to over-dosage in ultra-violet therapy. A physician desiring quick reactions oftentimes decreases treating distance or increases time without recalling that laboratory tests seem to indicate that over-dosage is resented through some protective mechanism and that while it is not yet possible to state that harmful results will be produced by over-irradiation, it is best to remember that we are dealing with energy still little understood, and says Hess: "When in doubt, the tendency has been to give an increased rather than a decreased amount of irradiation, and this inclination has been stimulated by the theory based on no scientific evidence that it is necessary to cause a sharp reaction of the skin in order to bring about the desired action".

It is believed by authorities, that when dosage exceeds receptivity, a decrease of therapeutic effects follows and in some cases positive harm is done, for example in Pulmonary Tuberculosis when a temperature is present—in Diabetis which shows signs of exudation—and in certain types of Goitre, etc.

OZENA

See Hay Fever.



PERIARTHRITIS

Same technique as listed under Osteomyelitis. This condition responds very nicely.

PERIOSTITIS

Treat the same as Osteomyelitis. Good results have been reported.

PERITONITIS

Treat carefully, commencing with General Tonic Treatments, never giving more than five minutes for the first treatment. After patient has become accustomed to rays, intensity may be increased.

PHARYNGITIS

See Laryngitis.

PHLEBITIS

Give General Tonic Treatments daily, with intensive local treatments as often as reactions will permit.

PIGMENTATION

We have no desire to enter into controversial discussion on the value of pigment. Normal sunlight or ultra-violet energy developed mechanically will produce Pigmentation, but we believe a careful study of all authorities will bear us out in the statement that Pigmentation is not always an indication of the efficiency of ultra-violet therapy. The witness of this is the fact that in many types where there seems to exist only slight Pigmenting element (melanin), marked and prompt results follow ultra-violet radiation. (See Safety, page 7.)

PLEURISY

Intensive Biological radiations over involved areas, accompanied by General Tonic Radiations are of undoubted value. Not only will duration of the disease be shortened, but the intensity of pain will be reduced. Adhesions show ready response to this treatment.

PNEUMONIA

Same treatment as given for pleurisy will give favorable results if begun in the early stages; however, "Biological" radiation is always of value in pneumonia. Prolonged Infra-Red radiations direct to congested areas are of proven value and indirect or abortive Infra-Red applications to the lower extremities will oftentimes prevent lymphatic rise and thus avoid fatalities. (See Colds.)

PORT WINE MARKS

See Naevus.



* PROPHYLACTIC RADIATION

Dr. C. A. L. Reed, former President of the American Medical Association states "of ultra-violet radiation" that:

"It has pronounced rejuvenating properties and a marked influence on muscular agility, as reported by many observers.

"It increases mental, as well as physical activity.

"It will undoubtedly come into general use by people of normal health and as a pick-me-up, not only in Winter, but periodically throughout the year. No habit could be more beneficial as a health measure."

In these days of "specialization" there is a noticeable tendency toward neglect of a great basic truth in considering both prophylaxis and clinical medicine—that disease, a break in normal health—is more apt than otherwise, to be caused or at least encouraged by decalcification or some other unbalance in metabolism. In fact, where trauma or shock have not been the greatest contributing cause, pathology generally leads back to some failure on the part of the patient, or possibly to conditions beyond his control, through which there has been created a starvation in chemistry, a subnormal activity of some one group of the important glands or organs of internal secretion or possibly an enforced hyper activity.

Whatever the pathology, however and whatever the specific method adopted to meet the symptoms and reactions General Tonic radiation is seemingly a most sensible therapeutic measure with which to augment any specific treatment, or treatments as a persistent and methodical upbuilding process. Most clinicians who have had practical experience with Light Therapy believe that solar energy properly utilized gives better results than any tonics or other chemical stimulation.

Wherever there exist deficiencies in chemistry there also exists unbalance in metabolism, catabolic rates generally prevail and persist. When solar energy, whether real or artificial is used (if artificial, preferably the complete solar spectrum from a universal carbon-arc lamp), and applied persistently, there occurs a marked physiologic change, favorable to both general upbuilding and specific treatment.

