Some Notes on Endemic Goitre,

By

Thomas Penten,
M.B., C.M., 1892. B.Sc. (Public Health) 1894.

Cattcliff, Bakewell,
Derbyshire.

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Some Notes on Externice Goitre.

Thomas Finkin.
Catechist. Bakewell.

Definition.

Goitre may be defined as a non-malignant, often slowly growing enlargement of the Thyroid gland, which may be general or localized; due to an increase, or thin changes in the already existing tissue of that gland, often continuing for years and usually occurring endemically.

History and Nomenclature.

Goitre was known in early times, but its endemic character does not appear to have been noticed by the earliest writers. Pliny speaks of the occurrence of Goitre in the Alps, and he describes how the women in those regions wore amber necklaces in the hope of removing Goitre which had resulted from the use of bad waters. (Pliny. Hist. natural. lib. \textit{xxii}. cap. 37; ib. \textit{xxxiv}. cap. 3; ib. \textit{xxxvii}. cap. 3.)

The writings of Vitruvius (\textit{De Architectura. ed Schmi.} -v. 1. \textit{xxi}. 2.) "Guitar homini infunusciul presentem "apud Aquirolas et Medullas Alpinos;" and

Tusnald, "Quis humitum guitar minimae in "Albitos," leaves little room for doubt that Goitre was endemic in their time.

Hippocrates writing upon Goitre, alluded to it to the use of melted snow. Homer in describing the inhabitants of Thesseli goes thus: "eonno description, Ga integrated goiter"
... and did probably refers to a state of barthium in the following passage, so that it is not too much to suppose that he was in the case of cases of goitre. "... Sunt qui non corpore lamentum. "Vtinum minus chimarus calmar/minus ligamensus." Calenus speaks of the use of lanificio in the removal of goitre, and it was known to the Ancients from whom we derive the term Bronchocele. (Bp of Xe.) In the writings of Salvin and Paul d'Argenteau the words Bronchocele and Tracheocele occur, the latter distinguishing two varieties, one a kind of Tally Gunner, the other a Gunner containing air.

In the Latin writers we find Brachioccele derived from the Greek, or in the term gullar (gullar. uris = throat) with a description of the term gymnus, limbicus, and gymnus gallarius. In early times goitre was looked upon as a punishment from God, and in the same period come the legends of its cure by touching the king's hand. Some other legend are given in the lives of the Saints, thus Bishop Finbarr (7th century) is said to have delivered an Athenian on the prophet who had despoiled the tomb of Saint Endula, the cure being that their children should be crippled and thus common folk. (Cite from Hesych. Eptog and Hist. Palathol. Jus. Syd. Soc., Lond. 1885, Vol. II, p. 121, 122.)

In the 13th century Marco Polo noticed the frequency of goitre in some parts of Eastern Asia.

It was in the 14th and 15th centuries that the endemic characteristic of goitre was first insisted upon, and among the earliest to point this out was Arnoldus Villanova...
Villanovanus ("Bombari": lib. 7, cap. 74, pp. 100. [cit. par Hirsh: loc. cit.]). It was about this time also that Paracelsus wrote an account of this disease as it occurred in the Duchy of Salzburg (De generalibus phlebitis, Strassb. 1616. T. 74.) He attributed Gout to the use of water containing mineral impurities, and especially referred to this connection to the Sleepers of Zion, as he called it Marchasita. From this period onwards the Medical literature of this subject became more extensive.

In the 16th century Paradin ("Chroniques de Savoie, Paris, 1561. p 20. 21") used the words Stamina and Stonum only as synonymous to describe Gout as he met with it in Savoy.

In the 17th century we find the writers, Paulus ("Opera omnia, Paris 1610. p 632") and Fabricius ("Opera omnia, Paris 1614. pp 157. 166, I. 34. 35") only distinguishing between Stamina and Stonum, and in no cheocks, the other using either term without distinction.

Richard Bervian, English Chirurgeon to Charles II, describes operations in his book "Real Chirurgical Practice", which he performed upon two cases of Gout, under the names of astronomers. Both these cases are discussed in the chapter on King Bed's Stamina, evidently showing that he too held the view that Stamina and Stones were but, at any rate, a close relationship. ("His loc. cit. Fifth Ed, Vol. 17, p 444. 445, ob. 10. 11., London 1719.)

In the 18th century Horstius used the term Stamina to designate, exclusively, tumours of the Thyroid gland, and in some countries this word retains this significance (Vol.)
Among the works of this earlier period, which appeared about this time were one by Draper (An Account and Method of Use of Bronchocele, a Derby, 1769). Thackw Baille is describing Odehr in his work "Anatomical Anatomy of Some of the Most Important Parts of the Human Body" (Second Ed., London, 1747, Cap. VII, p. 83.) and the term Bronchocele.

In the present century Alberti (Anatomi nat. philos., Paris 1835, p. 464.) gave the name "Thyroplacidea" to this condition, and after a few variations, one in which the human is formed at the expense of the Thyroid gland solely, and another more complex form in which the surrounding cells also play a part in its production. About the same period Alberos (Bläütherungen zu den Atiologie patholog. Anat. part II, Bonn 1839, p. 302.) said that differential differentiation of the glands from the couple, and those formed solely from these are denoted as anomalies. Such a distinction is impossible, in a goiter, all elements of the Thyroid gland, as, or may be involved to varying degrees.

Among those who have added largely to the literature of this subject during the present century may be mentioned St. Bago (Études sur la cancro du cithéviser et de Goër, Montauban, Paris 1867); Sir Alexander (Medical Topography of Bengal); Icaenamara (Clinical and Topography of Himalayan and And Himalayan Districts of British India with Remarks on Allergies and Poor the Diseases); Moore (Cancer and other Diseases of the}


Goître, Paris, 1840), and many others, and during recent
years much interest has been directed to this subject by
among others, Rothen of Burns. Biddle of Virginia has
published an account of his results from the Surgical Treat-
ment of this condition in his "Clinical Lectures," (New
Sydenham Society, Lond.)
Several Commissions have been organized and have
rat with a view of investigating the Etiology of Goître, and
of these chairmen are the Paris Medical Commission
established by the then King of Sardinia in 1848, and the
Commission française which published its report in 1873.
It has been suggested that the word Goître should retain
its early significance, and that a generic term should be
added to distinguish between the various forms, thus:
congestive goître, inflammatory goître, and so on. It
would be the means of saving much confusion if the word
Goître was employed only to designate benign tumors for
rather by per se meaning of the Thyroid gland, instead of being
used in the lower sense it is at present.
Other terms have been used to describe this condition, some
taking origin from the locality affected eg "Goître de
"Intothale Throat." Pleurocèle is the word used by some, but
this term should only be applied to tumours in the course of,
and communicating with the Trachea, and which contain
air. The same objection applies to Bronchocele. Thyrocele
is free from the objection which applies both to Pleurocelle
and Bronchocele, in that it is not misleading as to the
real of the affection.
D. August Hirsch summarises the history of this affection.
affection as follows: "Towards the end of the 18th century, it
may be said to have begun.
All that we know of the earlir history of Endemic Coebus
and Catarrh, reduces itself to this: that a few centuries
of the Endemic was known to exist, the name that contained,
"..." to be the cause of the malady of the present day; and
that Endemic Coebus is proved to have occurred as early as
the pre-Christian era. And as regards Catarrh, previous
to the 18th century, the history is involved in complete
m mystery." (Hirsch, loc. cit., p. 123. 124.)

Geographical Distribution.

On looking over a list of the literature devoted to
Coebus, one might suppose that it was to be most generally
and widely in England, because in that continent it has received
most attention. Such however is not the case. It is to be met
with in all parts of the world, but its great peculiarity is that
it does not affect a country generally, but in narrow less
localised areas, in which the affection is Endemic. It
has been met with sporadically but this is the exception.

In England the chief localities in which Coebus is
to be met with, are the Southern provinces of the Alps in
Italy, Switzerland and France; the same chain of
mountains in Austria; among the Pyrenees; about the
Vosges and the Jura.

In England the amount of Coebus is comparatively
small, and the localities in which it is Endemic are widely scattered.
The centres in which it is probably Endemic in the highest
degree are in the Southern and North Midland counties, and
and they follow, more or less the course taken by the Chain of Hills which arise almost at right angles with the Cheviots take an almost middle course southwards and terminating in the hills forming the Plate of Derbyshire. The end of
Induricite gòhre in the Northern and with Neidland Counties are thus found on the Western borders of Westmorland, Durham; and Yorkshire especially at Hawrio; in the Northumbrian and Western parts of Derbyshire, especially in the boys and Derwent valley at Hard foot, Buxby, Faggallace; in the
Eastern part of Cheshire; Lancashire at Bolton; Bedfordshire; and Cumberland in the Ashten Roman Districts. It is
also very Induricite in some parts of East Cheshire.

The chief geological formation of the above localities is
Dinistone or Carboniferous Dinistone and Coal; and in some places the Grit stones and Shales are met with by the foot,
Buxby in Derbyshire; Bradebury in Durham.

Other parts of England where Induricite endurance meet with
are, in the South on the East across formation in Surrey, in and
around Horsham; Hampshire; and the most elevated parts of Surrey especially Haslemere.

In the Western Counties, goître is Induricite in Somerset
shire; Gloucestershire in the Forest of Dean; Worcestershire
at Worcester; and in many parts of Wales.

