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Thesis for the degree of Doctor of Medicine of the University of Edinburgh.

by

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MB & CM

April 26th 04.
Acne Vulgaris & Comedo.

Case I.

Miss E. M., age 23. a short, strong, country girl, with a dark, greasy complexion. Black hair. Suffering from acne of a most severe type, consisting of numerous indurated, purulent, acne pustules & nodules as large as marbles, scattered irregularly over the entire face. Also large comedones on the nose, cheeks, & chin.

She had been treated for several years previously with medicines, applications & incision. On May 12th, 1903, I began treatment with the Röntgen Rays using a Hillard osmos-regulator tube, exposing the entire face for 10 minutes every second day. (the eyes protected by Lead Spectacles) at 18 inches from target. At night I instructed her to bathe the face with very hot water. Rub with a rough towel & apply a mercenial ointment.
Case I Cont.

After fourteen exposures June 7th I noted the following.

The skin was of finer texture than before. The sweat glands were apparently less active the ducts being contracted.

Comedones had disappeared with very few exceptions.

The acne spots were diminished by two-thirds, & the inflammatory process stopped.

The large purulent nodules were very much reduced in size & of firmer consistence.

There was no return of the skin from exposure to the Rays.

The treatment was continued until July 1st 08. in all 26 exposures.

When I noted, that all tendency to Acne new formation was apparently ceased.

The skin is smooth & elastic.

Sweat duct openings smaller, & the secretion natural, only occurring on exertion. The comedo & small acne spots have entirely disappeared.

& the former large nodules can only be felt as small thickenings in the skin.
Case I cont'd

The patient was visited once on three occasions viz. Aug 5th, Oct 24th & Jan 28th, since treatment. There is no sign of recurrence, the skin being of a good colour & texture.

Case II.

The Hon. Miss H., age 23. Fair, coarse oily complexion; thickly spotted with acne & comedos. Suffers from habitual constipation, otherwise healthy. Has had acne for seven years and tried many methods of treatment. On Dec 15th, treatment was commenced with 10 minute exposures at 20 minutes distance from the focus of an ordinary soft Bi-arcode lamp, and continued every third day. Facial massage with pulse acid Boric was ordered every night & morning.

Recovery was very rapid after the third exposure and on Jan 21st all trace of the acne had gone, except a few pitted scars in the skin. The comedones disappeared after six or seven exposures. No dermatitis or pigmentation. March 6th No recurrence.
Case III. Acne & Comedo.

M. Mr. age 31. Ruddy complexion with a coarse skin. Complaining of persistent acne of fifteen years duration on both cheeks and nose; has chronic constipation and atomic dyspepsia.

Began treatment on Dec 18th with response to the Villard sono-regulator tube.
10 minute sittings at eight inches from the forehead every third day.
Constipation and gastric atony treated by massage and the high-frequency current.

On Feb 26th after fourteen sittings all acne spots had disappeared and although some acne spots developed during the latter time of treatment, the patient considered herself cured.

On March 2nd the skin was perfectly clean and there had been no recurrence.
No dermatitis or pigmentation during treatment.
Microscopical Changes in Acne and Comedo

In all the cases I have examined microscopically during and after treatment with the X Rays. The most marked effect is the evident shrinkage of the glandular tissue with narrowing of the congested bloodvessels. Leucocytosis becomes less and gradually ceases altogether. The micro-organisms cease to develop probably owing to a cessation of their food supply and the greater capability of the tissues to resist their invasion. The organisms themselves were not destroyed. I have proved that Staphylococci and Streptococci in culture media although not destroyed by exposure to the Röntgen Rays are incapable of further increase during exposure. Their activity however increases after removal of the influence of the X Rays. until in time no doubt development would go on as usual under favourable circumstances.

The success of X Ray treatment of severe acne and Comedo is undoubted and surpasses all other forms of treatment.
Acne. Contd

As a permanent cure, in all I have treated about a score of cases of more or less severity, many of which were tried medicinal treatment without benefit. In every case the result has been most encouraging and only in a small number of cases has recurrence taken place within a period of twelve months.

Cases of recurrence recover as a rule with a few additional injections. The three cases selected for this paper are those in which all medicinal treatment had failed absolutely.
Acne Rosacea

Case I.

