Observations on Certain Thyroid Diseases.

being a thesis written for the degree of M.D.

written by.

Robert Wilson Gibson.

Orton.

Mr. Ibby

Westmoreland

April 1900.
Goitre

Hypertrophy of the thyroid gland which may be endemic or sporadic in its occurrence.

The name Goitre has been probably derived from "Guttura" the throat (Vulgar Latin) other names for this condition are Bronchocele and Yorkshire thick neck.

Goitre is endemic in certain mountainous regions of Switzerland, France, Italy, the Orissa district in India, generally it is sporadic in its origin in the United States of America, the disease however is prevalent in Michigan and near Lake Ontario, it may be found in the swamp and marshy districts in certain parts of South America especially where the drinking water is contaminated with decaying vegetable matter.

The thyroid enlargement may be rapidly produced. Bally quotes certain waters in Switzerland as producing it in eight or ten days. In certain limestone districts in England in Derbyshire or in my own county. Westmorland the disease is far from uncommon and may in this country be produced sporadically by impure drinking water, improper diet, and bad sanitary conditions in and around dwelling-houses.
Dwelling-houses which conditions tend to produce the peculiar cachexia of the blood giving rise to the Goitre, in some cases the Thyroid enlarges in pregnancy and in uterine affections such as fibroids, this goitrous enlargement is generally vascular and is due to reflex irritation of the emotional centres or of the sympathetic nervous system.

The chief varieties of ordinary Goitre are the parenchymatous form with a general enlargement, the newly formed follicles being filled with colloid material and the formation of new glandular tissue around them, a Cystic form where large cysts are present sometimes with calcification commencing in their walls.

The enlargement sometimes affects only one lobe of the Thyroid gland but more commonly affects both lobes and the isthmus or it may affect the isthmus alone, the chief unpleasant symptoms are those resulting from pressure on the trachea causing a difficulty in breathing and a roaring sound proceeding from the trachea on respiration, we may have other symptoms.
Symptoms the result of pressure on the sympathetic nerves. In certain valleys in Westmoreland Goitre is still met with and numerous cases from time to time have to be treated by the medical practitioners whose lot is cast amongst these dales or valleys nestling between the spurs of the Pennine Range, streams run along the bottoms of these valleys very often from a mountain tarn, the valleys themselves are secluded, may be from 300 to 800 feet above sea level, communication with the outside world is not carried on to a great extent, the hills surrounding or bounding them are made up of the Magnesian Limestone formation, many of the dales folk trace their ancestors back for generations as living in these valleys, there, they were born and reared, and only until late years the railways and the drifting of the younger inhabitants to towns has caused inter-marriage to decrease, the springs from which they obtain their drinking water is generally hard and as is the case at Patterdale and Milburn impregnated with metallic sulphides, such as lead and copper. The inhabitants lead a simple pastoral life.
And although now-a-days their method of living has improved as regards food, fresh meat, fish and vegetables and their sanitary surroundings have been placed in better conditions there still remains that hereditary tendency to goitrous enlargement. More commonly in females, in all cases in males that I have met with their mothers have had the goitre to a marked degree; in three cases recently under my treatment the mothers all have the affection, in another case the mother has no goitre, her sister has a large one, her son aged 20 years and daughters aged 17 years each have goitres. The common and popular belief is that it is caused by drinking hard water, and no doubt in a great number of cases this is primarily the cause, but there still remains the question of hereditary tendency even when the person is removed or borne away from a goitrous locality as in the case of a man who had had a large goitre for twenty years, but was born in a non-goitrous district the mother had a goitre and was born and lived for many years at Melbourne.
Before mentioned as a goitrous district and where there are lead mines, this particular goitre disappeared rapidly under treatment by thyroid extract, but for some time after the man had marked symptoms of thyroidism, with increased production of urea. Another case under notice the woman has a large goitre, her sister has one and also has a son 28 years of age a 'cretin'.

