Goitre in the Forest of Dean

Thesis for the M.D. degree
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Bronchocele in The Forest of Dean
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Bronchocele, derived from the GreekBronchocele, derived from the Greek
Bronghos, the wind pipe or trachea, and γοῦργος, a tumour or swelling. This term was
used by the Greeks (see Watson, Practice of
Physic, Page 821.) in the same sense in
which we use it now. Another name
for the same disease is “Goitre” derived
from the Latin “Guttae,” the throat, &
is commonly known in England as
“Derbyshire neck” on account of its
extreme frequency in that county.
In this part of Gloucestershire it is
popularly called “Iver.”

As a native of the Forest of Dean, I
used to notice that very many of the
inhabitants suffered from this complaint,
some to a frightful degree, and on
commencing practice, after my return
from Edinburgh in 1847, the extreme-
prevalence of the disease came more
directly under my observation. This
led me to take notes of many cases
and ultimately to decide to make Goitre
or Bronchocele the subject of my thesis.

In speaking of Bronchocele
I mean simply hypertrophy of
the Thyroid gland, and not as has
sometimes been meant—any and
every swelling of that gland. That
is to say, it is an increase of the natural
elements of the gland, or, to adopt the
words of Watson, pg. 822, “the texture
of the gland becomes coarser; its blood vessels grow larger and more numerous; its cells are magnified, and filled with a thick, viscid secretion. As the growth progresses the gland becomes more apparent: one of its lobes usually enlarges more than the others, until in some old-standing cases the growth projects beyond the chin or hangs over the chest, destroying completely the natural contour of the neck.

As a general rule there is no pain in this part; and when pain does arise it is due to pressure on more sensitive structures, and not to the tumour itself. It is generally soft and elastic and, in the majority of cases would but for its size and the disfigurement it produces, be unnoticed. Owing to the popular prejudice in this district against post-mortem examinations, the writer has never had an opportunity of verifying the observations of authorities by dissection of the morbid growth, but Hunter & Baillie found it to contain cells with a fluid more or less viscid. Baillie (morbid anatomy, pp. 84, 85) says, "These cells vary in their size in different parts of the same gland, & in different swellings of the same kind in different individuals. Some of them are so large as to be able to contain a pea, but most of them are of a smaller size. The viscid fluid when the gland has
has been preserved some time in spirits is changed into a transparent jelly. From this account of the morbid change of structure which takes place in goitre, it seems not unreasonable to suppose that the swelling depends upon a vitiated and increased secretion in the gland. The secretion being in large quantity, gradually distends the cells, increasing thereby their capacity, and this enlargement of the cells forms the general swelling of the gland.”

In the early stages of its growth the tumour is soft and elastic, but gradually it acquires a denser consistence, and may develop a cartilaginous hardness, as said (Crawford) sometimes to become calcareous.

The Thyroid gland is subject to different kinds of enlargement:—the simple natural development of the growth, and also occasionally to acute, and Chronic inflammation (Waten, page 822, Prac. Physic). In inflammatory enlargement the gland is hard, and painful, presenting the usual indications common to inflammations in other parts, but the Thyroid gland does not appear to be prone to inflammation. When it does inflame, it is in highly scrophulous constitution, the writer can recall only one instance of open acne inflammation of a goitre, and in this case there was scrophulous enlargement of the whole glandular system of the neck at the same time. Sometimes ulceration occurs, “which may assume
a malignant or scirrhous-like appearance. (Aitken 4th Ed. page 808). But although
the Forest of Dean is a cancerous district the writer has never met with nor heard
of any case of goitre terminating in
malignant disease. The commonest form of goitre in this
district is that of simple hypertrophy
of the gland although the cystic form
is not infrequently met with.
"In either the solid or cystic breach the
position & general form of the knotting
together with its connection with the trachea,
die in general sufficient to decide our
diagnosis. If the patient be made
to swallow repeatedly a little fluid
slowly, the way in which it is not
ascends, and is synchronous
with the movement of the trachea and
the cancerous and
trachea, can leave us in little doubt
as to its nature and relation." (Spence
lectures on Surgery 2nd Ed. Vol 11 Page 817)

Caution: — Goitre has been attributed
to various causes. Dr. Andrew Crawford
in his article on goitre in the Encyclopædia
Pract. Med. refers to Dr. Mason's Good's
opinion, who says that "he found a
much larger number of poor affected
with this disease than he had ever seen
before, while the rich escaped; also that
by far the greater part of those who
were laboring under it were not
only exposed to all the ordinary evils of
poverty, but derived their chief diet.
from that indigestible, and injurious substance, the soluble saline carbonate, which he adds "is probably the chief cause of all the glandular, and parathyroid enlargements, which are so common in that quarter." How far as diet is concerned in the production of goitre, it is quite possible that poor and insanitary diet may tend to increase the growth, but the idea that this is the cause of goitre is certainly a fallacy. In the forest soil where goitre is endemic, diet has little or nothing to do with the matter, and moreover as far as the writer's observations extend the disease is not confined to the poor, but is to be met with in various classes of society. The working classes are well-nourished, and subsist for the most part on good wholesome food such as wheaten bread, cheese, vegetables, bacon, and as to the oat-meal theory, the fact that goitre is very rare in Scotland is sufficient to prove the contrary. Further in this district where goitre prevails oatmeal is rarely used except in cases of sickness.

In any case food must be a small factor in the production of goitre. Then it has been said that the drinking of sour water is a cause of goitre from the disease occurring so frequently in mountainous countries. But here again we have a difficulty for it is well known that goitre occurs
commonly in countries where the inhabitants never drink snow water, any own district for instance. And in some countries where snow water is commonly used, such as Greenland and Lapland (see Aitken Page 364) Goiter is unknown.