Mr. D. age 19. A dyspeptic with very severe acne Rosacea involving the nose only. The nose was slightly hypertrophied and covered with pimple pustules. Former treatment had only given temporary relief. Most severe attacks in winter and cold wintry weather.

Recommended iron tonics, and X-ray exposures which commenced on November 2nd 38. Fifteen minute sitting twice weekly. At the end of the first month the most marked effect was the reduction of the hypertrophy and pain, small pustules of new formation however kept appearing every few days.

On Dec. 31st marked improvement was noted. The redness and pustulation was almost entirely gone, and the nose appeared normal & more pliable. Treatment was continued until the end of April 39, when the skin showed signs of Dermatitis.

April 26th 04. No recurrence.
Acne Rosacea. cont.

Case II

Mr. F., age 32. A clerk. Suffered from dyspepsia & constipation – consulted me about this face. He had very severe Rosacea covering the nose and cheeks which caused severe pain. The affected area was very much hypertrophied; the disease growing worsted for a period of nine years.

This patient was treated from June 26th 08. Sitzing every third day. Light used was the "Mills and regeneration" at 15 inches distance from the target. Improvement did not become apparent until the twenty-sixth exposure when new interrupted pustules ceased to form. In all forty-nine exposures were required to complete recovery. On Oct. 15th treatment was stopped. There was now in place of Rosacea a fleshy brown pigmentation extending over the tip read ala nasi. On Dec. 8th patient returned with slight recurrence on the nose, which disappeared with nine more sittings. All pigmentation however had gone.
Microscopical Changes in Rosacea.

Consists in the destruction of the inflammatory folliculitis by inhibiting germ multiplication as in Acne Vulgaris. The Rosacea itself is the more stubborn to get rid of after the folliculitis has stopped. And the action of the X Rays on Rosacea is to eliminate the calibre of the blood vessels supplying the inflamed surface. Undoubtedly the removal of inflammatory follicles and inhibition of germ development is the chief element of success. I have only treated the two cases described with Roentgen Rays and therefore cannot be dogmatic on their greater benefit in Rosacea over other forms of treatment, such as electrolysis, but certainly the treatment is simple. Its chief disadvantage is the long time necessary as in case I.

On April 19th I saw Case II and the result is all that could be desired.
Linnaea Donoriana

Case I.

Three children of Mrs B: suffering from Linnaea Donoriana.
Consisting in patches invaded by the *Trichophyton* varying in size from a three-penny piece to a half-crown. Microscopical examination showing the branching hollow tubes and the mycelium.

May 5th. 09. Fifteen minutes exposure at twelve inches from a self-regulating muller's tube with a 'heavy target,' every second day.* After six exposures the *Trichophyton* patches became erythematous and the diseased hair to fall out, the process becoming much more rapidly in the youngest child; the distance of the subject from the target was increased to 20 inches and the treatment resumed as before.

After fourteen exposures the alopecia was complete; the skin glossy and erythematous.

July 10th. No recurrence and complete hair growth over the entire scalp.

* Exposures were made through holes in a lead mask.
Hyperhidrosis.

Miss H, age 19. Anaemic, otherwise in good health consulted me with regard to profuse sweating from the axillae on exertion or excitement.

For two months I tried various medicinal treatment, baths &c.

without any benefit.

Oct 19th, on my recommendation, she was willing to try Röntgen Ray treatment.

Sitting in my study day five minutes

upper arm 12 inches from a soft Bi-anode Tube, to each axilla.

After three exposures she declared that the benefit was remarkable.

the treatment was pursued in for twenty-one sittings, until the axillary hair was becoming and falling out.

The benefit was very marked.

indeed, the axillary skin in stead of being rough and moist, became more silky, and did not sweat, even with shivering, beyond what should normally occur.

Last seen on April 22nd and is satisfied that she is cured.
Hypertrophia cont'd

This is the only case of marked Hypertrophia I have had the opportunity of treating, but the result has been so satisfactory, that on future occasions I should certainly turn at once to the Röntgen Rays for a cure, as in many cases medical treatment is so unsatisfactory.

The histological effect of the X Rays on the skin certainly supports this theory.

Atrophy of the sweat glands, hair follicles and sebaceous glands is the result viz. diminution in the quantity of secretion from these glands. There is also the effect of the X Rays in inhibiting the increase of Microorganismal life, which will diminish the irritation caused by their presence or their products in the glands.
Eczema.

Case I.