In the Eastern Counties it is met with in Suffolk, and at
Peygourn in Norfolk, as well as Ampthill. (On the
Geological Distribution of Induricite Goître in England, Professor
Adom; Heisch, loc cit.)

In Scotland, goître is ralted to be less frequent than in
England. The East Coast of Fife and Perthshire are given as
as its chief situation, and it is also met with in the East of
Dumfriesshire, the south of Argyll, and adjoining parts of
Perth and Lanark, and in the Trossachs, Argyll, and in the
northern districts of Perth, Fife, and Lanark, and
adjoining parts of Fife; and in the Trossachs, Argyll
in Scotland, shows also that it is rare with Pantomically in

On the Continent of Europe, the chief localities where
it is most prevalent in Europe have been indicated in the early
part of this Section; hence it is most frequent in Italy, where
in 13 years, 1863-1876 out of 2,000,000 actual males exam-
ined for Military Service, 42, 863 were declared unfit for
that service in consequence of being the subjects of Todesp, but
equal to 20-9 per 1000 of those examined. (From the preceeding
lists published by Sormani, "Geografia morologica, etc.",
following Table from Hiroshi's work (loc. cit. p. 126) shows
where the chief endemic centres in Italy are met with:

<table>
<thead>
<tr>
<th>Location</th>
<th>Per 1,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aosta (Prov. Turin)</td>
<td>317</td>
</tr>
<tr>
<td>Val Pellicia (Prov. Novara)</td>
<td>263</td>
</tr>
<tr>
<td>Como (Prov. Como)</td>
<td>182</td>
</tr>
<tr>
<td>Saluzzo (Prov. Cuneo)</td>
<td>179</td>
</tr>
<tr>
<td>Barolo (Prov. Alessandria)</td>
<td>170</td>
</tr>
<tr>
<td>Salo ( ...)</td>
<td>166</td>
</tr>
<tr>
<td>Chiari ( ...)</td>
<td>163</td>
</tr>
<tr>
<td>Travigno (Prov. Bergamo)</td>
<td>154</td>
</tr>
<tr>
<td>Gheco (Prov. Como)</td>
<td>141</td>
</tr>
<tr>
<td>Amico (Prov. Cuneo)</td>
<td>131</td>
</tr>
<tr>
<td>Susa (Prov. Turin)</td>
<td>124</td>
</tr>
</tbody>
</table>
Marolo (Prov. Lomb.) 117 per 1000.
Aunona (Prov Bergamo) 116

In France, Baillarger (Reppart de la commission d'inquétes sur la goitre et la Côte in Franc. Paris § 73) states that the total number of goitrous people in France, above the age of 20 years, was 370,431; taking the population as 36,000,000, gives an average of 10.4 per 1000. The chief areas of goiter in France are in Savoy; Hautes Pyrénées; Aisne; Vosges; Ariège; Lorr.; Vienne and Rhône departments (Vide Statistical Table. Traits de Goître. Instl. Paris 1880, p. 262.)

In Spain it is most widespread along the Southern slopes of the Pyrenees, Galicia, the Cantábrico and Cathedrals area.

In Switzerland especially in the Vallais in the upper part of the Rhone valley; in the Canton of Bernese; in the Rhône valley and in some of the Cantons of Ticino and Valais. The following table showing the number of cases per 1000 in habitants also serves to show the relative frequency of goiter (Hinselbeck p. 131.):

<table>
<thead>
<tr>
<th>Area</th>
<th>Cases per 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uri</td>
<td>9</td>
</tr>
<tr>
<td>Solothurn</td>
<td>2.3</td>
</tr>
<tr>
<td>Valais</td>
<td>6</td>
</tr>
<tr>
<td>Vaud</td>
<td>2.1</td>
</tr>
<tr>
<td>Berne</td>
<td>4.2</td>
</tr>
<tr>
<td>Aargau</td>
<td>2.0</td>
</tr>
<tr>
<td>Bernese</td>
<td>3.4</td>
</tr>
<tr>
<td>Lucerne</td>
<td>1.6</td>
</tr>
<tr>
<td>Glarne</td>
<td>3.1</td>
</tr>
<tr>
<td>Interlaken</td>
<td>1.3</td>
</tr>
<tr>
<td>Basel</td>
<td>2.7</td>
</tr>
<tr>
<td>Ticino</td>
<td>1.3</td>
</tr>
</tbody>
</table>

In Austria it is most wide in the Tyrol and Styria, and in Germany especially about the Black Forest.

In Russia it is most wide on the shores of Baltic Ladoga and on the Alps of the hair and Caucasus Mountains.
Goître does not appear to be common in Norway, Sweden or Denmark.

Central Asia. Goître is endemic in the west and north of Lake Balkash, and north of the Amou River, as well as on both slopes of the Tien Shan Mountains. It has been reported in the Mongolian districts and Tibet. In China it has been reported as occurring to the east of the province of Kweiyang, and in and around Peking. The chief endemic areas of goître however, lie in and with in Asia are grouped along the northern and southern flanks of the Himalayas, the districts between these mountains and the rivers Ganges and Brahmapoutre; and a tract beginning in the upper basin of the Ganges in Kutch and passing easterly through the mountainous parts of the Punjab and the Thar desert, being perhaps to be especially indicated. Donnell notes the occurrence of goître in the South of Afghanistan (Eylton and its capabilities. London. 1843.) It is also reported to be endemic in Borno, Sumalna and Towa (Hiroshi). In Africa goître is present in more or less the mountainous parts, the desert region being free. It occurs on the slopes of the Atlas Mountains in Morocco and Algeria; on the slopes of the Kong Mountains where the Niger takes its rise. Minga Park found goître among the negroes of Barbary, and they attributed it to the use of brackish water. Livingstone has also reported its occurrence in some parts of Central Africa, but I am unable to find any reference to this condition in D' Description in Equatorial Africa. London 1891.
North America. Götter has been found in the country around Hudson's Bay, in North America along the St. Lawrence river; in the east in some parts about the Rocky Mountains, especially near Fort Edmonton. Götter also occurs in Virginia, Pennsylvania, New York, New Hampshire, mountainous districts of North and South Carolina, and northern parts of Alabama. An important zone of Andranic Götter begins in the Cordillera in New Mexico, and passing through Central America extends into:

South America as far as Chile. It is also found with in the valley of the Magdalena River. Götter is Andranic in Venezuela between Valencia and Cagua, and in the mountain region passing in a South westerly direction from Valencia. It also occurs in Peru, and through at Brazil with the exception of the coast line.

On examining a sketch map of the world with Gothen's localities marked therein, one is struck not only by its wide distribution, but by the fact that it seems to have three points of greatest intensity. One in Europe in the countries about the Alps; one in Asia in the region about the Himalayas; and the third beginning in the Cordilleras in South America, passing through Central America, and branching out in the shape of a capital Y to embrace a large tract in South America. Another striking fact which comes out is, that it is in the more mountainous parts which are affected, whilst the coast lines are practically free. This latter fact comes out prominently on looking at the geographical distribution of Götter in England, the chief centres of which lie along the chain of the Götter
running northward from the Beedi district to join the Churiki, and I know of no locality on our coast that which is affected. My experience in this locality of the distribution goes to show that this low lying village in the valley was most affected, although elevated villages are as common and some of the chiefly affected villages, though elevated or in a valley, are far distant from a mole or small stream.

Goitre is not restricted to man. In goitrous districts, especially on the continent and in Asia, animals have been seen to be goitrous. Aristotles, Columella, Babrius have noted the occurrence of goitres in pigs. Goitres among dogs and pigs have been noted by various writers in different localities, as Delafond about Paris, D'Souza in Ternana; and Mae Donald. She has seen it in Cal and Dogs in India about the Ganges. Goiters have also been reported as affecting cattle, horses in Persia; sheep and goats.

Racial Differences. The evidence I have been able to collect upon this question is of such conflicting nature that little more can be said with certainty than that while no country or race has an immunity from goiters, Calvinism is more frequent in the Eastern than in the Western Hemispheres.
Partial Anatomy.

Classification. Immunos as the classification of Poils are they may be said to be founded upon one or more of three bases, thus, taking into consideration 1. The Variety of Area; 2. The Anatomical part of the Derived Change, e.g. Eclamptic, Fibrous or Vascular; or 3. The Contents eg Solid, Lytic, Collid. One of the best classifications from a Clinician's point of view is that of Vichard. He classifies them as follows: 1. Follicular; 2. Fibrous; 3. Vascular; 4. Collid; 5. Lytic; and 6. Osseous. There are many other classifications from the same point of view and on referring to some of Dr. Beale's lectures on Pathology I find that he described them under the headings of 1. Vascular; 2. Lytic; 3. Fibrous and 4. Pseudo-lamellar. Under Lytic he described Collid and Fibrous included his Follicular form of Vichard's list.

Leaving Pseudo-lamellar Coils out of account, I propose to make a combination of these two classifications and both upon benign goitres as coming under one of the following heads: 1. Hyperplastic; 2. Fibrous; 3. Lytic; 4. Collid and 5. Vascular. Looking upon the Osseous state as a change which has taken place in one of the preceding forms, it may or may not alzanding. It is alone and is for the.

That what might be termed Tumorous, or even Fibrous goitres our most with in some people. But the Thyroid becomes congested and enlarged at certain periods eg at the Menstrual period, or as a result of Strain eg in Parturition, or from lifting heavy weights. The importance of this will be again alluded to in the Section on Physiology.
Character common to all Varieties of Goitres.