Treatment. The same lines of treatment do not suit all cases alike in bringing about a satisfactory result. In the thyroid enlargements of young people or in the soft goitres of older patients thyroid extract or thyroid colloid very often does good. Change of locality and the use of filtered rain water may assist. Painting with iodine externally and iodide of potassium internally is a useful treatment in other cases. In many cases especially the cystic form, dilute hydrofluoric acid and the fluorides are of great use. Liqueur besiculod is of great service.
Exophthalmic Goitre (Hypothyreosis)

Characterised by the presence of four Cardinal symptoms, the goitreous or enlargement of the thyroid gland, the exophthalmous or protrusion of the eye-balls, tachycardia, or rapidity of the action of the heart, and tremors, to which may be added Graefe's sign, the upper eyelid not following the eye-ball when moved downwards. Stellwag's sign, which is the spasm or relaxation of the upper eyelid.

This disease was first described in the writings of Caleb Pavy 1825, Hajani 1798, Graves 1836, Basdew 1840, and is known by the name of Gravan's disease in this country, Basdew's disease in Germany. The disease is more common in females and extremely rare in males and varies in its intensity, we may find cases in which the goitre is not present to any extent, or the exophthalmous not marked. Graefe's sign or Stellwag's are only present in extremely severe cases. The age during which the disease commences is generally stated to be between 20 and 30 years, but I have met with it at the age of 16 years. Anemic and Chlorotic young women are more subject to it; in some cases
Cases it has had its starting point in violent mental emotion or shock and in these cases the emotional centres are directly or indirectly involved, in the majority of cases no external influences likely to cause it can be traced, hysteria predisposes and those with a neurotic family history, in one severe case under my observation and which was confirmed by Dr. Paton of Liverpool to be a severe case of strumhaline-goitre, the patient was a young woman of 20 years, whose father died of diabetes, his sister had chorea, her mother had a goitre, her father’s aunt, an old woman of 80 years who lived near this case had an enlarged thyroid gland which she said she had had twice a young woman. In a second case I was able to obtain a history of chorea on the mother’s side, and not long ago saw an example of this disease in a terrier bitch which had had chorea following distemper from these facts I am inclined to believe that the same neurotic predisposition is present in both chorea and strumhaline-goitre, but the agents causing the irritation of the nerve centres differ in the respective diseases.
diseases. The vessels of the thyroid are much dilated the gland may be felt to pulsate and on auscultation a murmur or double murmur may be heard, palpitation is generally first complained of with shortness of breath, the breathing often being harsh and respiration the pulse rate may range from 100 to 140 or more and the pulsation is visible in the peripheral arteries and capillaries, venous pulsations may be seen, the arteries at the root of the neck throb violently, murmurs may be heard at the apex and base of the heart, the skin is often flushed and clammy to the touch. Chavasse describes the electrical resistance as diminished owing to this condition brought about by the action of the vasodilators sometimes the burning increases with profuse perspirations, sometimes the skin irritation is distressing, and pruritus and urticae may occur. the temperature is often slightly raised. the urine is increased in quantity and very often contains albumen or sugar which I have also met with in patients undergoing treatment for Iodine toxicity by means of Thyroid Extract feeding when
When the dose has been increased and the marked symptoms from such increased dosage take place, the temper of the patient undergoes a change; provokiveness, irritability or mental depression being common, the prominence of the eyeballs as the disease advances becomes more and more noticeable, in some cases the turgescence of the retro-bulbar vessels is so great as to thrust the eye-balls almost out of the orbits. Slight cases are amenable to treatment, some cases have been known to be rapidly fatal, others progress slowly. An old soitre may develop symptoms of exophthalmic soitre.

The theories with regard to the cause of this disease are many and confusing and to myself it appears that the cause of this condition is not always the same. The cervical sympathetic has been named as that in which the rapid lesions occur and anatomical changes have been said to have been found in the lower cervical ganglia, an overgrowth of the fibrous capsule of the ganglia, with an increase of connective tissue.
Leaving them hard and tough. Some have advanced the auto-intoxication or irritation theory from the hypersecretion of the gland itself. Hector MacKenzie states that the Thymus gland is invariably present in cases of exophthalmic goitre. In the Journ. Path. and Bact. Jan 1898, Edmunds says the typical changes found in enlarged thryroids in Graves' disease are of a nature of compensatory hypertrophy. There is no doubt that both the Thymus and Thyroid glands are more active in utero life; the Thymus especially and if present in adults may in exercising an imperfect function call the Thyroid into greater activity, and absorption of the colloid material. Abadie (Gaz. d. hop. Paris July 1899) quotes Eulenberg's three theories:

1. That the disease is due to changes in the blood
2. That the disease is due to changes in the nervous system, that is of nervous origin
3. That the origin of the disease from alterations in the Thyroid gland.
Abadie considers that the disease is due to an excitation of the vaso-dilators of the cervical sympathetic, the section of the sympathetic trunks between the upper and middle ganglia is stated to have caused the disappearance of the hypothyreosis and goitre. The general view now held, and the one which appears to be from a careful study of cases, which have come under my notice, a sound view is that advanced by Dr. Greenfield in his Bradshaw Lecture 1893. That is an over-activity and hyper-secretion of the Thyroid Gland (hyper-thyreo) in opposition to lack of function in the same gland in Myxœdema (athyreco). Dr. Greenfield points out that the gland is in a state of active evolution—the increased proliferation—the production of newly formed tubular spaces and absorption of the colloid material which is displaced by a more mucinous fluid.

Recent researches into the chemistry of the Thyroid Gland, quoting from Professor Schaffer's Physiology, Vol. 1. demand passing attention before going into the treatment of this disease—in page 89, 'Notthie attributes
Attributes the activity of the gland to its protein constituents especially to the one called thyro-proteid by Bubnow, which acts after the manner of an enzyme. Kroo and Baumann discovered an iodine containing material which was named by them Thyro-iodic or Iodo-thymin, it contains 9.3 per cent of iodine and 0.56 per cent of phosphorous. Hutchinson finds the activity of the gland is connected with the iodine containing colloid substance, the colloid of the acini is the active constituent one part of which is more active containing the greater part of the iodine and all the phosphorous of the original colloid, this part is not protein and not nucleic.

The internal secretion of the thyroid is necessary for the nutrition of the nervous system. The Thymus gland contains a high percentage of adenine and traces of iodine have been found in it. The functions of the Thyroid are not required to any extent as ape advances and probably both it and the Thymus although ductless glands, but being well supplied with newest blood vessels, have
An important action upon the blood corpuscles and are stated by some to have as their duty that of removing toxic agents from the blood, and if the Thyroid secretion be in excess or beyond the requirements for nerve nutrition an irritability may be set up in the nerve centres and ganglia bringing in its train the symptoms such as we find in Exophthalmic Goitre.

Treatment: In treating a case of this description it is well to consider it from three stand-points. Firstly - Hygienic. Secondly - Medicinal, treating the different symptoms as they arise, thirdly - local, which may include electricity.

Hygienic — The food should be light and nutritious, milk, fish, chicken, soups, a little meat, and farinaceous foods. Alcohol, tobacco, tea and coffee must be forbidden. Rest, especially in a recumbent position.

Change of air and scenery, from the mountainous district to the sea-coast or vice-versa, or if the patient be on the low-lands a stay in either the mountain district or Sea side, a residence at a high altitude.
altitude is often beneficial, the clothing must be ample with woollen undergarments when staying in the last-named locality. Hydrotreatment is recommended by Nottregel and others. Medicinal. If anaemia be present mild preparations of iron such as the citrate of ammonium and iron with the bromides, and zinc valerianate for the nervous symptoms. Iodurin often gives good results - twelve strophanthus 5 min three times a day increased, Cactus grandiflora in the form of tincture or extract. Digitalis I have had no good results from - iodide of potassium and iron do some good in many cases. - Arsenic in the form of arsenious acid is a useful drug. Drayson advocates the use of Taylor's respirator, with rubric acid, arsenic and digitalis internally. Intestinal antispasms such as Salol and Bisulphate salicylate may have to be used. Diarrhea and sickness often require special treatment. In two cases I have treated with Thymus gland extract I have had good results following up this treatment with bone-marrow and carbonate of iron. Thyroid extract greatly aggravates the disease and should on no account be
used, bromoform nitrate is often useful to quieten down the pulse.