The splendid accomplishments of Heliotherapy in this country and Europe have shown that general radiation, even where there is local inflam-

* Prophylaxis or preventative medicine continues to play a dominant role in the present era; countless authorities have emphasized its importance. Recently the Rockefeller Foundation urged that every physician pay more attention to "keeping people well" stating that the family doctor could not survive unless he rearranged his program so as to give increasing attention to preventative medicine.

The data listed under Prophylactic Radiation proves that Ultra-Violet Rays play a most important role in preventative medicine; Heliotherapy might be aptly described as a Godsend to the vanishing general practitioner, inasmuch as education, to the extent that each patient or at least a large percentage of them will come in for one month of General Tonic Treatment two or three times yearly, will be applying preventative medicine in a most progressive manner, as well as making a direct contribution to the practitioner's economic welfare and stability.



mation or infection, followed or accompanied by local treatment, produces profound reactions favorable to quick recovery from the acute symptoms and:—

Much of what was formerly a reasonably accurate prognosis of medical annals is now an obsolete or at least partially discarded theory based on experiences antedating the advent of ultra-violet therapy, as physicians who are using the solar energies have happily discovered.

See footnote on Prophylactic Radiation.

POTTS DISEASE

Intensive radiation is necessary. Repeat as often as possible. If good results are obtainable without surgery, "Biological" radiations will produce them.

PREGNANCY

Radiation is of decided value. (See Expectant Mothers, page 26.)

POST OPERATIVE USES

Stimulative action of "Biological" radiation will increase body temperature, aid biologic regeneration and physiologic function; healing is encouraged and adhesions often avoided.

PROSTATITIS

Give General Tonic Radiations daily, with intensive pelvic and scrotum raying, followed by radiations through suitable applicator. *Cases in which impotency is present offer the most favorable prognosis.* (See Impotency.)

PRURITUS ANI OR VULVA

General Tonic Treatment followed by intensive local radiation. Treat locally as frequently as reactions permit.

PSORIASIS

Remove scales, apply intensive radiations on lesions. In extreme cases, concentration through a quartz condensing lens is necessary. General Tonic Treatments are indicated at least four months after disappearance of lesions; otherwise, recurrence is certain.

PYONEPHROSIS

See Gynecological Pathology.

PYORRHEA

Local applications with mild pressure long enough to produce a marked reaction have produced some very good results; however, thorough instrumentation must precede each radiation. (See Calcium Fixation, General Tonic Treatment, and Dental Indications.)

PYOSALPINX

See Gynecological Pathology.



RADIATION—ANIMAL—FOWL

Ultra-violet Radiation of chickens, as has been shown by Bovie, Steenbock and others, will cure and prevent rickets, increase body weight, fertility and weight of eggs, and prolong the laying season. Cows not getting their full quota of sunlight, exposed to ultra-violet lamps show improved weight and general well being, increase in milk giving capacity, and after a series of exposures, the milk is anti-rachitic (milk of unexposed cows does not possess this property). Success has also been reported in backward foals.

Radiation has also been used with success in distemper, the treatment of elephants, chimpanzees, reptiles, etc. Rats fed on diets deficient in calcium or phosphorus were protected from Rachitis by irradiation.

Zoological Gardens are also being equipped with radiation rooms. Research men predict that all those engaged in scientific farming and dairy husbandry will equip with ultra-violet generators in the near future. Progressive veterinary physicians are rapidly equipping their offices with efficient ultra-violet lamps.

REJUVENATION

General Tonic Treatment, if persisted in, will prove of surprising value. Dr. C. A. L. Reed, Professor, University of Cincinnati Medical School, former President, American Medical Association, reports that many observers state that ultra-violet radiation has pronounced rejuvenating properties and a marked influence on muscular agility, and that it increases mental as well as physical activity. (See Impotency.)

RHINITIS

Daily radiation during acute stages, later, tri-weekly radiation of facial area with a maximum of fifteen to twenty minutes, at treating distance of 40 inches, will tend to eliminate micro-organisms, regenerate tissue and allay inflammation. (See Hay Fever.)