Increase in Volume and Weight. A thyroid which is above a weight of 25 grammes may, for all practical purposes, be looked upon as hyperplastic. A thyroid gland may however, show, both macroscopically and microscopically, changes such as an external increase in volume without reaching a weight of 25 grammes.

The increase in volume may be small or in varying degrees up to the dimensions of the Rhinomonos goitres which Milkmay (De Silvanis ad necrophiles Riss, 1842, Die Friag. Oxford. 1725), Cantuiri (Pyrol二nium, Langthorium, Sphacemus, alama, Rindf. 1794, p. 101.) and Riedschrech (Der Kropf) have described as reaching on to the chest or even near the abdomen to the upper part of the thighs. Such Rhinomonos goitres rarely, if ever, occur in this country. The largest I have ever been a Rhiino goitre reaching on to the upper part of the abdomen, and greatly limiting flexion of the head on the neck. This goitre on being aspirated yielded upwards of 50 ounces of a clear, coffee colored fluid.

The increase in volume only rarely affects the whole of the thyroid, in most instances one

side only is affected, and the side most commonly affected is the right. In old standing goitres the whole gland may be, and often is, enlarged, but more than the right side is found to predominate. Why this predilection I am at a loss to explain. I have never seen in those who use the left arm, most as well as vice versa.

The surface of the goitre may be smooth, but
but in most instances it presents a lobulated character, and a goitre which gives a sense of being smooth when gently palpated, will often be found to be lobulated if palpated by pressing against them with the pads of two or three fingers of one hand, whilst the other hand supports the gland against the palpating finger. This lobulated, rather, nodular character, is due to irregularity of growth and growth.

The consistence varies between the extremely soft or flabby consistencies of some of the Cystic or Cellular goitres, and the alony hardness of a goitre in an advanced stage of Calcareous degeneration.

Characteristics peculiar to each variety.

1. Hyperplastic Goitres. In this variety there is a surplus by parting off of the normal elements of the gland, and Virchow describes its mode of formation (translated from his work on Tumors): "The hyperplasia, or more properly speaking the hyperplasia, above anything more than the natural progress of growth. The cells of the follicles increase by division, and, as is usual, in abnormal places it is the follicles themselves which divide. These are produced, solid blocks, which, coming to the outside, pour themselves into thecollective homunculus, reproducing two blocks and vanishing into more and more. The interstitial tissue, in consequence of irritation, increases in size and surrounds some parts of these blocks, never..."

However, I have never seen this formation of glandular elements later places.

This hyperplastic change usually affects only parts of the gland.
gland, and if the part affected is near the anterior or lateral surfaces of the gland, it can be felt as a pit or nodule; if however it sinks more deeply it may not at first be detected on palpation. The size varies with the number of lobules affected, and the rate of growth. The tumour is soft and non resisting. On section the vessels are large, and the substance of the gland appears coarser and paler than normal. In some of the vessels a fluid is present around. It is probable that all the exterior of the lobules that all others arise. In some cases the lobules are separated by a fibrinous exudate, and this may be looked upon as an approach to the condition to be described next.

2. Fibrous Goitre. This is the Schirrous goitre of the older writers. Pithakis (急急 and the Kipper, p. 7.) holds that a goitre is more fibrous in its onset, but that it is a further stage in the development of a Simple or Hyperplastic goitre. In the 33 of Desjardins Lanne’s practice previously alluded to, I found the following:—

"Fibrous goitre results from a chronic hyperplasia of the fibrous alburna of the gland; the follicles being obliterated and the gland becoming "solid and indurated." I noted the hyperplasia of the fibrous alburna first brought about by the increase in size, and then the fibrosis and restoration of the lobules of the Thyroid gland which takes place in the Simple or Hyperplastic goitre? Pithakis describes the removal of two very small nodules and secretions which he performed, one in a young person, over the fibrous goitre was in an early stage, and the other in an old subject where the condition was of long standing. (Pithakis, "ii’" de Goitre. P. 161. 52. Paris, 1880.) The fibrous change is rarely general, in most cases it is localized to one or more parts of the gland, thus on palpation one or more
more modes may be discovered. This varies in variable, indeed in the best. What are usually stated as the "they vary in sizes from that of a hagelb. and the size of a pea," two articles which are even- numbered as variables, as to include almost anything.

On excretion they are, in early stages yellowish in color, and those of long standing yellowish-brown or bluish. While, and rays may be seen running from the center towards the periphery. These rays usually end in the surrounding glandular tissue by ramifying with similar rays from the medulla. The glandular tissue becomes more and more adherent as the fibrous tissue encroaches upon it.

3. Vascular Goiters Many goiters have a large vascular supply than the normal Thyroid, in consequence of their increase in size, but the term Vascular is only applied to those goiters in which the vascular tissue predominates. If the arteries are chiefly affected it is regarded as an Arteriosial, if the Veins as Venous.

(i) Arteriosial goiter. There is an increase in the calibre of the larger arteries, and in the course of the smaller arteries a vascular supply comparable to the remaining arteriosial of the Central artery, as described. This is a general hypertrophy of the mass of the Thyroid. This is a rare form, and in Turril (loc. cit. p. 178) appears to hold the opinion that this condition of the Thyroid is the same as that described in Paraphalaeic goiter.

(ii) Venous goiter. Here dilatation of the Veins is the most prominent symptom. The Veins, and especially the peripheral branchs reach a large size. They are irregularly distributed
distended, and their distension is most evident on careful
Vascular glands of this kind rarely are said to develop
Early, and Virchow is inclined to regard them as congenital.
The gland substance is flabby and dark red, and the vessels
walled thin. Calcaneum and fatty degeneration have been
described, and Friedrich (Virchow Archiv. 1857, T. 71,
p. 389, 391) and Daycock (Edin. Med. Journ. 1863, p. 5)
have among others noted instances of this latter.

4. Cystic goitre. One of the most frequent changes
in tumours of the Thyroid gland is the formation of Cysts. In
many cases the Cystic condition occurs in a goitre which has
had a Colloid character, but a goitre may become cystic
without having been Colloid. The follicles become distended
with an accumulation of an albuminoid fluid, the separate
follicles as they increase in size run together in consequence
of atrophy of their partition walls, and soon a large
cystic is as formed. When a Colloid goitre is going to become
Cystic, the albuminous material softens, first towards the per-
imphary and gradually extending to the centre of the mass.
The cells of the wall between the follicles undergo fatty degener-
ration, and produce a granular debris. The increase in the
amount of fluid results from a secretion from the Cyst wall.
The Cyst wall is as firm thin, but in old Cystic goitres it is much
thicker. Its surface may be smooth, or covered with projections.
These probably the remains of follicular partitions, the
remains of which have disappeared. It has frequently a
number of various vessels on its outer sides.
The contents of the Cyst may be of varying colour and amount.
amount. In colour it may vary from a pale straw to a
copper or some deep chocolate or blackish hue. The depth of
colour depends upon the amount of blood that has been
exuded from the various vessels mentioned above, and upon
the length of time that has elapsed since it has been poured out.
Hoppé, Sfogli has studied the changes that take place in the
contents of cystic glands (Kalt, die Pathana, die Kropfgeschwul,
in Verhorsche Archiv. t. xiv., p 392, 394., 1863.) It is
only in rare cases, however, probably as the result of a transient
vena, that the contents of the cyst are pure blood or blood
clots. Cholesterol crystals and fatty matter have been
found in the fluid of cysts. Frequently after a cystic gland
has been tapped and a certain quantity of fluid is
drawn off, there is a discharge of blood varying in in amo-
ount. This is probably due to rupture of some of the various
vessels in the gland wall, or to spasm of the learned
support necasssoried by the removal of fluid. In a case
of a large old standing cystic gland, which I had under obser-
vation, and which was treated by repeated aspiration, I
noticed that the liquid that at the first aspiration was
of a clear amber colour, had at the second aspiration the
colour of coffee, and at the second aspiration proceeded this
change to the red color of blood.

Wreden, in his upon cystic glands as basal adenomata, or
causes adenomata (Adenomie on Surgical Pathology and
He goes on to state that incidence especially the state of things
closely connected to that of the normal Thyroid, thus a
“number of capsules of connective tissue, which contain
contain a gelatinous substance adhered with more or less round pale cells. The shape of the capsule varies greatly, "rubric the young cells form, which do not contain any gelatin, but only cells, are analogous to the portal thyrodel vessels, while the diameter of the largest is from red to the "minis as small. One of the most prominent changes in

"barnows of the larynx gland in the formation of gelatice, "which results from the circumstance that, during the "dilatation of the vessels of the gland, a number of them "become confluent and their gelatinous contents press "and more fluid." (See ed. p. 540.)

5. Collord goitre. Here the contents of the follicles
are a yellowish or greyish visous material, with the appearance and consistency of gelatin. Various opinions are held as to the color of origin of this material. Tho.
writers looked upon it as an endocrine product developing in the interior of the follicles. Pekikan (in anal. des KIndesfre., 1849, p. 52) and Reme (Zeitschr. f. nat. Ind., 1847, t. vi. p. 154) look upon it as a product of the degene-
ration of the intra-follicular cells. Virchow denies this change in the cells and holds that they produce an Alk-
humors material which takes on a Collor character, under the influence of the alkaline cells contained in
the fluids present.

On section the lobes, tubules and vessels appear con-
health, with the exception that they are larger. Of development has been above the vessels are pachyendral, if on the other hand it has been rapid they are of various shapes in
in consequence of pressure, this is most marked towards the periphery. If the liquid increases, the vessels may fuse, the interstitial connective tissue becoming abscessed and giving way.