Locally Cold compresses over the thyroid gland, painting the gland with Belladonna and Collodion, Electrically is useful in the form of galvanism or paralysation but too strong currents are to be deprecated, it must however be continued some time to be of any service. In grave cases where the paroxysm of cardiac excitement becomes excessive and a grave danger arises the application of an ice bag or cold water bag over the heart and root of neck with 5 gr. doses of Digitalis leaves every 4 hours for three hours, and as a final resource ligation. Elastic bands to hinder venous circulation are sometimes of use if a tendency to haemorrhage, Icelaphy's prescription of Spermacoconha, Digitalis et opium Nitrite of amyl or artificial respiration by means of Oxygen gas during a violent paroxysm, Surgical treatment such as division of the of the Sympathetic trunk between the upper and middle ganglia for the ocular and ophthalmous and glottis pulsation may be tried. Thyroidectomy or ligation of the thyroid artery are not admissible.
Myxoedema (cretinism).

This disease, which is due to the loss of the function of the thyroid gland and may occur as the result of operation, "Cachexia strumipriva" or cretinism.

Cretinism may be endemic or sporadic.

In the sporadic form the thyroid gland may be absent at birth or may be caused by a specific or the thyroid gland may be goitrous.

Endemic cretinism occurs in the same localities as goitre. Cretinism is produced by a lack of the thyroid function in youth, varying in proportion to the lack of function and to the degree of youth at which the lack occurs.

Birley in the Brit. Med. Journal 1866-1892 says: "The metabolic importance of the thyroid varies directly with the activity of the vital processes and is consequently greater in early life and diminishes with age."


1. A variety he calls embryological due to thyroid non-development or partial development analogous to any other mal-formation by deficiency occurring.

2. A variety due to atrophy of the thyroid gland.
occurring occasionally after a serious illness of childhood, analogous to the atrophy of the testicle after mumps 

3. And also that variety due to the goitreous degeneration of the Thyroid Gland, this variety generally occurs in goitrous districts.

Dr. Park (Brit. med. journ. June 27th 1896) describes a case of goitrous ostitis (congenital).

He met with in the Lake district with a family history of ordinary goitre, which case was instructive in contradicting Bowman's statement that goitrous ostitis have no pseudo-lymphoma and as an instance of the fallibility of dividing ostitis into an endemic and sporadic class.

Dr. Byron Bramwell in the Lancet Dec 10th 1898 mentions an unique case of infant sporadic ostitis without antecedents, a woman 36 years of age and who showed typical and dwarfs ostitis, her height being 56 inches and who since the age of 26 years had menstruation every month, on one occasion the discharge stopped for three months, Dr. Byron Bramwell in the same journal some time ago stated that he discovered six cases of ostitis and some cases of myxoedema living.
within a radius of half a mile in Edinburgh, which points to the fact that this condition of the thyroid gland may be due to a local or endemic cause. A case of intra-uterine cretinism has been described by Mr. Victor Horster, that of a still-born child and corresponding with the condition described as fatal rickets.

An interesting case, the illustration of which from a photograph, I attach on the following page, was shown to me by my brother - Dr. J.H. Gibson of Kirkby Stephen - this illustration with the following notes appeared in the Northumberland and Durham Medical Journal April 1893 edited by Dr. Rutherford Morison who also saw the case:

The patient was a male and five years of age when the photograph was taken - upon the day following his birth his mother noticed that his right hand was enlarged and swollen, the swelling gradually increased - first extending along the right arm and then to the right leg, finally to the body and left side, he had occasionally febrile attacks.
attacks but these were not attended by any apparent inflammations of the skin, the dwelling of the limbs was at times greater than at other times and only where much increased pitted like an ordinary oedema on pressure, albumen occasionally in large quantities was found in the urine but as a rule it was not present— the specific gravity of the urine was normal. His parents were healthy as also were three brothers and two sisters. There were some evidences of rickets—such as a curvature of the right radius and a bending of the ribs with a slightly flattened chest. He also sweat about his head at night. The skin was rough and leathery to the touch—no thyroid gland could be felt and the rings of the trachea were distinct to the upper end of the sternum, his teeth were decayed— the child was possessed of some intelligence until the condition grew worse. Shortly after this photograph was taken the child died and before he was placed under any treatment. There was no family history of
of goitre - the following measurements were taken :-