RICKETS

General Tonic Treatments given daily or thrice weekly are regarded as a specific for prevention or cure. (See Food Radiation.) Hess, Windaus, Steenbock, Webster and others find that long radiations from Carbon Arc develop resistance and immunity, being better than other forms of ultra-violet radiation and allowing systemic upbuilding with less discomfort to little patients. Rickets is one disease for which Ultra-Violet or Sunlight radiation is recognized as a specific, either as a cure or preventive.

RING WORM

Treat with intensive cellulidical radiation and General Tonic Radiation.

SACROILIAC

Treat same as Lumbago.



SCABIES

Where treatment from Cellulidical Carbons sufficiently intense to produce an erythema is continued, permanent relief will reward the user.

SCAR TISSUE

See Keloids.

SCIATICA

Intensive Biological treatment over the area involved. Be sure to produce marked erythema. General Tonic Radiations should also be employed.

SCROFULOSIS SCLERODERMA

Local applications over thyroids, with general irradiation to increase metabolism. (See Lupus.)

SEBORRHEA

Treat as for general Alopecia.

SINUSITIS

Clean cavity and give ten minutes' local cellulidical radiation with suitable applicator, also General Tonic Radiations. Treat daily until discharge is under control. Thirty to sixty minutes daily Infra-Red radiation over area involved will be of great benefit.

SYPHILIS

Give General Tonic Treatments followed by local applications if there are manifestations. We do not claim that "Biological" radiations are of sufficient potency to destroy spirochaeta, but the influence of general radiation will materially aid elimination and the healing of ulcers; therefore, "Biological" radiation forms a valuable adjunct to specific treatment. Infra-Red Energy increases blood viscosity, and Radiant Energy develops a positive bactericidal element in the blood, thus developing bacteriostasis. The dual processes aid in elimination of toxins and regeneration of destroyed cells. Chemistry is corrected and the metabolism trend is upward. Mercurial Inunction (Liciardi) preceding radiation is indicated. Be careful to see that absorption is complete. Follow with long, general "Biological" radiations (two lamps if possible), at a distance of 36 inches. Deep tissue penetration from "Biological" radiations will increase circulation, reconstruction and elimination. Bath cabinet effects may be used successfully in conjunction with ultra-violet therapy.

SYCOSIS

Intensive local Cellulidical treatment is of great value. Treat twice weekly if possible. In obstinate cases, it is necessary to produce a pronounced blister.

SYNOVITIS

Ten minute General Tonic Radiations from Cellulidical Carbons with intensive local treatment over the area involved to encourage flushing, osmosis and regeneration of diseased tissue have proven very effective.



TELANGIECTASIS

Use quartz condensing lens, blistering heavily, repeat as soon as irritation subsides. Those who use "Cellulicidal" radiations prefer this treatment to radium.

TETANUS

Give General Tonic Biological Radiations daily accompanied by intensive local Cellulicidal radiations wherever possible.

TETANY INFANTILE

See Tetanus.

THYROTOXICOSIS

General Body Radiations from Biological carbons accompanied by local radiations will produce good results if patient is confined to bed.

TIANA

See Telangiectasis.

TONSILITIS

Localized Cellulicidal treatment through applicator, will allay the average acute case, and will be of marked benefit in chronic cases, especially where there is Hypertrophy and an operation is undesirable. Local radiation is also indicated as post operative treatment. General Tonic Radiations should be given if patient is toxic.

TUBERCULOSIS *

To increase resistance in all Tubercular patients is of primary importance. Convincing clinical history shows that lowered resistance is overcome, at least in part, by radiant heat and Ultra-Violet Rays—both are of recognized value in all wasting diseases. "Biological" radiations carry rich, constructive wave rates of both radiant (visible) and ultra-violet energy into the body, activate the defensive glands and organs, increase the bactericidal properties of the blood, calcium and the rate of metabolism.

General Tonic Baths, if given daily, or as frequently as possible, will prove of great value in any form of Tuberculosis. To this treatment add Radiated Foods (see page 27), watch hygiene, etc. In pulmonary cases and in any form of glandular, bone, joint, peritoneal or laryngeal Tuberculosis Local radiations as well as General Tonic Treatments are indicated. Lancing of abscesses and other surgical treatment should not be omitted. Fever is usually stopped after a few weeks' treatment, and recurrence does not take place in fully half the cases.