The colloid change usually afflicts the thyroid gland, and the surface is smooth, in most cases.

In goitres of long standing various degenerative changes may take place, and chief among these may be noted the calcaneous degeneration forming the so-called calcaneous goitres. The tissue forming a goitre becomes uninflamed and is calcified with calcaneous salts, and is never made a hard mass unless the fibrous goitre undergoes this change. If a fibrous goitre undergoes this change, the salts are deposited in its substance, if on the other hand it is a cystic goitre which is affected, the deposition takes place on the internal surface of the cyst wall. At one time it was looked upon as a true bone material, but Chondro- or 268.blasts are never found, and the change is analogous to the calcaneous degeneration not with in the part of the body, as e.g., bone, cairn, arteries, etc. The material is composed of Carbonate and Phosphate of Lime, these in varying proportions probably accounting for the varying degrees of colour and hardness. In some goitres the yellow hardness is more marked, and the org evidence of this degeneration which may be found consists in a soft chalky material.
Signs.

All leucæ have certain symptoms in common, and

the one which is the first to attract attention is in some cases an increase in Sejì. This increase comes to a swelling in

front or below the eye, or both, rid for the Trachea, in the

situation of the Thymus gland. The enlargement may be

regular, but in most instances our or other lobes of

the lumen is affected, giving rise to an asymmetrical

swelling. As before stated it is the right lobe which is

first and chiefly affected. The swelling in most instances

is situated in the lower part of the neck, behind the

region, and its elevation upwards and downward depends upon

the size to which it attains.

The shape and Sejì of the swelling is very vari-

able. If both lobes of the Thymus are equally affected, and

the increase in any regular, the region in the front of the neck,

between the upper part of the trachea and the

hyoid bone, may be completely taken up by the

swelling. When the enlargement affects the Thymus alone, it quite rises to an obvi swelling which, in France

has earned the name, "coeur de biche" or 'beastly heart.'

(Quint., loc. cit. p. 170.) When one lobe only is affected

the deformity is much more apparent, and the diag-

nostic symptoms. The Sejì of Coâtre is very variable,

but in this country it is usually moderate. In some cases

a goître, in many years of the action of gravity, is pendant

if long enough to show this characteristic. Numerous goitres

have been described, as mentioned above, as occurring

on the Continent, of which Rallenc (cit. p. 130) gives
loc. cit. p 171) says: "A goitre without changing its nature a composition, in some cases reaches such an excess in some cases, especially in persons of a hypertrophic temperament, amount to further constitution, alike in consequence of its age, that it wholly hides the neck, reaching from one angle of the jaw to the other, and from the chin to the sternum. It may become so large that it cannot be hidden by the clothes; I have seen it reaching to the humerus, and even, this always remarks, reaching to the xiphoid.

On palpation the form ofmovement and with ofmoves depends upon the character of the goitre. It may vary in different parts of the same goitre. In large goitres of large and small fluctuation can be made out, but in small goitres of this class it is extremely difficult to be seen that fluctuation is present, usually the goitre is smooth; and it is painless unless it is the seat of inflammation. Palpation may be seen or felt, it must either be communicated from the larynx down it is hearing in character, or due to a vascular goitre. (Vide vascular goitres)

The mobility of the swelling is one of the most important points to be looked for. The degree of mobility on the deeper parts is of importance. But the question of palpation is under consideration; but the most important movement of the human diagnostically is that seen when the patient performs the action of deglutition. Some writers have regarded these movements as pathognomonic of this condition, but each corresponds importance, allowed and be applied to these movements, for it can be easily understood that a goitre
...and on the other hand an enlarged lymphatic gland might have contracted such adhesions with the trachea as to enable it to execute the movements, although it cannot be admitted that either of these must be of comparatively rare occurrence.

The skin is usually unmarked. It has been said to be paler, but I have seen no part of the body, or even in other exposed parts of the body. I have seen in the case of a man who worked with the skin open at the neck, the skin covering the goitre as deeply pigmented as the rest of the skin which had been similarly exposed to the sun. In old persons who have been the victims of this disease, the skin over the goitre may take on the shrivelled and wrinkled appearance as is usual in old persons at their term of life.

The lobe of the voice may be altered, and dysphonia may be present on excitation.

Symptoms of each Variety.

It cannot be remembered that in a single goitre, especially those of long standing, may be noted in one part or other, all the variety so enumerated above. An exception to this statement may be made in the case of vascular goiters. Bearing this in mind, there may not be attempted to describe the symptoms peculiar to each variety.

1. Hypoplastic goitre. When a goitre is purely of this character it has the same consistency as the normal
normal. Thyroid. It is enlarged in our or more lobes, smooth, and may give a sensation of semi-fleshy nature. On most cases however, certain points can be found on palpation with more resistance than the rest of the goitre, showing where a fibrous change is taking place, and thus the goitre becomes nodular.

2. Fibrous goitre. According to Wichmann, this variety in early stages gives a sense of sponginess when palpated, such as is met with in subcutaneous emphysema. It is doubtful whether such a sensation can be elicited at all in most instances of fibrous goitre of this variety are small, indeed it is this variety which have the least tendency to form large goitres. They are firm, and when palpated give the same sensation as is obtained by palpating a well developed biceps muscle within a plate of contraction. It is with goitres of this class that some of the most serious pressure effects are met with. They may be the seat of Calcareous degeneration than they have a sense of cracking or a hard hardness.

3. Vascular goitre. This gives rise to a soft semi-fleshy nature. It is said to become more noticeable, but to fill up again when pressure is removed. It cannot be diffused to make sure of this fact. They have a pulsating expansile movement, synchronous with the cardiac rhythm, which may be seen or felt. To make sure that this movement is a true expansile movement in the gland itself, this habit (Diel Vey...
Encyclopedia, ed. Denis Idee, Senjiv. (18), p. 507) decides that the head should be bent forward and inclined from the affected side, so that the tumour may be out of reach of the carotid.

4. Cystic goitre. In this variety a large goitre is often met with. In shape it may be globular, although in most cases it is ovoid with its logaxis from side to side, or pyriform with its narrow end upwards. In this part of the country it is the common form of goitre met with in old persons. Pulsation can in most cases be elicited, although it is by no means as easy as at first it may appear. This difficulty may be due to several conditions, e.g.: the nature of liquid in the sac, thickness of soft wall, but perhaps above all, the size of the tumour. In some cystic goitres there are points where pulsation can be made out. Transparency, such as is seen in a hydromiel, has been described, but it must depend upon the condition of the contents. In doubt the passage of a ground needle will often clear the case up, and when passed with due precautions, I have never seen harm result from its use.

5. Colloid goitres. These are often of large size. They give a sensation of beginning, and then feelly palpable and they are related to have a feeling of lumpiness. In some cases they are very soft.
Diagnosis.

1. Is the lump in the thyroid? This question can
in small cases be settled by attention to the following.
It occupies the anatomical seat of the thyroid body, in
wholes or in part. It is in most cases of slow growth, non
adherent to the skin, and it can, in the majority of cases,
be moved upon the deeper structures more or less easily
in the hand. It is painless, except from the seat of inflam-
matory change. These several points taken in
conjunction with the fact that the lump moves up and
down with the larynx during the act of deglutition, make
the diagnosis as to whether it is a lump of the thyroid.
I have left out of account the rare condition in which a
gobletous condition affects an accessory thyroid.

From Chronic Adenitis, may be diagnosed
by attention to the history of the patient, the more palpable
point of the swelling, thymus membrane, the adhesions
which they make with the skin, their tendency to form
abscesses and protruded scars, non movement or
deglutition.

From Lympho Sarcoma by its more rapid
growth, acute pain, infiltration of skin, implication of
other lymphatic glands, the age of the patient often assists
From Bronchocles by its reducibility, per-
cussion mark, connection with Bronchus.

From Anemias of the Caudal Subclav-
are by attending to the symptoms of such conditions.
Assistance may be obtained by remembering that in a
Caudal anemia, the most critical point in the course of
of the artery is under the sternum and back, while the most firmly fixed point in the case of a goiter is towards the middle line.

Sympathetic and Congenital and even Congenital cysts in this situation, as well as cancer affecting the pharynx and upper part of the esophagus, and only be mentioned to avoid error.

From acute inflammation of the thyroid the diagnosis rests upon the rapid onset, swelling, pain especially on swallowing, general constitutional changes of fever, and it is often indig. Suppurative.

Clinically there is no difference between Epizodic and Indurative Goiter. Goiter is paid to be Indurative when it is of frequent occurrence in a locality, and Epizodic when it occurs in a person residing in a non-indurative area. The only difference lies in the frequency or absence of goiters in a locality.
Pressure Effects. Three of common vary with the organ which is affected, and while the results of pressure are discovered separately under each organ, it must be borne in mind that two or more anomalies may be compressed and give rise to the symptoms disclosed under each head.

Oesophagus. One of the most frequent results of pressure is dysphagia from pressure upon the oesophagus. It is, as can easily be understood, most serious in those cases where the goitre affects the left lobe. In itself, it does not in most cases endanger life, but it becomes more serious when it is accompanied by respiratory troubles from pressure upon the trachea. Information of his oesophagus has been reported in consequence of pressure upon the oesophagus. Sir Thomas Watson mentions a case where strangulation resulted from pressure of a goitre upon the oesophagus.