<table>
<thead>
<tr>
<th></th>
<th>Right</th>
<th>Left</th>
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<tbody>
<tr>
<td>Foot over instep</td>
<td>14 inches</td>
<td>12 inches</td>
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<tr>
<td>Around hand</td>
<td>9 &quot;</td>
<td>7½ &quot;</td>
</tr>
<tr>
<td>Forearm</td>
<td>10 &quot;</td>
<td>7½ &quot;</td>
</tr>
<tr>
<td>Leg</td>
<td>17½ &quot;</td>
<td>12½ &quot;</td>
</tr>
<tr>
<td>Upper arm</td>
<td>7½ &quot;</td>
<td>6½ &quot;</td>
</tr>
<tr>
<td>Chest</td>
<td>22½ inches</td>
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<tr>
<td>Abdomen</td>
<td>30½ inches</td>
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So far as I am aware no opinion was expressed by either of the above named medical men as to the nature of the case, at first the conclusion I personally came to was that it was a case of "Congenital Myxoeidema" although there were many points about the case that seemed to sit aside this diagnosis.

With regard to the Thyroid treatment in Cretinism many remarkable results may be obtained, the bults and myxoeidema deposits diminish, the enlarged abdomen and umbilical hernia lessen, the baggy submental, supra-clavicular and the swellings around the nipples decrease. The apparent oedema of the face, limbs and body.
and body disappears, there is an extremely rapid growth in height and hair and a diminution of the various bony deformities together with improved intelligence, in some cases the growth is so rapid that the leg bones become bowed owing to their softening especially if the child be allowed to use his legs too much in going about.

In cases of acquired cretinism or juvenile myxoedema where the Thyroid gland after performing its functions for some time in a healthy manner, atrophies, the Thyroid treatment invariably shows the same beneficial results.

Myxoedema of Adults.

I have met with one or two cases of myxoedema in goitrous districts and in which there was in the one case a family history of goitrous tendency and in another case a history at an earlier period of life of the symptoms of exophthalmic goitre – in both cases the patients were females and were receiving benefit from the continued use of the Thyroid extract.
In this disease women appear to be far more frequently affected than men, and it appears to be handed down through the female line. Myxedema and ophthalmic goitre have been known to occur in sisters thus showing lack of thyroid function in the one case and the excess of thyroid activity in the other. The disease itself may run its course for years. Dr. Greenfield states that death generally occurs from tuberculosis.

**Operative Myxedema (Cachexia Strumipriva)**

Under this heading I shall only quote one theory which appears to me acceptable. J. Simon, Brit. Med. Journal. 1883, vol. 11, page 1673. States that "Removal of the thyroid produces an interference with the full chemical development of the constituents of the connective tissue, so that these tend to take on an embryonic character and mucin in excess is characteristic of embryonic tissue."
Removal of the thyroid gland in dogs is rapidly fatal, less rapidly fatal in old dogs, so that the characteristic features of myxedema resulting from ablation of the gland are not brought to pass as in man or monkeys. The symptoms following atrophy of the gland are metabolic in the tissues including the nervous system—the changes mentioned by Whitwell (Brit. med. Journal 1892, vol. x, p. 420, in the nerve cells of the Rolandic area and changes in certain other nervous elements mentioned by others are metabolic due to lack of nutrition from deficiency of some of the constituents of Thyroid secretion, that secretion ending up the blood some agent which influences the carbohydrate or nitrogenous metabolism in these and other tissues, for example the feeding by means of the Thyroid extract in obesity causing a diminution of fat and increased liveliness, and the vasomotor changes in myxedema which are lacking causing increased production immediately of Carbonic acid gas when the subject are exposed to a low temperature. In Thyroid feeding the diet of an animal seems to influence the effect of nitrogenous metabolism, with...
Regard to the function of the gland in destroying toxic products of metabolism claimed by some physiologists to be the case, I cannot fall in with this view. In mephitic sores where we have an over-activity and hypersecretion of the gland I consider that in many, or most cases amenorrhea or chlorosis and the condition of the blood in such cases call into play a compensatory hypertrophy and activity of the gland which in turn by the hypersecretion of the thyroid juice and certain constituents brings about an overstimulation of the nervous element or nerve centers bringing into train all the marked symptoms and troubles we find in mephitic sores, and still more likely to take place if in addition we have a predisposition in our patient to those functional neurones or a soitrious tendency - whether hereditary or acquired.