Mrs. W., age 84, suffering from chronic irritable eczema of both legs. Dyspeptic. Has been treated for eczema for over fifteen years. Has frequent exacerbations with most intolerable itching.

March 5th, 08, during a severe attack, came for relief. After 20 minutes exposure to a Bi-auricle Tube at eighteen inches, the itching was entirely relieved. Patient was ordered to dress the legs with Para-acetic-acid, and the dyspepsia prescribed for. Sittings were continued every fourth day, which afforded great relief in that the itching died down, and the inflammation subsided very considerably. Only a reddish dry tremontous patch remaining, when the patient decided not to continue treatment because her aged condition made it a great difficulty to get to my Surgery.
Eczema
Case I cont'd
I have seen Mrs W on two occasions since treatment, the last being on 17th Oct.
She had not had a return of the former severe attacks, and although eczema is present in a
mild form on both legs, she is now in comfort & grateful for the relief afforded.
Several other cases of both dry and
weeping eczema I have treated
have undoubtedly been greatly
relieved from the itching and
discomfort; and also in mitigating
the severity of recurrences. But
I have had no severe cases in
which an absolute cure has been
affected.
I now combine X Ray with general
& local medicinal treatment, and
consider the use of X Rays more
beneficial in the dry chronic eczema
than in the acute inflammatory
forms.
Psoriasis.

Mr. W. age 46. Stout, well nourished & healthy, suffering from psoriasis of the lower limbs and forearms. Has had medical treatment, general and local for years.

May 20th: Started sitzings for X Ray treatment: exposed the largest patches (some 3 x 4 inches) to the direct rays of a heavily filtered Müllem tube at 18 inches distance 10 minutes at each sitting every second day.

In three weeks most of the scaling on the larger patches had fallen off leaving a smooth glossy scar underneath of reddish colored skin. All the small surrounding patches exposed to the rays scaled off and were apparently cured. But five weeks after cessation of treatment, the disease had recurred.

Another case treated similar to the above was benefited, in so far that the scales & scales were removed with a healed surface underneath.

In this case also recurrence took
Psoriasis court place within two months from cessation of treatment. Not a very encouraging result, as in many cases the scales and scales may be removed much more rapidly by other means. X Rays may be useful in certain cases of localised psoriasis but in general psoriasis the time affected in a proper sunscreen of the whole body to the Rays will always be the greatest drawback.
Lichen plans and purigo.

In two cases of Lichen plans and one of purigo I have tried X Rays but as I consider that effects from the high frequency current much more beneficial in affording relief, I will not dilate further on this treatment by X Rays.

Perforating ulcer of the foot.

Mrs. B., age 59. Complaining of a small ulcer on the sole of the foot, under the 1st metatarsal - phalangeal joint.

Duration one year. Surgical and Medical treatment of no benefit. I tried X Ray exposures every third day for twelve weeks with absolutely no change in the size or depth of the ulcer.

Relief from pain, and a cleaner sore were the only recommendable results, the discharge from the ulcer having become serous instead of purulent. Ultimately I amputated the toe with the head of the metatarsal bone.
Lupus Bougaris.

Case I.

Miss P., age 17. A stout healthy looking girl suffering from Lupus Nodosus on the left side of the neck and extending up to the temporal region and cheek on the left side. The lesions were typical soft, granular, and unhealing covered with dirty yellow-brown crusts. Parts where healing had taken place were disfigured by thick rigid congealed oozing scars. No abscesses, swelled, nor enlargement of the cervical glands.

The disease commenced when patient was 12½ years of age with a small ulcer on the neck below the angle of the jaw, and slowly spread, healing at times under treatment and again the scars scabbing and breaking down. There was little pain to complain of. No Tubercolosis nor any history of Syphilis.

April 16, 03. Treatment with X Rays, using the Villand Demo. Regulator Tube, as hard as possible, (which I do...
Lupus Vulgaris.

Case I cont'd

When the case is likely to be a protracted one.

The sittings were of 20 minutes duration, every second day, over a period of two and a half months. Distance from target 18 inches.

At the end of the first month, May 27th, improveinent in the healthy appearance of the Lupus ulcer was marked indeed. The pale, feebly granulations had assumed the appearance of the brighter red granulations in a sore healing rapidly, and on the smallest occasion, the epithelial margins of the ulcers instead of being ragged, were now shooting in epithelial processes over the now healthy granulation tissue. Scabbing had ceased and there was very little discharge of a serous nature.