Trachea. Some of the most serious results of pressure are due to impingement of this organ. The goitres which give rise to the most serious respiratory troubles are small in size. The larger goitres rarely cause dysphagia, but the patient sits or stands up, but it must be borne in mind that they may be the cause of dyspnoea. The patient lies on his back, simply because of their weight. Most writers are agreed that the fibrous goitres is the variety which is present in most cases of pressure upon the trachea, although Dömmen (Jahrbücher für praktische Chirurgie, 1861, p. 11, on narrowing of the trachea, in consequence of compression) divided attention to the frequency in which the goitres causing compression is of the cystic variety. The fibrous goitre is rare among for compression of the trachea, even fibrous
varily and about the size of a small Tangarine orange, and I
was struck by the extremely small size of a lemon which was
able to produce such alarming symptoms.

I have seen it stated that a goitre condition of the Gland is
very uniformly produces Dysephoria, but in recogni-
tion of such a statement, I may mention the case of a
woman aged about 40 years, who has been the subject of a
goitre for several years. In the case the Gland is about the
size of half a walnut, and fibrous, and the right lobe is about
as long as an orange. The right lobe towards the outer and back
part gives a sense of being Cleft, but the part nears the Gland
is quite fibrous.

The Dysephoria is said to be most prominent in those cases in
which the Gland has passed behind the Phrenum. This can be
fairly understood as can also the fact, pointed out by Dimet
(loc cit, p 260), that it is especially prominent when the
expansion of the upper portion of the Thorax is limited by a
Reynoid of the Costal Cartilage and the Sterno-clavicular
articulations, in consequence of Pneumoc or a chronic peri-
chronitis in the vicinity, produced by the irritation of the
goitre.

The Fractura may be affected in two ways, by compression or by being
pushed backwards. In most instances these two effects are
combined. Bouchet has given three varieties of Fractural deform.

i. Flattening, forward or backward.

ii. Lateral deviation.

iii. Flattening laterally or bilaterally.

If the purses is long kept up an atrophy and softening of the
Fractural walls takes place, and this is a frequent cause of a
a bounding of the Trachea. Post. (Der Kropfstod und die Radikale
Kropfheilung, Berlin 1878, fch. p. Robinson. Hypotheses, Lond. 1885,
p. 6.) says that the palpable degeneration, asthening and atrophy of the
cartilage of the Trachea which occurs if the tracheal compression is
long standing, prevents a Trachea so affected from returning to its
normal position when the goiter is removed, and hence the pre-
existence of respiratory troubles after Thyroidectomy, or even the
occurrence of sudden death after this operation.
In some cases the Trachea becomes impregnated with calcareous
salts, and so it becomes a rigid tube which resists compression
when the respiratory troubles are of long standing and no
longer troublesome may return, and secondary to this dilata-
tion of the right side of the heart,
Dyspnoea may only be present after effort, and it is usually
most marked on inspiration. Dinch marked upon the glossy
and aspect of the Tracheal congestion, and the projection which
corresponds to the point of greatest narrowing, then even by aid
of the laryngoscope. The condition of the Vocal cords showed also
be noted.

Blood vessels. Pressing upon the Carotids causes
an Anaemic condition of the parts supplied. If the Inferior
Tonsillar vein is implicated there is a violent and rigid condition
of the head and face; together with headache, ringing in the ears,
giddiness and confusion of thought. In many cases the veins at
the sides of the neck are pushed outward. The superficial
veins are often dilated, and appear as blue cords through the
skin.

Irrities. The Recurrent laryngeal nerves are, in con-
sequence of their position, the nerves most commonly implicated.
implicated. When hypnosis affected the patient it hoarse, and in
some cases aphonia has been recorded. When pressure has been
kept up some time, paralysis might be expected to occur, although
I have found no record of complete paralysis affecting both abductors
and adductors of the vocal cords, in consequence of pressure from
a Simple Tourniquet. If such however occurred, it would be char-
acterized by hoarsy, perhaps difficult, inspiration, very expira-
tion, and feeble voice.

Brachial Palsy. Paralysis of a tendon and sinus of paralysis
of the left arm in a young girl, which ceased 10 days after
the removal of a calcaneal tumour from the right heel of the
thyroid (J. Med. J. and Gaz., Dec. 1862.) This case was
regarded as due to reflex action and not to compression because
the opposite side was paralyzed, and because of the rapidity with
which the paralysis disappeared.

Complications other than those due to pressure may be
met with in a goitre, and chiefly among these will be mentioned
Hemorrhages into the substance of the Tumour, and Inflammation
of its veins.

The Hemorrhages may take place into the substance
of the Tumour, then there is a breaking up of tissues; or into an
already existing cyst. The amount of blood which is poured out
varies.

Inflammation may be the result of a Blov, a
Chill, or a cornel of certain forms of Surgical in its causes, and it
is sometimes met with in the course of some of the Specific
Poisons. The goitre unsumed is soft and becomes painful, but not
more so. The pain is by no means of constant occurrence. The
chief danger lies in the inflamed gland causing compression of the
The Trachea. In some cases it is the starting point in the diminution of a goitre, and which may go on to its disappearance. I have had
such a case in a man, the subject of a large goitre,
which was treated by aspiration and the injection of
pyrogenic fluid, about 25 years ago. Acute inflammation
set in, the gland increased enormously in size, but at the end of
48 hours the symptoms became not so acute, and after three
weeks the goitre began to diminish. This reduction in size continued
until the thyroid became of normal dimensions. When I
last saw this man a few weeks ago there was no evidence of
any goitre, and he appeared to regard his case as a triumph
of surgical skill.
Inflammation may lead up to emphysema, especially in
large goitres, and this condition was noticed in some of the
methods of treatment adopted by some of the older surgeons
eg Richard Brown (loc cit). If emphysema occurs in
the substance of the gland it may open externally, but cases
have been reported where it has opened into the antrum maxillare,
pleural cavity, trachea, lungs, and oesophagus.
Bancet (Compt. Rend., 1875) and more recently
Kocher (Klinische Beobachtungen) have pointed out that
Phlebitis and septicemia may occur as a result of
emphysema in a goitre.
Diology.

It is convenient to consider here the influence of age, sex, heredity, constitution and certain predisposing conditions before passing to a consideration of some of the theories put forward as to the actual cause of goitre.

Age. Goitre is rarely met with in this country, to any extent in persons much below the age of puberty, neither in many of any cases the onset of the condition dates from about the time of puberty. It is rare to meet with a case of goitre in a subject under the age of 10 years, but cases are on record where it has been met with at a much earlier period of life than this, and the youngest subject, which has come under my observation with this condition, was a female child aged 4 1/2 years. Robinson (Thyroidea, London, 1895, p. 28) states that he has met with goitre in a boy of 1 1/2 years, a girl of 5, a girl of 6, and a boy of 9. Dr. Bruce also in his paper on 'The Physiology of Endocrine Goitre' says that though he has seen some in the newly born, he has met with it in a child of 18 months, and ten of his cases were in children under 5 years of age.

Foolard (Traité de Goître et de Constitution, Paris) states that goitre chiefly appears between the ages of 7 and 10. The Report of the Savvy Commission states that this disease was most apt to show itself in boys at the time of adolescence; in girls at puberty, and in women during the first pregnancy. Various writers have described cases of goitre in the newly born. Bigly (Zeitschr. für nat. Med., T. 15, p. 233) has collected several such cases, and more recently Holl and Bach have
have reported a similar condition. In 1861, *Birrand's Union médicale*, 1861, t. IX, p. 332. 382.) showed to the Société de Chirurgie, a 6½ months foetus with a large goitre weighing 16 grammes. The Thyroids of many infants at birth, and children of from goitrous mothers, are enlarged. This hyperplasia is however merely passing and disappears without treatment.

Tables prepared by Bainbridge (Enquêtes sur la Goître dans Chalain, Paris: 1873, cité par Juvet, Traité du Goître, Paris: 1880, p. 126.) show that goitre is rare between the age of 1 and 4 years, that it increases in frequency between the age of 5 and 10 years, and is most commonly met with originating between the age of 11 and 25 years. The conflicting statements made with regard to the above breeding varies in different areas, but the statement of Bainbridge (with nurses) applies, so far as my experience goes, to this area.

Goitres have, in some cases, made its appearance late in life, as examples of this I mention our case in a woman aged 42 years, and another in a woman aged 46 years; the former said she had first noticed "her thyroid gland begin" six months before she came to our, and in the latter. The paternal said she had noticed the itch of the neck four or five months previously, for the first time. Both these women have lived in this locality all their lives.

Sex. It is generally admitted, in England at least, that goitres more often attack females than.
than males, and the proportion is variously stated. The proportion can be a constant one, and is any advantage obtained by giving one. In this neighbourhood I have noticed that phthisis in all the villages the number of cases among females preponderates over those among males, yet in some villages the difference is considerably less than in others, thus while at Our. Haddon most of the cases are among females, at Bingle the number of females affected among males is not so great, and Bedford takes a place between the two. (See p. 128) states that phthisis in most cases more females than males are affected, yet in the Communities of Pont-dru, Châtillon and Libery the opposite holds true. Out of 551 cases collected by Raynolds (Edin. Med. Tr. 1863, July) only 26 were in males. In some parts of France the proportion falls to 2 females to 1 male, and in some cases 5. The proportion of goitrous females, our males so affected, has been said to be due to the fact that women are greater salt drinkers than men, and in support of this it has been pointed out that in Sweden the proportion affected is about equally divided between the sexes. I am unable to find that the males at Our. Haddon are less addicted to salt drinking than those at Bingle, and to my mind the cause, or causes, for the difference must be sought elsewhere. It may be that the periodic or tidal increase in the Thyroid, so often seen in females during the menstrual period has a great influence in determinin
determining the relative frequency of goître in this area; and Mr. Prout (loc. cit. p. 129) points to inherited trouble and pregnancy in the same connection, and in support of this latter theory he goes on to cite two cases recorded by Dr. James Clinical. Three two women, neither of whom were born or reared in a district where goître was endemic, became the subjects of compressing goître. Which failed its onset, in both cases, from the first pregnancy, and during the second, the goître which had been quiescent, again took on active growth. These cases show that pregnancy has an influence upon the growth of a goître.