Professor Forbér refers to Mr. Crawford in the article already mentioned says that "in his journey in the Maritime Alps he made numerous observations in proof of its being a disease of low moist regions" that these condition may aggravate the disease, or lay the system more open to its invasion is possible enough, but that living in low lying moist districts is per se the cause of goiter there is ample evidence to disprove. In the forest of Dean although we have large numbers of trees, the houses of the farm are built in districts where the trees have been cleared, and where the sun has full power on the soil, so also has the air full access to every place, and the general configuration of the country is hilly. In confirmation of the view that goiter is not due to any particular configuration of the earth, nor any peculiar condition of the atmosphere many writers (Nantzen, Aitken, Crawford) on the subject of goiter have quoted the celebrated Humboldt. "He tells us that in South America bronchocele is met with both in the upper, and lower
course of the Magdalene river; and in the flat high country of Bogota, 6,000 feet above the bed of the stream. The first of these regions is a thick forest; whilst the second, and third present a soil destitute of vegetation. The first and third are exceedingly damp; the second peculiarly dry. In the first the air is stagnant; in the second and third the winds are insipid. In the first two the thermometer keeps up to 22 or 23 degrees centigrade, all the year round; in the third it ranges between 12 and 17 degrees.

Hereditary tendency in districts where goitre is endemic is a cause of goitre the disease. The writer has heard of several authentic instances of infants being born with goitre in this district, and has under observation at present an infant a few weeks old with a large 'tumor' which although it has diminished in size since the baby's birth still interferes with inspiration. In this case (Jones the slope, see table) the mother has a goitre, (see also case number XXVII in table).

In confirmation of the influence of poverty in the production of the disease numerous instances of young children with goitre, whose parents or near relatives have goitre are met with in this district see case already referred to above (Jones the slope) and others in tables appended. The cause of goitre upon which most recent writers have agreed as the determining cause
in the presence of lime in some form in the water used for drinking purposes. Thus Dr. Richardson, when travelling with Captain Franklin to the shores of the Polar Sea, says (Watson, P. R. A., Phys. Vol. 5, p. 338):—

"Bronchioccele or goitre is common disorder at Edmonton. I examined several of the inhabitants afflicted with it, and endeavoured to obtain every information on the subject from the most authentic sources: The disorder attacks those only who drink from the water of the Saskatchewan River. It is indeed in its worst state confined almost entirely to the half-breed women and children, who reside constantly at the fort, and make use of the river water, drawn in winter through a hole in the ice. The men, from being often from home on their journeys through the plain, where their drink is melted snow are less affected; and if any of them exhibit during the winter some incipient symptoms of the complaint, the annual summer voyage to the sea-coast, generally effects a cure. The natives who confine themselves to snow water during the winter and drink of the small rivulets which flow through the plains in the summer are exempt from attacks of the disease. A residence of a single year in Edmonton is sufficient to render a family bronchiocelleus."
Dr. Richardson found the soil in the neighbourhood of Edmonton was calcareous and Dr. Inglis in his 'Treatise on English Bronchitis' (Watson, Prae Phystic Vol. I Page 329) states, 'his belief that the presence of magnesian limestone always implies the co-existence of the disease.' "Take," he says, "that ridge of magnesian limestone running from North to South through Yorkshire, and margining the sides of Derby and Nottingham. All along that line we have goitre to a very great extent. The disease on our diverging to either side the disease is found to diminish."

It may be assumed that the water must be impregnated more or less with the salts of lime along the ridge referred to.

"Mr. W. Bland in his travels in India affirms, that in the course of his personal enquiries, which extended over one thousand square miles, and which were prosecuted without regard to any theory, he instance in which goitre prevailed to any extent where villages were not situated on or close to limestone rocks" (Watson, Prae Phystic Vol. I Page 330) that the "lime" theory is correct is confirmed by the geological confirmation of the Forest of Dean.

The "Forest of Dean" is situated in West Gloucestershire, in that part which is bounded on the north and west by the river Wye, on the south and south-east by the river Severn.
The origin of the name seems to be doubtful. But Gildas and some other writers state that the Forest of Dean obtained its name from the Danes settling themselves in it, secured by its shade and thickets from the retaliation of the neighbouring people, whose country they had devastated.

That it has been a forest in the true sense of the word, there can be no doubt from time immemorial, and still deserves the name of 'forests' more perhaps than any other in the British Isles.

Dean Forest was well known to the Romans, who visited it among other reasons for the sake of its famous iron ore, and in their old workings miners' tools of the Roman era are still occasionally discovered. Heaps of the cinerary urns still to be seen marking the remains of the old Roman furnaces, beside which large numbers of Roman coins have from time to time been found, latter buried in the ground in cartoon pots or simply lying loose. A number of these coins came into the hands of the writer's father many years ago.

Besides coins, pavement tesserae, bricks and tiles have from time to time been found and at Lydney which is situated on the Severn side of the Forest, a camp, bath and tessellated pavement, have been found. The Roman Road that runs from Mayfield to Caerleon on Usk (Monmouthshire) traverses the Forest.
from North-East to South-West.

Since the days of Henry II the limits of the Forest have from time to time been curtailed. Thus in this day it extended beyond Hereford on the North, Gloucester on the East, and Chepstow on the West. Whilst the Severn formed the boundary between Gloucester and Chepstow on the South, comprising about 200 square miles. In the reign of Edward I, the limits were curtailed to Sea and Ruaneau on the North (see map) the Wye on the West to within some six miles of Chepstow and small portions of the Severn on the South, and extending East to Westbury on Severn, comprising about 100 square miles.