The wounds were of course carefully dressed with gauze and washed with 1% Lupus solution.

At the end of two and a half months, all the ulcers had quite healed.
*Eupno vulgaris.* Em.

**Case I.**

With pale thin scar tissue, and the thick coated old scars, had lost their congested thick appearance, felt more pliable & soft, and did not make the movements of the neck so limited.

No dermatitis interfered with the course of treatment April 20. 04. Nine and a half months each: No recurrence had taken place, and the scars were healthy.

**Case II.**

Mr. S. age 30. A healthy strong country man, suffering from a string of *Eupno vulgaris* on the extensor surface of the right wrist. There was no trace of tuberculosis and no history of syphilis. The lesion consisted of a long ulcer 3 in. x 1 1/2 in. further up the wrist a mass of tissue consisting of the typical "apple jelly" bubocele of *Eupno* the pale granulations of the ulcer were covered with dirty brown crusts.
Case II.

There was no generalized enlargement and the ulcer was of three years' duration, increasing very slowly in size and never was treated under treatment.

April 2nd 04. Suppuration was begun, and continued every third day until March 14th, when treatment had to be suspended for a week owing to a severe dermatitis of the surrounding skin.

March 22nd 04. Patient returned with the dermatitis well, and the tumor mass beyond the ulcer entirely gone. The ulcer itself had now diminished in size to 2 in. x 1/2 in. Ulcerations red and healthy, with a broad rapidly growing epithelial margin encroaching all round. Four more sittings were given once weekly, at the end of which time nothing remained of the ulcer except a healthy well-white scar.
Microscopical changes in Lupus Ulcers.

From examination of four typical cases.

After six exposures, cuttings taken from the margin of the lesions showed congestion of the minute blood-vessels of the surrounding healthy skin, and also hyperemia of the granulation tissue in the ulcers and surrounding the tubercles.

After twelve exposures, the surrounding skin hyperaemic, the stratum granulosum is throwing out processes of epithelial cells over the surface and invading the granulation tissue of the ulcer.

The Lupus tubercles are fewer in number, much smaller and being invaded by chronic granulation tissue cells. Epithelial cells markedly degenerating.

After eighteen exposures, giant cells and epithelioid cells have been replaced by leucocytes in masses. Congestion of the blood-vessels is now not apparent. The entire surface of the ulcer gradually becoming covered with healthy epithelial cells.

The process consisting of hypoxaemia, leucocytes with distinction of diseased tissue followed by absorption and healing times.
Lymphatic ulcers and glands.

I have had small opportunity for forming a definite opinion as to the efficacy of X Ray treatment of the above as the only cases I know about are still under treatment.

In the case of superficial ulcers exposure to X Rays undoubtedly changes the ulcer from an indolent sore into a healthy healing ulcer, rapidly stopping the purulent discharge andpromoting epithelial growth of a sound nature from the margins of the ulcer as is the case with lupus.

With regard to the glandular enlargement and suppuration.

X Ray exposure extending over a long period has shown some improvement in the following ways:

Relief from pain when there is acute adenitis. Erosion of enlargement and suppuration. Diminution in size and softening of the glands.
Laryngeal Tuberculosis and Phthisis (Pulmonalis).

Case I

Wife A., age 29. Thin emaciated girl suffering from Laryngeal and Pulmonary Phthisis of three years duration. Tubercular history. On radiography showed extensive dark patches on both apices and round the roots of both lungs. Respirations and pulse much accelerated. Had been refused entrance to sanatorium two years ago and wished to try X Ray treatment as a last resource.

Began treatment on August 10th 03 and came to the surgery intermittently about twice a week for three months. No improvement could be detected at the end of that period, but within the reverse. X Ray treatment was abandoned.

The patient died on June 10th 04.

Other cases which I have treated for Laryngeal or pulmonary phthisis do not give results that
Laryngeal and pulmonary phthisis. cm² justify one in keeping their patients at home, under often the most unfavorable circumstances, with even a reasonable chance of cure, where so much can be done by change to a favorable climate and Sanitarium Treatment.

X Rays are undoubtedly most valuable for diagnostic purposes but not for treatment per se.
Rodent ulcer.

Case I.