[Signature]

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quotes Eisenberg's three theories: —
1. That the disease is due to changes
in the blood
2. That the disease is due to changes
in the Nervous system, that is of nervous
origin
3. The origin of the disease from
alterations in the Thyroid gland.
Abadie considers that the disease is due to an excitation of the vaso-dilators of the cervical sympathetic, the section of the sympathetic trunks between the upper and middle ganglia is stated to have caused the disappearance of the exophthalmos and goitre. The general view now held and the one which appears to be from a careful study of cases which have come under my notice, a sound view is that advanced by Dr. Greenfield in his Bradshaw Lecture 1893. That is an over-activity and hypersecretion of the Thyroid Gland (hyper-tyrexa) in opposition to lack of function in the same gland in Myxoedema (athyrexa). Dr. Greenfield points out that the gland is in a state of active evolution—the increased proliferation—the production of newly formed tubular spaces and absorption of the colloid material which is displaced by a more mucinous fluid.

Recent researches into the chemistry of the Thyroid Gland quoting from Professor Schaffer's Physiology, vol i. demand passing attention before going into the treatment of this disease—on page 89. "Notthis..."
Attributes the activity of the gland to its protein constituents especially to the one called thyro-proteid by Bubnow, which acts after the manner of an enzyme. Hoos and Bannwar discovered an iodine containing material which was named by them Thyro-iocid or Iodo-thymin. It contains 9.3 per cent of iodine and 0.56 per cent of phosphorus. Hutchison finds the activity of the gland is connected with the iodine containing colloid substance, the colloid of the acini is the active constituent one part of which is more active containing the greater part of the iodine and all the phosphorus of the original colloid, this part is not protein and not nucleic.

The internal secretion of the Thyroid is necessary for the nutrition of the nervous system. The Thymus gland contains a high percentage of adenine and traces of iodine have been found in it. The functions of the Thyroid are not required to any extent as age advances and probably both it and the Thymus although ductless glands, but being well supplied with nevus blood vessels, have...
An important action upon the blood corpuscles and are stated by some to have as their duty that of removing toxic agents from the blood, and if the thyroid secretion be in excess or beyond the requirements for nerve nutrition an irritability may be set up in the nerve centres and ganglia, bringing in its train the symptoms such as we find in exophthalmic goitre.

Treatment: In treating a case of this description it is well to consider it from three stand-points. Firstly - hygienic. Secondly - medical, treating the different symptoms as they arise, thirdly - local, which may include electricity.

Hygienic — The food should be light and nutritious, milk, fish, chicken, soups, a little meat, and farinaceous foods. Alcohol, tobacco, tea and coffee must be forbidden. Rest, especially in a recumbent position. Change of air and scenery, from the mountainous district to the sea-coast or vice-versa, or if the patient be on the low-lands a stay in either the mountain district or sea-side, a residence at a high altitude.
altitude is often beneficial, the clothing must be ample with woollen undergarments when sleeping in the last named locality. Hydro-therapy is recommended by Nott's and others.

Medicinal. If anaemia be present mild preparations of iron such as the citrate of ammonium and iron with the bromides, and纠九 valerianate for the nervous symptoms. Potassium often gives good results—tinct. strophanthus 5 min. 3 mg. times a day increased. Cacti grandiflorae in the form of tincture or extract. Digitalis I have had no good results from- iodide of potassium and iron do some good in many cases. — Arsenic in the form of arsenious acid is a useful drug. Bryan advocates the use of Taylor's respirator, with nux vomica, arsenic and digitalis internally. Intestinal antiseptics such as Salol and Bismuth salicylate may have to be used. Diarrhoea and sickness often require special treatment. In two cases I have treated with Thymus gland extract I have had good results following up this treatment with bone-marrow and carbonate of iron. Thyroid extract greatly aggravates the disease and should on no account
used, boraxine nitrate is often useful to quiet down the pulse.