At the present time the extent of the Forest is far less than in older times, comprising 30,000 acres, 15,000 enclosed for growing young timber, and 15,000 open, where the trees are older.

The Forest of Dean presents a peculiar geological formation. The strata lie in a basin like form, the greatest depression being near the Centre; the longest axis extends from North to South and is about eleven miles in extent, the transverse axis in the widest part, ranging from East to West about eleven miles. By taking one stand on the edge of the hills by which the basin is bounded, notably from an eminence near Ruaneau on the North (see map) the enclosing character of the ridge can be seen as well as the less conspicuous
circle of somewhat elevated land occupying the central portion of the basin, & which is separated by a valley or plain from the surrounding ridge.

This outlying ridge marks in most places the outcropping of the Conglomerate Mountain Limestone, Iron Veins, Millstone Grit, and Lower Coal measures. (See map)

The map shows the course of the conglomerate beds, and the disappearance of the old red sandstone under the forest basin. Occasionally this conglomerate or hard grit forms two distinct beds very distant from one another, near Sydney for instance (in the south of the forest) and on the Kininv Hills, and Buckstone (W. St. Aunton on the north west). Although it is sometimes cut off altogether by a fault, as opposite Blakeley (a little to the north east of Sydney). It varies in hardness as well as in number of pebbles, and not unfrequently presents an abrupt fall at its termination as at the Harkening Rock in the Highland woods. (W. St. Aunton) The upper portion of the bed is soft, and acquires the character of limestone clay, often throwing out springs, such as St. Anthony's Well, (situated at Haxley on the East of the forest) which have accumulated in the limestone rocks above. A very miraculous stone sometimes occurs in the upper part, leaving the appearance of silver: hence the name of Silver Stone, given to a spot near the two Hawthorns where it is found.
Geological Map of the Forest of Dean
The above mentioned well of St Anthony's near Haxley abbey dates about the latter part of the 14th century. It is at the head of one of the brooks feeding the stream which descends the Haxley valley, and from its supposed medicinal properties, was until late years widely famed for curing cutaneous disorders, although under circumstances somewhat connected with the marvellous, its peculiar efficacy being combined with the rising of the sun. The month of May, and the visits to it being repeated three times in succession. However after due allowance for some exaggeration there remains ample proof of the utility of its waters in removing diseases of the skin. The square basin or reservoir of stone immediately adjoining the head of the spring was made at the commencement of the century for the convenience of bathers, and occupies a very secluded position overshadowed by a large beech tree, and closed round by mossy banks. The water is abundant in quantity and contains iron and lime, derived from the strata through which it percolates. The general temperature is 50°" (Richards' Foss of Dean Pq. 182).

The surface which the Carboniferous limestone exposes can be seen in the map (page XVII). Thus it is especially marked in the North near the villages of Lydbrook & Prunecote and extends west towards the villages of Stanton Crossing the Wye in several places then it borders the forests on the whole of
Wetton side, it also crops out on the last side of the forest running south from Mitchellhead for about eight or nine miles and varying from half a mile to a mile in width. The Forest coal field is thus seen to be surrounded by this formation with the exception of about three miles to the south east between Sydney and Damby Lodge (see map). The lower veins of limestone are locally known as the “blue stone”; the middle, the “red stone”; and the top vein as the “white head”. The latter is largely used as a flux in the smelting process. It is in these limestone strata that the most valuable deposits of iron are found. The millstone grit beds immediately succeed the above described beds of limestone, surrounding the forest in a similar way, and with a similar fault between Sydney and Damby Lodge, in the same manner as the Carboniferous limestone does. This millstone grit contains a vein of iron ore, which has not been mined to any extent.

The rest of the high ground forming the circle round the forest is made up of the lower coal measure, which contains according to Atkinson’s Geological map of the Forest, the lower and upper Teesdale veins, the Coleford High self, the Wellington and Yorkeley or yard self, these together make about eleven feet of coal. The Coleford High self is the chief, and averages about 5 feet and extends over about 16,000 acres. There is in some places running through.
at a "fault" or what is locally called the "Horse", which varies from 140 to 320 yards in width, and is supposed to be the site of a lake which existed at the period of deposition of the High Delf Slam, and that this carbonaceous matter which formed the slam was accumulated while the water was deep and tranquil; or the water being discharged from the lake the "Horse" itself occupied the bed of the river by which the complete drainage of the lake was effected, and which washed the coal entirely out. It is not what geologists term a "fault" as there is no accompanying dislocation of the adjoining strata. In underground character it is similar to those washes or aqueous deposits in many coal districts, but it differs from them in not being under the bed of any river nor in the bottom of a valley, nor does it show itself on the surface ("Horse of Slam").

We now advance farther towards the centre of the forest by descending the range we have been describing to a plain which varies from half a mile to one hundred yards and this plain forms a band round the elevated centre of the district. This depression marks the outcrops of the middle coal slams, which are made up according to Athlone's Geological map above referred to, of some ten slams the chief being the Draycote, Churchway, Rockley, Stankey, Park and High Delf, Howley and Smith Colliery, the whole thickness of
There is about 20 feet; the coal is harder in general than that of the lower beds.

They contain a large number of fossils, many very beautiful specimens are from time to time brought out by the colliers.

The middle measures contain faults and one of varying thickness, just as is to be observed in the lower seams.