The Rev. J. W., age 61, suffering from a Rodent ulcer on the left cheek, over the ascending Ramus of the jaw 2 1/2 in. long x 1/2 to 3/4 in. in breadth. Two years ago had an ulcerating growth on the left cheek about the size of a shilling excised by a London Surgeon. Six months after the operation a small spot appeared in the operation scar, scabbed over and slowly spread downwards towards the angle of the jaw.

On examination I found a scabbed Rodent ulcer ulcerating growth mixed up with whiskers, apparently only involving the skin tissues; not adherent to the subcutaneous tissues and no glandular enlargement in the neck. The parotid gland was about the size of a small bean. No pain. Microscopical examination confirmed the diagnosis.
Case I.

June 15th 03. commenced treatment with the
Villermé demo. reflex, hand;
en minute exposures at eighteen
nches distance from the tube target.
Improved. Improvement seemed to take place
after the third exposure and after
nine sittings all scabbing and
pusulant discharge ceased.

The skin round the ulcer was
hyperemic; the edges of the
ulcer flattened out and began rapid
epithelial encroachment on the ulcer.
Sittings continued every third day
over a period of nine weeks.
When healing was complete,
with the exception of some suspicious
nodules in the skin.

Mr. W. was tried of the treatment
and did not return for three
weeks, when I found that the
suspicious nodules which remained
had commenced to ulcerate.
Treatment was accordingly resumed
and continued every third day,
with every appearance of a cure.

April 26th 04. No recurrence.
Case II

Mr. R — age 72. A healthy old gentleman came to consult me with regard to an ulcerating cancer involving the inner half of the right lower eyelid and extending over the right nasal bone.

On examination I found a nodular unhealthy deep ulcer, which had destroyed half of the right eyelid extending down into the lacrimal sac and over the right nasal bone, filled with debris. The conjunctiva was also inflamed and nodular over the inner half of the eyeball.

Microscopical examination confirmed the diagnosis of Rodent ulcer.

July 3rd 03. Begun treatment as in the former case with the Oillard con-
regenerator tube, Grand; protecting the eye as much as possible.

After a fortnight the base of the ulcer had assumed quite an healthy appearance with an island of white epithelium in the centre. The margins of the ulcer had lost their broad rounded edge, and an
Case I

Invasion of Neglected Cellulitis was apparent around the edge of the sore. The ulcer in fact had much diminished in size and depth. The nodules in the surrounding skin and conjunctiva were fewer in number, the remainder smaller in size.

The wound was carefully washed and dressed with 5% spirit of Ipric solution, to which my old gentleman wished to attribute the success of the treatment, although he had had lotions and operations for several years for the ulcer.

June 19th the ulcer had entirely healed almost level with the surrounding skin, the lower eyelid having reformed without much displacement. Intense conjunctivitis however had to be treated for several weeks afterwards. And the laceration sac being entirely destroyed, the laminae were removed.

June 21st 04. No recurrence.
Microscopical Changes in Rodent Ulcer.

After six days exposure to X Rays.

Hyperaemia of the bloodvessels in the diseased tissue and surrounding healthy skin. Also hyperaemia of the stroma surrounding the epithelial cell groups. The epithelioid cellular elements have become granular, the nuclei less distinct and the individual cellular elements difficult to define.

After 12 days exposure to X Rays.

The arteries have become much thickened, the ulcer margins had flattened almost to the level of the healthy skin, and all but a few small nodules had disappeared. Healthy epithelial cells have entirely covered the surface of the ulcer, the epithelioid cells and nodules are replaced by fine fibrous tissue.

The ultimate result is eminently successful and my experience is that no growth or ulceration is destroyed more rapidly or with greater certainty than Rodent Ulcer.
Seiminos Carcinoma of the Mamma.

Miss W., age 48. An unhealthy, cachectic looking woman. Complaining of a lump in the right breast and stiffness of the right shoulder joint. On examination I found a Seiminos Cancer involving nearly the whole breast, also large glands in the axilla.

June 12th 08. Performed amputation of the breast and dissected out the gland mass in the axilla. Result excellent.

Sept. 10th 08. Called again at my surgery about a lump in her neck.

I found in the posterior triangle of the right side of the neck a large mass of gland glands, and recommended a trial of the Roentgen Rays, which was at once acceded to.