Intestinal Tuberculosis responds very readily, and in all cases improved appetite, decreased night sweats and greater ability to sleep are noticeable.

Tubercular Anemia, being a factor, Ultra-Violet Rays are of special value through increase of hemoglobin and lymph, there is a noticeable increase of ionizable calcium.

*See Chart. page 2.



(Diathermy is valuable in encouraging pancreatic, splenic and liver activity.)

"Biological" radiations, AVOIDING ERYTHEMA, are profoundly sedative and healing in Tubercular Peritonitis, even at times overcoming indications of surgical intervention.

In Intestinal Tuberculosis, intravenous introduction of calcium chloride and the use of pluri-glandular compounds containing parathyroid are used in connection with local and systemic irradiation. (See Calcium Fixation, page 6.)

Where temperature exists, begin treatment by exposing the feet for two minutes the first day, gradually expose larger areas—the legs and knees—then up to the waistline, midway the chest, next up to the chin. Increase exposure ONLY ONE minute daily.

Where there is no temperature, give General Tonic Baths (see page 29). If temperature is present cut treatment time to one half or one quarter.

"ULTRA-VIOLET RADIATION IN TUBERCULOSIS"

*By Percy Hall

M. R. C. S., L. R. C. P.

Hon. Actinotherapist, Mount Vernon Hospital; Author of "Ultra-violet Rays in the Treatment and Cure of Disease."

"The true value of actinotherapy in the treatment of the various forms of tuberculosis is neither sufficiently recognized nor admitted in this country. Whilst a growing body of opinion is agreed as to its usefulness in tuberculosis lesions, involving the skin, glands, bones and joints, there are many adverse opinions expressed as to its value in the treatment of pulmonary and other intra-thoracic forms of tuberculosis disease. Actinotherapy in regard to tuberculosis is not yet placed on a proper scientific footing. Technique and dosage differ widely in different hands, as do also the sources of radiation which are employed. Reports published in the medical journals rarely give details as to the exact type of lamp used, such as power, output, the 'distance' observed, exposure time, intervals between doses, and total number of applications given. Dosage is too often estimated in a haphazard manner, without regard to the patient's age, weight, tolerance, and power of resistance. Unless and until more careful and precise methods of dosage are practiced, a conflicting amount of evidence is bound to result. *Actinotherapy acts on the human tissues as a general stimulant, and the stimulus must be adjusted to the patient's powers of resistance.* If the dosage is correct, it is usual to find a gradual improvement resulting in the patient's condition, and that *wherever* the seat of the tuberculous disease may be, calcium metabolism is stimulated, appetite and digestion are improved, and the body weight increased. Actinotherapy acts (1) by stimulation of the central nervous system, via the nerve endings in the skin; (2) through the blood-stream; (3) upon the skin itself by setting free in the blood activated "ergosterol" and other bodies, which



are "vitamine precursors." It would also appear to have a stimulant effect upon the internal secretory glands. Ultra-violet rays certainly tend to increase iodine, calcium, iron, and phosphorus metabolism probably by favoring their absorption and cell-fixation. In the employment of actinotherapy there are three principal sources: (1) the carbon arc; (2) the quartz mercury vapor tube; (3) the tungsten arc. All these have their respective values and separate indications in different cases, according to the nature, extent, and situation of the tuberculous lesions, the stage of the disease, and the patient's 'resistance' to it. The sequential use of different sources is frequently of great value. No one source is of universal value. So far as cases of pulmonary tuberculosis are concerned, nothing but ill will result if cases are treated when the patient's temperature is 100° F. or over. A rise of temperature over 100° F. is an indication that treatment should be suspended, and the patient kept at rest and in bed. Treatment can be resumed when the temperature falls to normal, and the dose lowered. With care a very large proportion of pulmonary cases can be helped towards recovery, including cases which had previously been on the down grade. Such, at any rate, has been the writer's experience. In the other types of tuberculosis, rapid improvement and cure result in the majority of cases treated if reasonable precautions are observed."