Hardly. It is extremely difficult to say how far hardily influences the appearance of goître in an individual living in an area where goître is endemic. Some families appear to be especially inclined towards goître; and in some families I have been enabled to trace this inclination back through several generations; whereas other families living under similar conditions in the same locality escape, and appear to have an immunity. This fact points to a hereditary kindred. In families affected only some of its members suffer, but those not affected appear to have the power of transmitting the kindred to their offspring. Whether it is the male or the female which has the greater power of handing on such kindred, I am not in a position to say.

Among my cases is one, a girl aged 19 years, who developed a goître shortly after coming into this, an endemic
Endemic locality, from a non-endemic locality she had been born and lived the first 16 years of her life. Her father was a native of the non-endemic locality from whence the girl came, but her mother, and this is the interesting point, was a native of this neighborhood. The girl has, on her mother's side, a grand mother, two uncles and an aunt, all goitrous, but her mother is not affected.

Hereditary transmission of goitre, or rather, responsiveness of it, has been noted in animals. I have been informed by a medical gentleman practising in this locality, that a large cattle owner in a village in the High Peak district purchased for stock purposes a bull, from a breeder near Macclesfield, and such became goitrous. Several of the calves got by this animal became early affected with goitre, and this especially applied to the bull calves. As other instances may be added the case of Mr. Hallion mentioned by Rayner, whose foals were affected with goitre.

In sporadic cases of goitre some authorities say that heredity has a manifest influence. Friedrich (Vincentii Handb. d. ges. Pathol. 1858, t. vii, p. 523) notes under this heading the case of a family in which the father and four children had by parturition of the night this of the thyroid, and this in a locality where goitre was non-endemic.

Animals, Season and Breathing. With regard to these conditions I cannot do better than quote the following passage from Hirsch (Geographical and Historical Pathology,
Pathology, Vol 17, page 160, New Sydenham Society.) "If "all the diseases that are met with in wider diffusion over the "earth more appear to be, in their endemic occurrence, so "independent of geographical position or of climatic "influences as goitre and calamine; other more, at the "same time, are more intimately bound up with condition "of the soil. Both diseases occur with equalfrequency in "all latitudes, from the Equator (Sondan, South America) "to the arctic zone (Andros's Bay Territory), in regions "with a mean annual temperature of 35° Fahr. and "upwards (Abysinia, and other negro countries), and "with one of 38° Fahr. and below it (Falun in Sweden, "Fort Kuml in Francke, Finland), and if many observers "have laid especial stress on high degrees of atmospheric "moisture as an essential condition of Endemic goiters "and calamine, it has also to be taken into account that "there are other regions counting among the chief seats of "these maladies, such as Jutland, the province of Pernosa "in the Arguelo Republic, the Brazilian provinces of "Jussos, Boraes and Busjay, and Peru, where the atmos "phere is an absolutely dry one."

Rack. With regard to this I must refer to "the remarks I made in an earlier part of this Memoir when "discussing the question of Racial Differences. (vid supra, p. 12.)

Constitution. Parsons &a Lymphatic &c. "Serfjulcns constitution are said to be more prone to Elohe "than persons of other constitutions. Vichow in his work on
on Tumours (p. 265) says that: "in places where Scrofula is very frequent, as in large towns, goitres are very rare. In "Berlin, where Scrofula is only too frequent, goitres is very rarely seen."

Bassan (Arch. gén. de médi, 1827, t. VII, p. 76) gives the case of a family in which tubercles and goitres were hereditary and showed a certain alternation in this respect, that the phthisical went with goitres, and the goitres went with phthisical. I have seen several instances in which goitres in members of a family have the tuberculous diathesis was hereditary, but I cannot say that it appeared to me that goitre was a perfection from tubercles. In my opinion it would be better to say that goitre, as any other morbid condition, is more apt to attack those of fertile breeding power, and many of these belong to the lymphatic or Scrofulous Diathesis. I have frequently remarked the combination of goitre and Chlorosis in young women, but how far one is dependent on the other, I cannot say.

Thus far, the mere presence of a goitre renders the Thyroid gland more susceptible to morbid change, as has been proved by Long (Archiv. de Physiologie, 1868, p. 60, and 1870, p. 68), and Maisiou (Traité médical, 1842). Thus during Accouchement, violent Excitement, violent Emotion, and so on, there is an increase in the size.
any of the Thyroid, which resolves itself. When the effort producing it is relaxed, to be repeated again and again as the effort is repeated. As examples of congestion of the Thyroid as a result of effort, I may cite the cases of the two officers (reported to the Read. des Sciences, October, 1867) who worked at the preparation of some plans, with the neck in a constrained position in consequence of the collar of their uniforms. Insuspension of the Thyroid ensued, and was relieved by cessation from their work, but was again noticed on renewing their pains. 

Hahn (Read. des Sciences, October, 1867) noticed a similar condition among the face workers of a dye works.

Cold is another cause of congestion of the Thyroid, and Dr. Smidt gives numerous examples of this in persons who had drunk large quantities of cold water. ("Des causes occasionnelles du goût de sel," Dr. Smidt, loc. cit., p. 110 et seq.) Dr. B. H. and Pellegrini lay stress on the chilling of the neck, which occurs when the collar of the military coat is thrown open after exercise which has heated the neck. (cit. in Dr. Smidt, loc. cit., p. 115.)

Actual Causes. The number of theories on this subject is, I was going to say, without number; they are however all very numerous, and every writer on this subject advancing a theory of his own. The real cause has, there is little doubt, yet to be found, and to my mind evidence is found towards one of a micro-organismal character. I will now proceed to mention some of the theories theories which have been put forward.

Multiple Causes. This theory has been advan
advanced by numerous Authorities, among which may be mentioned the Paddock Commission. They stated that endemic quinsy may be due to the combined action of a number of conditions, and they put them into three
categories. The first included the general conditions of the
infected localities, taking into consideration the situation and
general configuration of the country, altitude, air, tempera-
ture, water supply, dryness or moisture of the soil, and
vegetation. In the second category conditions of the
inhabitants as regarded clothing, food, houses, the degree
of comfort of the population, its occupations, the absence of
commerce or industry, the degree of Education, the chief
diseases prevalent and the physical condition of the
population. In the third category are studied what are termed
individual conditions, e.g. marriage, health of parents, edu-
cation of the children, condition of the parents at the time
of conception. Thus a state of alcoholism of the parents at this
time has been blamed.

Without going further into this theory, I may say it is
and generally held at the present day, and that in
the same localities, and under similar conditions some parts
are afflicted while others are not.

An Infectious disease due to a Poison in Persons.

This theory has been put forward, and its supporters point
out the fluctuations in the number of persons afflicted and
quickly their localities cannot be accounted for on any other hy-
pothesis, and secondly to the fact that occasionally it breaks out
epidemically. There is some difficulty in accepting the theory that
that it is transmissible from man to man, and in support of
this is the observations of Dr. Czarniak (Gazette hebdomadaire
de médecine. 1891.) who kept for
upwards of a month, twelve soldiers who were suffering from
Epidemic goitre, together with ten soldiers convalescing from
measles and therefore in a state of health, and who would be
presumably apt to contract an infectious disease. However,
none of the convalescents from fever, contracted goitre.

Vareon de Paris. An ingenious theory has
been put forward by Dr. Boeke in a paper on the Pathology
and Treatment of Goitre (Gazette, March 19, 1891.) He looks
upon goitre as due to a Vareon de Paris, or the inferior thyroid
artery. The difficulty in accepting this theory is the question, Are
are some localities more afflicted than others, and why are some
quites far? He gets over this difficulty by contending that goitre
is not endemic but universal, a statement which most
authorities will disagree.

What was the cause may be basic is its Vehicle.
As an introduction to this section I may quote the following from
the article 'Carminism' par Dallanger et Kriehuber. Dict. Roy.
des Sciences Médicales, Series 1, Tome 24, p 167. 'Fleixiste
entièremennt un agent toxique spécial, unique, partant la
meme, qui affecte les organismes vivants et leur imprime
un seran de dégénérescence longue identiques, dont la
goitre, marquée la première étape et qui a pour dernier
expression la carminisme complet, en passant par tous les
états intermédiaires jusqu'à la dégradation absolue de.
de l'Ebre. S'il est impossible de d'identifier l'agent toxique et de l'isoler, il nous est permis cependant de dire que pour quelle forme il s'introduit dans l'organisme. Nous exprimons la conviction, il nous allaient essayer de l'appuyer par des faits nombreux et bien observés, que la vérité de cet agent toxique est l'eau de certaines sources, et nous insistons particulièrement sur cette circonstance, que les gens de pliès et les gens de vigne ne la boivent jamais. C'est l'eau jaillissant des sols qui contient ce principe qui l'origine, c'est donc dans le sol qu'il faut chercher le principe ou, si l'on veut, cet agent toxique, dont l'eau est la vitriole."