The centre of the Forest basin is near to and is a slightly elevated plateau containing the inferior and comparatively unimportant seams of Moor Green coal. (see plan)

The combined vertical thickness of the entire strata from the top down to the old red sandstone is calculated at 2,765 feet according to Atkinson's geological map. The elevation of the different parts of the Forest varies much. Thus the highest point reaches close on 1,000 feet above the sea level, and the lowest about 150 feet in various less. The highest points are found in the ridge bordering the Forest before described. "The central forest varies from 658 feet to 870 feet (Atchills forest plan)."

The next page may be seen rough copies of Atkinson's geological maps, which the writer has referred to. The first shows a vertical section from north to south. The second shows a vertical section from east to west. These maps give a better idea of the Forest basin than can be given in words merely.
The Forest of Dean has been celebrated in all time for the quantity and quality of its timber, but the timber of the present day in no way approaches that which existed in the time of the earlier kings of England, and it is said that "in the days of Elizabeth the stately trees had become objects of apprehension and jealousy to the Spaniards" (Bolindo) on account of its use in the building of ships of war. Very few of those largest size trees now remain, but some fine old trees may still be seen. Thus the "Newland oak" measures 41 feet in girth 5 feet from the ground (see page xvi).

The forest is divided into East and West Dean, and in these two districts are many villages, and hamlets, which are built on cleared spaces of the old forest. So that the inhabitants do not actually live amongst the trees, where naturally there would be a lack of free ventilation and sun. The whole district has always been known as one of the healthiest in the County.

The great bulk of the people live on the outer ridge which surrounds the forest, in the valleys which in places lead from this ridge, towards the centre, and it is in this outer ridge where the limestone is found (see map). For instance the village and district of Bream on the south leading towards Coleford, where a large population exists. Here the drinking water is obtained for the most part from wells and natural springs, which pass of course through the limestone, becoming impregnated,
The Analysis of the water of one of these wells is given by Dr. J. Currie of Parkend in a paper of his in the "Glasgow Med. Journal" July 1877.

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbonate of lime</td>
<td>9.20</td>
</tr>
<tr>
<td>Chloride of sodium</td>
<td>93.9</td>
</tr>
<tr>
<td>Alkaline nitrate</td>
<td>10.94</td>
</tr>
<tr>
<td>Vegetable matter</td>
<td>1.11</td>
</tr>
<tr>
<td>Total Contents per gallon</td>
<td>22.57</td>
</tr>
<tr>
<td>Degree of hardness</td>
<td>19°</td>
</tr>
</tbody>
</table>

The "Marsh Lane" well near "Staff" contains very 'hard' water; this well is much frequented by people of the Staff district on account of its never failing supply of water, in the hottest & driest summers.

Going from the Broom district in the South to the districts of Rydabo and Kwaera, in the North, we find that the water used by the inhabitants, "jers up" the kettles that is, a thick deposit of lime collect around the inside of the kettles, some wells especially, which are much frequented by the inhabitants on account of the goodness of the water, have the name of supplying exceedingly hard water, quite useless for laundering purposes.

The water of many wells which are not sunk actually at the outcrop of the limestone nevertheless contains a good deal of lime in solution.

This was well shown at a pumping pit near Parkend (see map). The water as it flowed off from the pumps, left quite a thick deposit of lime in its channel.
To much for the Geological aspect of the Forest District, and although goitre is to be seen over the entire district, it is most noticeable in three parts where the limestone comes to the surface. The Foresters are well known to be strongly attached to their native locality, and until quite recently there has been comparatively little communication with the outer world. Hence a good deal of intermarriage, which to some extent accounts for the general prevalence of the disease.

It has been said that goitre is more frequent in valleys than in hilly parts. Some time is plenty of fresh pure air. This is certainly not the case in the Forest of Dean. For although goitre does occur in the valleys in some instances, yet as we should expect from the geological data, the hilly parts are those which furnish the bulk of the cases. In fact, the only cases of cretinism the writer has met with occur on an elevated and exposed Common (Sling, etc.) where there is free access of air and light.

Before passing from the etiology of goitre, it may be interesting just to note the popular ideas as to the causation of the disease, and to what extent they are correct. In all the cases in which the writer has taken notes he has been careful to enquire from the patient his or her notion of its origin. The most prevalent idea is that
the tumour is caused by the habit of carrying weights on the head. The writer has no doubt that this custom is an exciting cause of the disease, and that by the engraftment of the nekke it tends to increase the growth, where it already exists - (see tables case XXXIII Mrs. Rowse St. Michael)

Again the writer has been told by many that they supposed they had “blue” because their parents had them. Which may be taken as a popular testimony to the doctrine of heredity - (see tables family of Marsh &c) and in passing it may be observed that in several instances, which the writer knows although the disease has existed for 3 or 4 generations there is no appreciable mental defect.

Many women trace the origin of the disease from their first labour, and state that the tumour often increases in subsequent pregnancies, and still more during labour; further that after the child bearing period, the tumour not infrequently diminishes, and sometimes becomes almost imperceptible (see case XXVII Mrs. Olivier Lydbrooke in tables)

Many women observe an increase of the growth at the menstrual period, and in girls it is said sometimes, to have been noticed for the first time about the period of their first menstruation. The writer can confirm both opinions from his own observation, which
argues a degree of sympathy between the ovaries, and the thyroid gland.
In a very few instances do the people trace the disease to the influence of the drinking water.