Kruger summarizes the physiological effects responsible for the benefit derived in tubercular infection by saying that Ultra-violet energy reduces blood pressure and stimulates nutrition; and also, it exerts a bactericidal effect at the same time that it displays a desirable analgesic quality. It provokes a subjective sense of well-being, increases the appetite and immeasurably invigorates the lax physiology of the patient. This contributor, in his experience, does not consider hemoptysis to be a contra-indication for the use of Ultra-violet.

TYPHOID AND OTHER FEVERS

Ultra-violet rays properly administered, especially when carried into the tissue by association with Radiant light (which in itself is deeply penetrative) are lethal to bacteria. Phagocytes are activated and bacteriolysis is encouraged. Meanwhile, resistance is being developed and tonicity established, therefore ultra-violet therapy is good therapy in fevers.—General Tonic Treatment.

ULCERS

Give General Tonic Radiations and intensive local applications. For Gastric Ulcers see Gastritis.

URETHRITIS

See Gonorrhea.

*From The British Journal of Tuberculosis, October, 1927. Those interested in the role ultra-violet radiation plays in tuberculosis would do well to secure a copy of the above Issue from J. E. Stechert & Co., 151 W. 25th St., New York City, U. S. Agent.



URTICARIA

Ten minute applications twice weekly with the full use of salines will give results.

VAGINITIS

See Gynecological Pathology.

VITILIGO

Intensive local Cellulicidal treatments through quartz condensing lens. Normal skin around lesion must at all times be protected.

WHOOPING COUGH

Administering of quinine sulphate in conjunction with General Body Radiations, sufficient to give medium but not intense reaction, seems to give good results. Where either quinine sulphate or general radiations have been used alone, results were seldom satisfactory.

WOUNDS

Give daily General Tonic Radiations followed by intensive local radiations as often as reactions permit. If the wound is not severe, daily tonic radiations may be dispensed with.

X-RAY BURNS

If an open ulcer, treatment of one hour should be given the first time, or a treatment from twenty to thirty minutes' duration may take its place, provided a quartz condensing lens is used to focus rays on the area. Before commencing treatment, see that ulcer is as free as possible from sloughing or dead tissue. After two or three intensive treatments, radiation on the area can be gradually decreased in intensity, but given at least once each week. General Tonic Treatment is of value.

If the X-Ray burn is mild, and no ulcer is present, two or three ten minute radiations, without the condensing lens, will usually suffice.

The late Dr. Granger stated that: "The tonic effects of Biological Radiation are indicated wherever Pathology exists."



SUGGESTIVE INDICATIONS

General Practitioner:	All Acute Pain and Inflammation
	Wounds and Infections
	Systemic Toxemias and Malnutrition
	Activation of Eliminatory Process
	Blood Streams, Cells and Tissues
Surgeon:	Conditions of Lowered Vitality
	Operative Shock
	Post Operative and Infected Wounds
	Systemic Toxemias and Malnutrition
	Convalescents
Internist:	Granulations
	Scar Tissue
	Appendicitis, Acute or Chronic
	Septicemia
	Anemias
G. U. Man:	Constipation and Nephritis
	Debility
	Diseases of Malnutrition
	Acute Arthritis
	Acute Infections
Eye, Ear, Nose and Throat:	Gonorrhea and Kindred Infections
	Nephritis
	Chronic Inflammations
	Prostatitis and Cervical Abrasions
	Pain
Orthopedist:	Otitis Media
	Ozena and all Infectious Discharges
	Catarrh
	Chronic Inflammations
	Atrophic Rhinitis
Dermatologist:	Acute Arthritis
	Osteomyelitis
	Suppuration or Abscesses
	Arthritis—Chronic
	Progressive Muscular Atrophy
	Rickets, Tuberculosis, etc.
	Cellulitis
	All Infections
	Systemic Toxemias
	Psoriasis
	Chronic Eczemas
	Lupus

For detailed guide in above and other diseases see the following pages.



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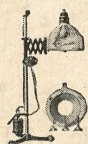
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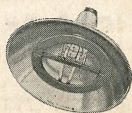
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