With the opinions expressed in this paragraph, Pliny agrees. He has noted in the Section devoted to history, the belief in the action of certain waters in causing goitre in an extremely old one. It has been held by Heppeler, Pliny, Galen and other writers down to the present time, and in this part of the country it is the water which is blamed for the production of goitre by the inhabitants.

That the toxic agent is introduced in the drinking water, is supported by the following evidence:

1. The Epidemics of Coître, which an almost prevalent in France, attach with great frequency more corns into this district; the inhabitants having a sort of immunity, probably acquired by acclimatization. Many of these epidemics have been directly traced to the use of certain water, which soon after appeared to show its effect at once by the diminution in number of the cases of Coître. As an Example I may give an Epidemic of Coître which occurred in 1822 at the College of Clermont-Ferrand.
- Ferrand. Its coldness of the water of a Fontaine, at which the scholars drank, was blamed: the water was cut off, and the cases of goître immediately diminished in number. Dr. Smith refers to this case in his work (loc. cit., p.1).

ii. Various authorities refer to the fact that in some cases Frenchmen and Italians have rid themselves of goître by drinking the water of certain wells, which had the reputation of being able to produce goître, with the object of escaping military service. Such cases are to be found in Saint-Aignan's work, "Sur les causes de l'atrophie et du Goître Rédémiugier," p. 181.

The following passage from the work of Dr. Smith (loc. cit., p. 77) also bears this out: "On raconte, écrit le médecin militaire," in Bellin, "qu'il existe dans le pays (le Briançonnais) des gens qui, à tort ou à raison, parmi pour faire croître rapidement le goître chez les femmes sans appelé par la conscription. Pour arriver à ce but, il paraît qu'ils ont convaincu de boire beaucoup d'eau, de faire des courses dans les montagnes, avec un fardeau pour les épaules, le courrier dans une traversée a divers du corps de l'Hydroïde."

iii. Abstinence from the general supply in a goître locality has been said to prevent forwarding from goître, and an instance of this is given by Bonomo-Gianelli's (cit. par Hirsch, loc. cit., p 186.), there a Radical practitioner of Docehro, a town in which goître was very prevalent, kept himself and family free from goître by using only from his own rain water which he kept. Similar observations have been noted by Saint-Aignan, and Dr. Smith (loc. cit., p. 79) makes one of the Claxton's observations which is very interesting in this relation. In the Rhone valley there are three different clays: the lowest clay does not drink the water of
of the Dea, was nearly all goitrous; the Brahmins, the cast of the highest castes, had for their particular use the water from an aqueduct, and were quite free from goitre. While the Rajas, who composed a sort of intermediary caste, for a long drank the water of the aqueduct and were free from goitre, but in consequence of this supply becoming insufficient, they had to drink the water from the Dea, and from that time goitres became endemic among them.

iv. boiled unpasteurized water is also stated by Bonning and to afford protection, and he quotes an instance from the highly goitrous town of Maniquita. I have frequentl advocated the use of boiled water in cases of goitre, and in some with marked benefit. Dr. Odier (Dictionnaire de Médecine Pratique, Geneve, 1811) says it has appeared to him that distilled water prevented the increase of the tumour, and was tended to reduce its bulk.

v. diminution in cases of goitre in a goitrous district has been attributed to a change in the water supply. In London, medical men report that goitre is much less prevalent there since the town has been supplied from the Thames, and noted that the only cases which now occur are in persons who still continue to use the well water, which was the original supply. Johnson noticed the disappearance of goitre in Durham coincidently with a change in the water supply (Edin. Monthly Journal, May 1865). I have observed in this town of Bakerswell, that since all wells have been closed, and a supply has been obtained from the river, such cases of goitre are unknown; and there does not exist in this town a case of goitre in a person under the age of 35 years, and it is about 20 years since the last well was closed.
Conversely, development of goitre in a district previously non-goitrous after the introduction of a fresh water supply has been reported. Clahre mentions the development of endemic goitre in some villages of the Balkans subsequent to the opening of a new water supply, and Beltrak attributes the increase of goitre in Vienna to the supply obtained from Karlsbrunn in Styria.

Snow water has been said to be the cause of goitre. This theory was put forward by Hippocrates. Against this theory is the fact that goitre is frequent in places where snow is unknown. Many who have upheld this theory say that snow or ice water contains much less atmospheric air than ordinary water. A theory somewhat similar to this, put forward by Roger and supported by Lombard ("Vues sur la goïtre et les circonstances endémiques," Geneva, 1874.), is that breathing a rainforest air, and therefore one with not much oxygen tends to produce goitre, but against this is the fact that respiration frequency is governed by the amount of oxygen present. As a further argument against the snow water theory Belton says that: "In Fuerta land their snow water is commonly used, these unweighty "prostomumans are more malt with." (Belton's Chemical Floral, Vol II, p 157.)

Coldness of the water is a cause put forward by many writers, and among them Dr. J. D. Smith appears to attach much importance to it. The Epidemic among the school children previously attended to was attributed to coldness of
Of the water drunk during the hours of play and therefore than the scholars were tired. It cannot be admitted that the water supply of many places and this neighbourhood is no exception to this; and this area of馄饨 gets their water supply from wells, and these are in most instances of a lower temperature than wells exposed on the surface. Before accepting this theory it must be shown that cold water invariably produces gout. It has been concluded that drinking cold water produces pyrexia of the thyroid, in a similar manner that fever produces pyrexia, carrying burdens on the head, working with the neck in a constrained position, the gland acting the part of a safety valve to the vegetative circulation of the brain, in preventing congestion of that organ. Shion among others in this relation points to the effect of exercise in causing gout.

(Practical Deimos, Dec., 1874.)

Said of Deimos in the brain. Parrot elaborated this theory and it is the one upheld by Chatin. Deimos has been demonstrated as present in considerable amount in both water and air, in areas. Then gout is馄饨, and its absence has been shown to be necessary indicates a goutous attack. Saint Leger (Oubuso el Socit., p. 240) mentions a “coeur” well at Deimos which contains much Deimos as well as Iron, and he goes on to point out that wells with much Deimos are those off Soho rich in Vegetable matter and Deal, and these are the springs most notorious for causing gouts.

Phlorhine has been pointed to as the cause of gout by Daunins (Archiv, fam. de médic., 1866, p. 497.) Experiments by him upon animals have however, negatived this view, and Saint-Leger experiments upon animals with the same object.
objec, have also been negatwes. (Ellsdo, p. 457.)

Cédrus has been variously said to be caused by organic matter, silica, Carbonic Acid, lack of phosphate and po on, but Saint-Denis have not, and all these of Saint-Denis have had

Magnesia Salts. This was a theory which for

lumis received the support of Dr. Egan, but he "gave up consider-

ing Magnesia as the essential cause of Cédrus," (Saint-Denis, loc.
it. p. 237.) Magnesium Salts are often present in salines that.
góiers is endemic, but evidence shows that such is a mere

considerer, and cannot be looked upon as cause and effect.

Saint-Denis a number of places where endemic goifers is

present upon soils where Magnesia does not exist, and it

Chalin points out that the earth of Paris, their goifers is poor,

contan more Magnesia than the earths of Indre-Daime, the

-Philisters, of Perriers and Aiguesbelle, lime goifers is of

frequent occurrence. (Aile par Saint-Denis, loc. cit., p. 80.)

The analyses of De R. Baint and Finesse also show thai Magnesia

is frequently wanting in salines from localities where goifers is

endemic.

The following tables from De R. Finsot's work (p. 98.), being the mean of

De Finsot's analyses show that goifers is independent of Magnesia

Salts.

<table>
<thead>
<tr>
<th>Location</th>
<th>Magnesium (ppm)</th>
<th>Magnesia (ppm)</th>
<th>Goifers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nimes</td>
<td>3.27</td>
<td>0.0010</td>
<td>0.0009</td>
</tr>
<tr>
<td>Saint-Flour</td>
<td>4.16</td>
<td>0.0036</td>
<td>0.0030</td>
</tr>
<tr>
<td>Royal</td>
<td>9.30</td>
<td>0.0035</td>
<td>0.0048</td>
</tr>
<tr>
<td>Village</td>
<td>Cases per 100 people</td>
<td>Colboure</td>
<td>Grammes of Magnesia per litre</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------</td>
<td>----------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>Saint Remy</td>
<td>5.12</td>
<td>0.0047</td>
<td></td>
</tr>
<tr>
<td>Saint Andeouin</td>
<td>7.60</td>
<td>0.0060</td>
<td></td>
</tr>
<tr>
<td>Saint-Aubin</td>
<td>10.78</td>
<td>0.0028</td>
<td></td>
</tr>
<tr>
<td>Saint-Quentin</td>
<td>4.14</td>
<td>0.0083</td>
<td></td>
</tr>
<tr>
<td>Saint-Martin</td>
<td>11.53</td>
<td>0.0107</td>
<td></td>
</tr>
<tr>
<td>Saint-Ouen</td>
<td>4.02</td>
<td>0.0118</td>
<td></td>
</tr>
<tr>
<td>St. Ouain</td>
<td>7.80</td>
<td>0.0152</td>
<td></td>
</tr>
<tr>
<td>Verlaingon</td>
<td>11.05</td>
<td>0.0225</td>
<td></td>
</tr>
<tr>
<td>Vermaison-d'Abbeville</td>
<td>7.69</td>
<td>0.0281</td>
<td></td>
</tr>
<tr>
<td>Vermaison-d'Abbeville</td>
<td>10.06</td>
<td>0.0310</td>
<td></td>
</tr>
<tr>
<td>Vermaison-d'Abbeville</td>
<td>4.95</td>
<td>0.0465</td>
<td></td>
</tr>
<tr>
<td>Vermaison-d'Abbeville</td>
<td>19.04</td>
<td>0.0542</td>
<td></td>
</tr>
</tbody>
</table>