There are popular ideas too concerning treatment which amount to superstition. The writer does not know whether the Foresters are more superstitious in their belief in the efficacy of charms than the poorer people in others parts of England, but he has been amused, and astonished at the number of supposed specific for the cure of goitre. And in not a few cases, the people have put down the cure of the disease to the use of these charms. The man now Morgan of Aston Bridge in the Lichfield district, whose portrait is given, told the writer that Mr. Morgan was assured by a man, who professed to have cured many large goitres, that "if he procured three hairs out of the tail of an entire horse in three different counties, and tied these round his neck, he would find the 'gooe' gradually disappear, and finally vanish altogether." Morgan went so far as to get the tail hairs of two stallions from the counties of Cheshire and Hereford, but omitted to get them from a third county, so his cure did not get cured, Morgan seemed doubtful in his own mind as to the remedy, and losing faith did not further try to get
The third set of hairs.
Another sure remedy is said to be this. The patient has to go out early in the morning and catch a common mole. After killing and skinning the animal, he must apply the bloody skin over the boil and wear it. He will soon find the tumour disappear—so it is said—

A woman Caroline Jenkins in the Glen district who formerly suffered from a very large goiter told the writer that “she was cured by some verses in the Bible.” She had to go over to the other side of the Forest in order to obtain the right verses from a “Knowing old woman,” who no doubt received her fee before divulging the secret. These verses, after being repeated a certain number of times, caused her boil to disappear. This woman assured the writer that this is a fact “that the tume began to disappear soon after the verses were obtained” and was quite satisfied in her own mind as to the efficacy of the verses in the curing of boils.

Other charms are used in the Forest by the people, which the writer might mention, but these he has already enumerated will be thought sufficiently to illustrate the amount of credulity that exists amongst the ignorant.

To return to the more scientific consideration of the subject. The writer in
Comparing the results of his own observation with those given by some authorities, finds
out the question of the more frequent occurrence of the disease in females than
males, that a much greater number of
males are affected than is usually supposed.
Thus out of 166 cases collected by him,
35 cases are males. Although in males
the disease does not often attain such a size as in females, probably from the
greater number of aggravating causes
in the female.

With regard to the general appearance of the
enlarged gland in goitre, the writer has
found that in the large majority of
this cases, the right lobe has been more
frequently enlarged than the left, as might
be expected from the somewhat larger size
of the right lobe in the normal state.
As also from the greater blood supply
(Gray Anatomy Page 405) on the right side.
Further in many cases the right lobe
is the only one affected, and in the
cases collected by the writer (numbering
only two) have been observed in which
the left lobe alone was affected.

"We seldom see it (goitre) in this country
except in females." (Watson Page 824, Vol. I)

"Of forty-nine cases admitted into the Hampshire
County Hospital in ten years, forty-eight were
males. (Dr. Andrew Bradford in Watson's Magic B 824)

"Of twenty patients admitted at the Gloucester
Infirmary in nine years, two were males,
and they were boys of a very peculiar
feminine habit; half-yearly for three years." (Watson Vol. I)
Treatment

In the incipient stages where the enlargement has only progressed so far as to constitute what is commonly called here "full neck", the external application of Iodine ointment rubbed in night and morning before the fire is usually sufficient to cause the disappearance of the tumour.

In this stage of the disease the Sterno-Mastoid muscles are often very well defined especially at their lower attachments. In old cases this is not observed the tumour seeming to pass beyond the muscle.

In more advanced cases the persisted use of either the ointment or liniment is still sufficient. In obstinate cases the internal administration of Iodine in addition to its outward use, generally lessens or even removes the growth. In old standing cases in which the goitre has become cartilaginous or otherwise much indurated Iodine in any form often fails altogether, but sometimes even in such cases steady perseverance in the Iodine treatment for a period of several months is rewarded by a lessening of the growth and corresponding relief to the breathing (See Case 121 [T Redemption].)

In cases where no benefit has accrued from the Iodine treatment it is fairly a matter of doubt whether the failure is due to a want of perseverance on the part of the patient. In anemic females it is necessary to give Iron as well as the Iodine externally.
Case I. William Morgan of Aston Bridge, Vicarage, age 60 years, has always lived in this neighborhood, suffers from a large goitre and states that he has had a "tumour" since he was quite a young man, but has no idea what first caused it. He states that the tumour causes him at times great distress in breathing, especially on mounting a hill. It does not much interfere with his swallowing. Goitre has never appeared in his family before his time, that he is aware of. His present appearance is well shown in the photographs appended. The right lobe is very much larger than the left, though the latter is a great deal hypotrophied, the same may be said of the central part of the gland or isthmus. Morgan states that the water he has been in the habit of using for drinking purposes is very hard. He has tried, so he states, the iodine
treatment without benefit, as well as
many other supposed remedies including
"Chalum", for the purpose of removing
his "tum", but all to no purpose. [See p. 23]

Although there have been no cases of goiters
in previous generations of this family,
the disease is strongly marked in the
present generation, that is to say four
of his sisters suffer from large goiters.

Mrs. Harper, also residing
in the same neighborhood, a woman
between 40 and 50 years of age, has
had a very marked goiter since chil-
hood, the right lobe being especially
enlarged, though the other part of
the gland are very full, and a daughter
of Mrs. Harper aged 15 years, has had goiter
since quite a child. Another daughter,
Mrs. John Cooper has a large goiter,
which involves both the right and left
lobes. A third sister (case iv) Mrs. Alice
Baldwin has for many years suffered from
the disease, but now has a large goiter the
right side of the gland being chiefly affected.

A fourth sister Mrs. Eunice also has a large
goiter, the right lobe only being affected.

Mrs. Weaver aged 30, since of Mrs. Morgan
(Case I) a daughter of Mrs. Baldwin (Case iv)
has a large double goiter, the two lobes
are about equal in size, the left suffered
from the disease since she was a girl. Her
breathing is much interfered with, on account
of the pressure of the tumor, which has
a firm fibrous feeling. Neither of her children
are affected. All these cases live in the same distric
Case VII. Mary Nash, aged 4, born near the lime kiln. Interests, between Bream and wing (see wood), has had a central goitre about three years, her mother and aunt, sisters, both deceased had goitre. Father James Nash not goitrous, his sister (case VIII) Mrs. George Nash aged 28 years, aunt of Mary Nash (case VII) has suffered from goitre since childhood.