Locally, cold compresses over the thyroid gland, painting the gland with Belladonna and Collodion, Electricity is useful in the form of galvanism or paralysation but too strong currents are to be deprecated; it must however be continued some time to be of any service. In grave cases where the paroxysm of cardiac excitement becomes excessive and a grave danger arises the application of an ice bag or broken tumbler over the heart and root of neck with 1 gr. doses of digitalis leaves every 4 hours for three hours, and as a final resource ablation. Elastic bands to hinder obvious circulation are sometimes of use, if a tendency to hemoptysis, Scapleroy's prescription of Epsom Salts, Digitalis & Opium, Nitrite of amyl inhalations or artificial inspiration by means of Oxygen gas during a violent paroxysm, Surgical treatment such as division of the of the Sympathetic trunk between the upper and middle ganglia for the ophthalmic and gastric pulsation may be tried. Thyroidectomy or ligation of the thyroid artery are not admissible.
Myxoedema (Atrophy).

This disease, which is due to the loss of the function of the Thyroid gland — and may occur as the result of operation, "Cachexia stummipriva") or as Cachexia.

Cachexia may be endemic or sporadic.

In the sporadic form the Thyroid gland may be found about at birth or may be caused by a specific infection or the Thyroid gland may be goitrous.

Endemic Cachexia occurs in the same localities as goitre. Cachexia is produced by a lack of the Thyroid function in youth, varying in proportion to the lack of function and to the degree of youth at which the lack occurs.

Horsley in the Brit. Med. Journal 1886-1892 says "the metabolic importance of the Thyroid varies directly with the activity of the vital processes and is consequently greater in early life and diminishes with age."


1. One variety he calls embryological due to the Thyroid non-development or partial development analogous to any other mal-formation by deficiency occurring.

2. A variety due to atrophy of the Thyroid gland.
occurring occasionally after a serious illness of childhood, analogous to the atrophy of the testicle after mumps.

3. And also that variety due to the goitrous degeneration of the thyroid body—this variety generally occurs in goitrous districts.

Dr. Parker (Brit. med. Journ. June 27th, 1896) describes a case of goitrous oestrus (congenital) he met with in the Lake district with a family history of ordinary goitre, which case was instructive in contradicting Boulenger's statement that goitrous oestrus have no pseudo-lipomata and as an instance of the futility of dividing oestrus into an endemic and sporadic class.

Dr. Byron Bramwell in the Lancet Dec. 10th, 1898 mentions an unique case of goitrous sporadic oestrus without anaemia, a woman 36 years of age and who showed typical and severe oestrus, her height being 56 inches and who since the age of 26 years had menstruated every month, one occasion the discharge stopped for three months. Dr. Byron Bramwell in the same journal some time ago stated that he discovered six cases of oestrus and some cases of myxoedema living.
within a radius of half a mile in Edinburgh, which points to the fact that this condition of the thyroid gland may be due to a local or endocrine cause. A case of intra-uterine cretinism has been described by Dr. Victor Horbury, that of a still-born child and corresponding with the condition described as fetal rickets.

An interesting case, the illustration of which from a photograph, I attach on the following page, was shown to me by my brother—Dr. J.H. Gibson of Kirkby Stephen—this illustration with the following notes appeared in the Northumberland and Durham Medical Journal April 1892 edited by Dr. Rutherford Morison who also saw the case:

The patient was a male and five years of age when the photograph was taken—upon the day following his birth his mother noticed that his right hand was enlarged and swollen, the swelling gradually increased—first extending along the right arm and then to the right leg, finally to the body and left side, he had occasionally febrile attacks.
attacks but these were not attended by any apparent inflammations of the skin, the
dwelling of the limbs was at times greater
than at other times and only when much
increased pitted like an ordinary oedema
on pressure. Albumen occasionally in large
quantities was found in the urine but as
a rule it was not present - the Specific
Gravity of the urine was normal - His
parents were healthy as also were three
brothers and two sisters - There were
some evidences of rickets - such as a
Curvature of the right radius and a bowing
of the ribs with a slightly flattened chest
he also sweated about his head at night
the skin was rough and leathery to the
touch - no Thyroid fluid could be felt
and the rings of the trachea were distinct
to the upper end of the sternum, his
tells were decayed - the child was
possessed of some intelligence until the
Condition grew worse - shortly after
this photograph was taken the child
died and before he was placed under
any treatment, There was no family history
of goitre - the following measurements were taken:

<table>
<thead>
<tr>
<th></th>
<th>Right</th>
<th>Left</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foot over instep</td>
<td>14 inches</td>
<td>12 inches</td>
</tr>
<tr>
<td>Around hand</td>
<td>9 &quot;</td>
<td>7½ &quot;</td>
</tr>
<tr>
<td>Forearm</td>
<td>10 &quot;</td>
<td>7½ &quot;</td>
</tr>
<tr>
<td>Leg</td>
<td>17½ &quot;</td>
<td>12½ &quot;</td>
</tr>
<tr>
<td>Upper arm</td>
<td>7½ &quot;</td>
<td>6¼ &quot;</td>
</tr>
<tr>
<td>Chest</td>
<td>22½ inches</td>
<td></td>
</tr>
</tbody>
</table>

Abdomen 30½ inches (contained fluid).