Sittings of twenty minutes duration were given every second day for four months, with certainly some benefit; the glands got much softer and could now be moved about. Pain had gone. Stiffness in the right side of the neck was much relieved.
Sarcoma Carcinoma of Breast Case I

Patient ceased to keep treatment on the 11th of December 03 to nurse a sick relative, and I did not see her until March 30th 04.
There was at that day no change in the glands from the date of the last sitting. No new recurrences, and Mrs D had gained weight considerably.

Case II.
Mrs H. - age 29. A stout,healthy, looking young woman. Had a tumor removed from her breast three months previously.
At the time I saw her, she had a mass of hard adherent granulations at the site of the incision, and the whole breast was a mass of Scirrhus. My partner performed amputation, cleaning out all the axillary glands.
Healed by first intention with the exception of a small patch about the centre of the wound, which was hard to feel unthoroughly.
Sarcoma Carcinoma of Breast - End

Looking. Microscopical examination confirmed our opinion that the ulcer was carcinomatous.

She began X Ray treatment. 10 minute sitting imposing upon her to a soft Röntgen tube at 12 inches distance every second day.

From commencement of treatment Jan 15th to the end of February there was absolutely no change in the ulcer beyond that the discharge was not now offensive and pain abated. Dermatitis became troublesome but by increasing the distance between the ulcer and the Röntgen tube we were able to persist in the treatment.

March 29th marked improvement. The ulcer was now filled with healthy granulations over which processes of Epidermis were growing rapidly.

April 17th 04 perfectly healed.
No recurrence elsewhere.
Serious Carcinoma of Breast. Cure?

Mrs S. — age 65. A stout lady, pale and
anxious looking. Came to consult about
a hard lump in the breast.

On examination I found a firm irregular
discoloured mass, in the upper right
quadrant of the right breast, and
pelvic lymph enlargement in the axilla.

Patient was averse to operative interference
but readily consented to trying Roentgen
Rays.

Dec 1923 commenced treatment. Using a heavy
Focused Millen's self-focusing tube, at
18 inches. (a very penetrating tube)
Sitting every third day.

Jan 1924. The tumor had diminished in
size quite one-third, and was
considerably softer and more
movable. The axillary glands
were soft and could be better
defined; all pain had gone after
the second sitting. After this time
progress was very slow indeed in the
breast tumor, but the axillary
gland enlargements had so far
subsided that they could just
be palpated on Feb 23rd 1924.

Considerable dematiaceous now troublesome.
Semino Carcinoma of Breast. Cont.

Case III.

During the treatment with Lot. phenol, onion and 240% Treatment for a fortnight, after which period sittings were resumed using a C. Willard tube instead of the Willard tube.

April 26th: Treatment will continue.

Lesion reduced less than one-third its original size. quilt moves; secretions all round the margins, but still retains the very hard tumefied centre. No glands can be palpated in the axilla. Patient is gaining flesh.

Histological Changes in Carcinoma.

In the early stages of the treatment vascular hyperaemia is the only visible change in the growth. Later degeneration of the nuclei and intracellular elements. The nuclei degenerate and become difficult to stain. The epithelial cells degenerate, disintegrate and finally are absorbed by leukocytes, fibrous tissue taking the place of the Carcinomatous tissue. During this process vascular changes also occur. The vessels of the arteries becoming thickened and fibrous thiny
Squamous Carcinoma, Breast, cont.
Narrowing the lumen of the blood vessels and gradually diminishing the blood supply to the part(s).

Röntgen Rays in my experience always improve cases of carcinoma. If the tumour is in an early stage, the chances of cure by their use should be given before operation is resorted to. In recurrent carcinoma in the breast my cases have done well. It will only be a matter of time to learn whether the cures affected are permanent or not.
Hemoid.

Three cases of Hemoid I have treated with X Rays for varying lengths of time; have derived no marked benefit.

One time after a sitting the patient complained of the pain being much more severe, and again that the pain is considerably relieved.

Slight bands of scar tissue from tuberculous ulceration are certainly softened and rendered more pliable, but in Hemoid I have seen no such change.

Chronic ulcers, Simple and Varicose.

Marked benefit in these cases can be obtained by X Ray treatment.

Hypoxemia followed by degeneration and absorption of the diseased tissue, aided by the antiseptic action of the X Rays, cleans up an unhealthy sore in a wonderfully short space of time. Epithelial growth is stimulated.

Skin grafting may be practiced at the same time without any apparent detriment to the life of the grafts from exposure to the Rays.