Susan Nash, aged 30, (aunt of case VIII) great aunt of case VII) an goitrous for many years and has a son aged 8, with goitre involving central and right lobes, another in John eight, sister.

Mrs. Ann Robins 60 years, page sister of case VII, and therefore also great aunt of Mary Nash (case VII) has a large overhanging goitre, chiefly of the right and central lobes, from which she has suffered for many years, interfering with her breathing on exertion. (This case was published in the Clarion Journal Feb 1871) in a paper already referred to at page 20.

Mrs. Nash, the mother of Mrs. Robins (case X) and Susan Nash (case IX) was also mother of James Nash (father of the James Nash mentioned at case VII), still living. The grandmother of Mary Nash (case VII) in other words she (Case XI) was great-grandmother of Mary Nash (case VII). This case Nash (case X) also suffered from goitre, and the writer is informed by various members of the family that her mother Mrs. Martin Jones also had goitre, being the great great-grandmother of Mary Nash (case VII). Making five generations, in which the disease can be traced, How much further back in the
The writer has endeavoured by the above table to show more clearly than can be done in words, those members of the Nash family, who have suffered and do now suffer from goitre. The three names in red ink are not goitrous.
Haskell family. The disease may have gone is as Haskell said of the origin of the Jews in Spain "lost in the sight of time". Another member of the Haskell family also resident in the same neighbourhood George Haskell, another of cases IX and XI, not himself goitres, married a wife who has goitres, and who has two sisters with the disease (Mr. League and Mr. Drew). George Haskell's six children tabulated for the sake of reference: Case XII are William aged 22, Luigi 19, Eugenia 15, Persa 14, Iuliana 10 and George 9, and they all have distinct goitres. The mother of these children herself born and brought up in the same district traces the origin of her love to the practice of carrying water on her head, in confirmation of which she says that since she has abandoned the custom the tumour has diminished in size. The child-bearing period is also over.

Mrs. Goodwin aged 50 Broadwell near Bigelow (see map) suffers from a large goitre which may be seen from the photographs appended.
The right lobe and left lobes are very much enlarged more especially the right. The central portion of the gland is not affected. She has lived all her life within a short distance of the limestone outcrop, and state that she has had a "tum" since she was a girl, but since her marriage it has much increased, more especially during pregnancy, and at her labours. The complaint gives a great deal of difficulty. She has thin breathing especially when she exhales herself, and is quite unable to walk fast. She has two unmarried daughters aged 19 and 17 years, both quite, in each case the right lobe, the is more affected than the left, and her mother a Mrs. Smith of Berryhill, and grand-mother both suffered from large tumors.

Mrs. Mary Jones aged 40. The Hope is Parkend. See map. Had goitre before marriage, but it has since that time increased, especially enlarging during pregnancy. She now has rather a large tumour, which includes the isthmus of the thyroid gland. The right lobe is much larger than the left. She states that "tumors" were in her father's family, but not her mother's. An aunt had a goitre which was due she thought to carrying heavy burdens on her head. All of Mrs. Jones's children have tumors, thus George Jones aged 13. Gertrude aged 9. Fred, age 8. Elizabeth aged 7. Sarah aged 6. Henry aged 4, and Mrs. Jones: Baby a few weeks old when
This paper was written, born with goitre.
This is an instance of heredity pure and simple. The infant was born with a large goitre which projected beyond its chin, and on account of the pressure of the tumour on the vocal pipe, seemed to be threatened with suffocation. The mother informed the writer that she thought the child must on several occasions have choked. Breathing is now carried on with great difficulty, although since the birth of the child the goitre has materially diminished in size. None of her other children were born with goitre. The water these people have been in the habit of drinking is very hard, although as may be seen by referring to the map, page 34, they live considerably within the line of the outliers. It may be stated that the goitre in nearly all these children are larger on the right than the left.

Case xvii. Benjamin Bowles, aged 26, of Slung, is the subject of a large goitre, which is confined to the right lobe of the gland, and the isthmus. He has had goitre since his boyhood, but it is not aware that it existed in his family before his time. The tumour does not trouble him much, though he thinks it at times interferes with his breathing. This case appeared to the writer peculiar.
in that the goitre was unusually hard it felt abnormally dense to the touch.

Case XVIII

George Souter, aged 16 years, of west end, has had goitre since a young child; the right and left lobes are both affected, whilst the larynx is barely beyond its normal size. This lad suffers very much from the presence of the tumour, his breathing at times being very distressing and he has more or less difficulty in swallowing. Otherwise, he is a healthy, well-built lad.

Case XIX

Albert Townsend, age 18, Lydbrook, has suffered from a goitre as long as he can remember. The tumour is now very large, the right lobe of the gland being alone affected. It projects beyond the cheek considerably and is very obvious when the lad has his back towards the person looking at him. It does not interfere much with his breathing, probably because the right lobe alone is affected; the only discomfort the boy complains of is that arising from the great size of the tumour. It may be mentioned that this lad is well built and robust. The writer has seen it stated that when goitre occurs in the adult, it is only in the weakly and effeminate. This case as well as others that have been observed by the writer certainly disprove such a statement.