So far as I am aware no opinion was expressed by either of the above named medical men as to the nature of the case; at first the conclusion I personally came to was that it was a case of "Congenital Myxoedema" although there were many points about the case that seemed to set aside this diagnosis.

With regard to the Thyroid Treatment in Cretinism many remarkable results may be obtained, the bulks and myxoedematous deposits diminish, the enlarged abdomen and umbilical hernia lessen, the baggy submental, supra-clavicular and the swellings around the nipples decrease. The apparent oedema of the face, limbs and body...
and body disappears, there is an extremely rapid growth in height and hair and a diminution of the various bony deformities together with improved intelligence, in some cases the growth is so rapid that the leg bones become bowed owing to their softening especially if the child be allowed to use his legs too much in going about. In cases of acquiredcretinism or juvenile myxoedema where the thyroid gland after performing its functions for some time in a healthy manner, atrophies, the thyroid treatment unerringly shows the same beneficial results.

Myxoedema of Adults.

I have met with one or two cases of myxoedema in goitrous districts and in which there was in the one case a family history of goitrous tendency and in another case a history at an earlier period of life of the symptoms of strabismus and strabismus - in both cases the patients were females and were receiving benefit from the continued use of the thyroid extract.
In this disease women appear to be far more frequently affected than men, and it appears to be handed down through the female line. Myxedema and exophthalmic goitre have been known to occur in sisters thus showing lack of thyroid function in the one case and the excess of thyroid activity in the other. The disease itself may run its course for years. Dr. Greenfield states that death generally occurs from tuberculosis.

Operative Myxedema and Exophthalmic Goitre
(Cachexia Strumipriva)

Under this heading I shall only quote one theory which appears to me acceptable. J. Simon, Brit. Med. Journal, 1883, vol. 17, page 1473. States that "Removal of the thyroid produces an interference with the full chemical development of the constituents of the connective tissue, so that these tend to take on an embryonic character and mucin in excess is characteristic of embryonic tissue."
Removal of the thyroid gland in dogs is rapidly fatal, less rapidly fatal in old dogs. So that the characteristic features of myxoedema resulting from ablation of the gland are not brought to pass as in man or monkeys. The symptoms following atrophy of the gland are metabolic in the tissues including the nervous system - the changes mentioned by Whitwell (Brit. med. Journal 1892 vol i p 420. in the nerve cells of the hypothalamic area and changes in certain other nervous elements mentioned by others are metabolic due to lack of nutrition from deficiency of some of the constituents of thyroid secretion, that secretion finding its way through the blood some agent which influences the carbohydrate or nitrogenous metabolism in these and other tissues. For example the feeding by means of the thyroid extract in obesity causing a diminution of fat and increased activity, and the vasomotor changes in myxoedema which are lacking causing increased production immediately of carbonic acid gas when the subject are exposed to a low temperature. In thyroid feeding the diet of an animal seems to influence the effect of nitrogenous metabolism. With
29yard to the function of the gland in destroying
toxic products of metabolism claimed by some
physiologists to be the case, I cannot fall
in with this view. In mephitic sores
where we have an over-activity and
hypersecretion of the gland, I consider
that in many or most cases anemia
or chlorosis and the condition of the blood
in such cases call into play a compensatory
hypertrophy and activity of the gland which
in turn by the hypersecretion of the thyroid
juice as certain constituents bring about
an over-stimulation of the nervous element
of nerve centres bringing into train all the
marked symptoms and troubles we find
in mephitic sores, and still more
likely to take place if in addition we
have a predisposition in our patient to
those functional nervous or a so-called
tendency - whether hereditary or acquired.

[Signature]

R. M. Sidlow

Westmoreland

April, 1900