John Townsend, father of the above, has a large goitre, and Albert Townsend (Case XIX) has a sister also affected with the disease.
Case XX. As illustrating the ultimate connection of localities with the development of goitre, the writer met with a curious and interesting case some time since. Mr. George Polly applied to him on account of a large goitre, which caused pain and difficulty in respiration, especially in walking, and which interfered generally very much with her comfort. On examining the neck, the left, and central parts of the Thyroid were greatly enlarged, while the Right was of its natural size (this enlargement of the left lobe without the right is very unusual). Mr. Polly states that there had never been goitre in her family, nor have any of her children gone. She first noticed the goitre a year or two before her marriage, which was 26 years ago. At that time, she was domestic servant in a gentleman's family, a Mr. —. At a place called Porrich on the northern outskirts of the Forest of Knowe. Her neck began to get full soon after coming to this situation. She said that her mistress Mr. — who before living at that place had no "go" soon after began to complain of her neck getting full. Mr. —'s son also became the subject of goitre. Two parlour maids, both of whom were quite free from the disease when they came into Mr. —'s service, after being in the house a few months became goitrous. The Cook in the same way became the subject of goitre, though she had been free when coming to the house.
A servant man too developed a goitre, and a child of the gardener's was becoming goitrous when Mrs. Polly left the place. He states that the water was very hard and was always used for cooking and drinking purposes, it was quite impossible to wash with it on account of its hardness. He also states that he remembered seeing many cases of goitre in the Goodrich district, and some very large ones.

Case XXI

Wilson Darby, age 21 years, lives in the King district on the Limestone Outcrop. This is a case of Cretinism mentioned in an early part of this paper. The subject is diminutive in size, both shrunken limbs and curved back his height is about three feet or little over, and from constantly stooping over the fender near the fire his hands and face have become completely burned. He has an enormous goitre which involves the right lobe and isthmus of the Thyroid gland, and from its great size keeps his head thrust back in a most unnatural position, which together with a constant drooling from the mouth gives to this unfortunate idiot a hideous and repulsive appearance, most unfittable to behold. He moans incessantly and has no idea of the commonest decencies of life, obeying the calls of nature, without the slightest regard either for place or time. He also suffers from Epilepsy. Notwithstanding his defective intelligence, he is not entirely devoid of natural affection. This was
evidenced quite recently in the following way. His father, who is an Iron Ginner,

having lost his way in some old workings did not return home at his usual hour, but was eventually discovered by some fellow workmen that in search of him and brought home late in the night. During his unaccounted absence, the lad kept up a continued moaning even after he had been put to bed, and could not be comforted until his father's return, when he seemed satisfied and went to sleep. The mother of this poor lad informed the writer that her son was a born idiot. The "idiot" first appeared in early childhood, and has continued to grow ever since. She also states that gone has never appeared in her family before it showed itself in her children, the writer has made careful enquiries from the grandmother of the boy, and she states the same thing, that "idols were never in the family before." But a Mrs. Lewis of Pomare (keep your) first cousin of the father of this lad has a very large eugen, and several of this woman's daughters have eugen. One child is deaf and dumb whilst the heads of the other of Mrs. Lewis's children have a very peculiar square form, and in one case at least the stature is very stunted.

The writer tried to leave a photograph of Walton Darby Case XXXI, but on account of the impossibility of getting the lad from home, and other difficulties
Case XXII. Eliza Darby, aged 25, sister of the above, is an idiot and is the subject of epilepsy, though not to such a degree as her brother. This girl is fairly grown and does not show to so great an extent the facial features of cretinism, which are so marked in the case of the boy, yet she is the subject of epilepsy. She is terrified at the sight of strangers, and at once runs away and hides herself if a stranger appears and on entreaties of her mother, will bring her back from her hiding place. These peculiarities in her mother states are much more marked at some times than at others.

Case XXIII. Emma Darby, aged ten years, a younger sister of the above, is the subject of a small scro, chiefly involving the right
and central portions of the gland, she is quite sane.

A younger brother of the two preceding idiots, Henry Darby, age 14 years is also an idiot, but is not the subject of quoting. This poor lad is brighter than either of his brother or sister, and does not appear to be so frightened at the sight of strangers as they are. Another Child a sister of the at the cases died when young, Mrs. Darby states that this child had weak spine and was a cripple.

The speaking of Henry Darby (above) the writer omitted to state that he suffers from inanities of voice, and both feet. Mrs. Darby's other Children are healthy and sane, though perhaps not too bright. How this family have always lived for the last thirty years, in fact since the marriage of the parents, in the house they do now, or in another very near, both of which are situated on a most exposed Common, It is an old story in the District, if there is any loud anywhere it will sure to be found at Hing. But being on the Limestone outcrop the water is very hard. (See mapping).

Mrs. Darby informed the writer that she always obtained her supply from the “Earth well.” The one place where most people in the Hing district obtain their supply from.

Case XXIV John Hughes, weak intellect age 50 years living now in the Town of Coleford, but formerly at a place called Edge and some

Two miles from Coleford, where his mother
Sathan and near relatives had lived all their life time. This man is the subject of goitre, which rose is about the size of a cricket ball, involving the central lobe only, but years ago he had a large tumour of the right lobe as well, which however was cured by the use of Iodine painted on the tumour and taken in the form of drops. Hughes tells the writer that he had a "swell" when he was a child, but it was not until later in life that the tumour assumed its large size, this was due to the habit of carrying burdens of wood on his head which habit has been continued up to the present time. Hughes' wife had goitre but they fortunately have no offspring.

William Williams, age 42, years of age, is a man of weak intellect and defective development, chiefly of the lower limbs. He has an enormous neck, due to the enlargement of the entire Thyroid gland, but more especially that part on the right side. When a boy he could walk, but gradually lost the power of his legs and became affected in his breathing, as a result of which he is now completely
helpful. He has constant noisy breathing which caused the writer on visiting him for the first time, to imagine that the poor fellow collar was too tight, but on looking at him there was no improvement. The noisy breathing is clearly due to the pressure of the tumour. The mother over 60 years of age has only recently suffered from goitre (central) which she confidently affirms was brought on by carrying heavy burdens on her head. She is perfectly intelligent as also is the husband, but a daughter Jane Williams who died some years ago, 21 years of age, had a central goitre and was an imbecile.

Case XXVI. Mr. James Acton of Edge and near Colford suffers from goitre, which however has never attained to any great size, owing no doubt to the fact that immediately the gland enlarged beyond the present small size, she at once applies iodine to the tumour, and perseveres in its use until the tumour is reduced, clearly all of Mr. Acton's children, who are now grown up have from time to time had goitre, but on account of their intelligent use of iodine the tumours have never been allowed to gain much headway. Perhaps the reason of Mr. Acton's early use of the iodine was due to the fact, that her inspiration was very soon affected by the growth of the goiter, hence she...
Case XXVII

Mrs. Obier of Lyddington has a tumour which first appeared at her first confinement, and subsequently grew to a large size, but since ceasing child-bearing, and with the constant use of Epsom for a considerable length of time, the growth has almost now disappeared. A son of this woman a lad of 16 years has a central growth about the size of an orange; the growth lies in pleasure in the sound of his intestine into his respiration. A daughter too has a fungus iron involving the whole of the thyroid gland. A sister of Mrs. Obiers had a large growth for many years which at the slightest labour invariably increased in size. Her first child was born with a large circular lump, which gradually disappeared as the child grew.

Case XXVIII

Mrs. Powell, age 30 years, near Harpenden, suffers from a growth which involves the right side of the columns she has had the growth since her childhood, and in her case as is
Case XXIX. Harry Powell, age 13 years, son of the above, has a large goitre of the right lobe only, he had the lobe when very young, but was not by his mother's knowledge born with it.

Case XXX. Thomas Powell, age 14 years, a second one has a central nodule the size of a small orange, it has been coming some months. His treatment has been bad cause to its latter three cases both boys are healthy well grown for their age.

Case XXXI. George Dobbs, age 16 years, living at Pilewell near Parkland, has had it always since he can remember, both lobes of the gland are affected as well as the lobes, but the right side is especially full. He suffers no inconvenience except when he carries a burden on his head and then he says it makes him "short winded" and he believes it does him harm to do so. Mrs. Dobbs, another of the above, has a full neck, a relative also has goitre.

Case XXXII. Mr. Thomas James of Pilewell near Parkland, has a goitre of many years standing. Her breath is much affected by the pressure of the central lobe, her
breathing is uneven, as if there were a
marring of the air passage. She has
difficulty in ascending a hill. She has had
best seven labours.

Case XXXIII  Caroline Rousell aged 60

Of St.Michael's (see map p. 273) has for
many years suffered from gouty. It
first appeared when she was a dairy-
maid and was in the habit of carrying
large pails of milk on her head. Soon
after commencing this practice, she notice-
ed a fulness in the neck, which gradu-
ally increased in size, very much into-
fling with her breathing. She also states
that since giving up the milk carry-
ing, the gouty has diminished, and
her breathing though much improved
at times is not so bad as it was
formerly. She is aunt of the next case.

Case XXXIV  Mr.Flying fox age 60 years of

Clearwell has suffered from gouty for
many years, it is much worse at her
pregnancies, her breathing at her la-
bour is most distressing. The tumour
involves the right lobe and invades the
left lobe being free. Gouty has
existed in her family for several
generations. Her brother the next case

Case XXXIV  Mrs.Evans, has gouty though it is
less in bulk than when she was a
younger woman, and was in the
habit of carrying heavy
weights on her head. Her obstetrics at
the present time is alone affected. This
woman states that her suffering had gouty
The last three cases came from the 1st Brabecot district which is on the line of two o'clock (see map page xiii).

Case XXXV.

Mrs. Brooks aged 59 years Clarewell (see map). The patient was seen for the first time three weeks before her death. She was then suffering from difficulty of breathing and a cough which her friends thought due to bronchitis. On auscultation both lungs were comparatively free, and the dyspnœa was due to daggishness caused by the presence of a large hard nodular opisthite which came down in the middle line over the sternum one third an inch, not extending upwards beyond the normal position of the diaphragm. With no evolution towards the left side of the neck, but extending a considerable distance on the right side. Treatment to which was medical only was of no permanent benefit. A portion of the tumour was removed after death and was contained in a firm fibrous capsule, and was traversed by fibrous bands. In the substance of the tumour there were numerous small cavities containing thick straw coloured gelatinous fluid. The patient had only suffered from the tumour three years. Suspecting a cancerous element in the case part of the gland was sent
to Dr. Hamilton, Assistant Pathologist of St. Albans Asylum, whose report has not been received when this paper was dispatched. This is the only fatal case of goiter known to the writer, in which an opportunity has been afforded for post mortem examination.

The pregnancy reported cases are sufficient to give an idea of the general features of the disease as it occurs in the forest of Dean, and the several causes to which it may be attributed. Appended is a further tabulated list of cases collected by the writer which far from exhausting the available number. They all present the usual characteristics of the disease.

It is submitted that by the entire series of cases sufficient proof is afforded that Goblic is endemic, in the forest of Dean, that the chief cause of the existence of the disease in the locality is the abundant presence of lime in the geological formations that sterility is a very common determining cause, and that there are other exciting causes such as pregnancy and perturbation.
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