An incised Salto. The presence of lime salts in the soil as a cause of goitre is a theory which has been advocated by a great many. It was no doubt suggested by the fact that goitre is very frequently met with in lime-stone districts. The Chilcotts work shows the preponderance of goitre upon the lime-stone soils, his observations were conducted in the province of Kinnam in the Himalayas. He reported as follows:

On 91 villages, upon the granite and granic; Phineic slate and from bands; Clay slate; Gourmands stone; and Granitic sands and sandstone, having a total population of 5383, there were 28 goiters present and no calcium, a percentage of 0.538; whilst in 35 villages on the Lime-stone slates with a population of 1160, there were 290 cases of goiters, and 314 of calcium,
Carlinium, equal to a percentage of 33.62 of goître, and 2.94 of Carlinus. This may be set out in tabular form as follows:

| State | Population | Carlinus | Carlinium | Correspondent Coët.-p. of
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Carlinum</td>
<td>5383.</td>
<td>29.</td>
<td>-</td>
<td>538.</td>
</tr>
<tr>
<td>Minor tour Carlinum</td>
<td>1160.</td>
<td>390.</td>
<td>34</td>
<td>33.62</td>
</tr>
</tbody>
</table>

This table serves to show the great incidence of goître upon Minor tour Carlinum, but goître is by no means confined to such alata. At Bridgmont in Bedfordshire goître is endemic, although the alata contains no Limis, and the locality is adjoining although that alata is rich in Limis, are far from goître. (Blower, British Medical Journal, 1867, Vol 2., p. 924.) Again at Bolton goître is endemic yet there is no Limis in the alata. A similar state of affairs has been pointed out by Amold in Switzerland. In the Champagne country, near the alata contains much Limis, endemic goître is and must with. (Abraham, Guy, die heilgreg, 1863, Jan. p. 15, cit. par. Hirsch, loc. cit. 192.) In this locality although many of the villages there goître is endemic are situated on the Minor tour alata, due to a fair proportion, including some villages in which the endemic character is most strongly marked are upon the Mill-alata, and and limestone alata. Among such villages may be named Toogall, Curbar, Bolsover and Hallamsgate, where goître is quite as prevalent, if not more so, as in any villages upon the Minor tour alata proper, that I know. Three four villages, it may be mentioned in passing, are in the valley of the Derwent. Saint-aigne found no relation between hardness of stone and the occurrence of goître. At Bolonga, Florence, Aiglon and Rome where the alata has been shown to be hard, goître is not endemic. (Sormani, cit. par. Hirsch, p. 192.)

I am again indebted to the Analyses of Mr. Read for the following:
following. The waters from fourteen villages were analyzed, goitre being endemic in all of them; in one of these villages the quantity of diini varied between 0.010 gramme and 0.0315 gramme; in four others it varied between 0.0897 gramme and 0.3479 gramme. For purposes of comparison the waters from fourteen non-endemic villages were examined and the figures came out as follows: in four the quantity of diini varied between 0.0024 gramme and 0.0210 gramme; and in the remaining ten between 0.0501 gramme and 0.2630 gramme. After a consideration of these figures one can say with T. H. Huxley 'la chance ne fons évidemment aucune rôle important.' (loc. cit., p 98).

I have made an analysis of waters from various villages and while some show a good deal of diini, others do not give more than is consistent with a good potable water. Thus water was chosen from villages in this area which have a large number of cases of goitre.

Absence of Chlorides, especially Chlorides of Sodum in drinking water has been put forward as a cause of goitre. This was a suggestion put forward by Schottels. Although analyses of waters from certain goitrous localities have shown a small amount of chloridic present, yet this state of things is by no means present in all localities so affected. Again if absence of common salt was a cause of goitre, it is introduced in far larger amount along with food, than could be the case with water. Some of the wells from which many villages of these parts draw their water, respectively, have shown, in my hands, that they contain an excess of Chlorides. The
Due to the presence of metallic elements, especially the Sulphate of Iron. This view was performed and advanced with considerable ability by Saint Agnes (loc. cit., p. 444). This theory brings to mind that of Paracelsus who attributed goiters to the Sulphate of Iron, as he termed it Arzachita. Saint Agnes places in the first place the Sulphate of Iron, as being the one most frequently and abundantly met with, and he places around this double Sulphate of Copper and Iron, commonly known as Copper Pyrites (Cu₂S, Fe₄S₈). He experimented upon it by giving these Sulphates of Iron, but they proved of a colorless nature. He speaks with great caution on the subject, for he goes on to say: "But we take care not to go too far, the Sulphate of Iron is for the present only an "accused party, until each one as culpability can be "proved of it in a conclusive manner." (Saint Agnes, loc. cit., p. 54).

The Crolland (Sketches of the Medical Topography of Bengal, London, 1859) had referred to the presence of copper as a possible cause of goiters. He remarks "It is noted as principal in the waters of Alpiner limestone is a subtle
"the combination...derived perhaps from the shale of
the rock which are called by miners 'lapis chlorid'. They
are so distinguished from the quantity of metals which
they contain, particularly the ores of copper." [The cit., p.72]
Professor Allen in his paper on the 'Geological Distribution
of Endemic Goérs in England', gives support to this theory.
He says: "In England, as in France, one point and one alone
of any importance, seems to be established as being common
to those rocks upon which goérs is found and to occur; the
alternation of lime and clay, together with that of metallic impurities,
and especially of copper. In both countries the rocks
which support most goérs are such as are both calcareous
and metalliciferous." [Cf. par. 899, loc. cit., p.44.]
In Lorraine (Cf. par. 191, loc. cit., p.76) as against this
theory its locality is shown though from Pyrites among the
Endemic goérs is unknown, as in the Canton of Lux in the depart-
ment of Ardenas, and in the Canton of Alais in the department
of Lorraine. On the latter canton mining for iron Pyrites is carried
on. The name Doniers also mentions places where goérs is
very endemic yet Endemic goérs is found, among
such places be as in Alsace; Thann, Théthannes in the depart-
ment of the Rhine; Castillon, Porte, Taron, Dorsob, Renen,
Angles in the Hautes-Pyrénées.
A study of the figures from the analysis of地狱ish colours
(Cit. par. 439, p.278 et seq.), and to which I have so often
referred, also shows that the quantity of iron does not change by
any means the presence or absence of goérs.
As D. Thomas has pointed out in his paper "it is difficult to
understand how iron can be the deleterious element rains.
"since we are accustomed to quit it so languidly and so constantly in daily practice, with the best results."

As a matter of fact it is very serviceable in the Chlorosis, and is so often a concomitant of goiter in young females.

Dampness of the soil has been said to cause goiter, but a glance at the geographical distribution shows that it occurs both upon damp and dry soils. It has been found that goiter has diminution but as a result of drainage of the soil, but this can be accounted for by remembering that the general state of health of the people in a locality, so located, is varied, and they have therefore more power to resist the invasions of goiter, as other morbid conditions.

Various other theories have been from time to time, put forward to explain the occurrence, but it has remained as with those which have received most support. In brief (loc. cit. p. 289) run as follows:— The injection of salts of lime, chalk and iron; metallic sulphides, organic manure, and the action of Insarn, and?

"the causes of hypodermic drink. The absence of Insarn in the air, water and food, does not necessarily entail all the appearances of goiter."

He goes on to advocate the theory that congestion of the Thyroid brought about by cold, e.g. drinking cold water, draughts of cold air, etc., in the essential cause, and that overcropping and thin by giving deficiencies, as well as exhaustion and pregnancy are predisposing causes. But if cold was the existing cause of goiter, one would expect to find it mostly affected the males, that being the sex which is most exposed, and the one which suffers most from other diseases brought about by exposure. Again as balton armakro (wird empfo)
Supra) gout is rare, or never met with at all, in Greenland and in
it is cold as the name one would expect them to be common.

To my mind a skin disease anaemia seems
most probable, and in support of this Thesis I submit the
following:

i. It is undoubtedly caused by some element introduced in
the drinking water.

ii. In many cases the water supply in gouty districts
is obtained from shallow wells, which are unusually available
wells for various microorganisms.

iii. Boiling the water used for drinking purposes,
appears, in my hands, to arrest the other methods of treatment
adopted. To such an extent has this shown itself, that I order
the boiling of the drinking water as a point in practice;
unless the patient can obtain it, or obtain water from a
non-gouty area.

iv. On no other single hypothesis can the wide
spread distribution of gout be accounted for. Gout
occurring under such varying conditions of geographical
formation; temperature; altitude; almorhine; condition of
ground as to dampness or dryness, and so on.

v. The fact that it sometimes occurs in Epi-
pronies, as reported by French writers on gout, in most
cases attributable to water, which there is off had an in-
fluence in blemming the number of these attacked, as in the
case of the School at Clermont-Ferrand, previously all-
ended to.

The fact that gout does not appear to be infectious or contagious
Contagious disease ascribed against a microorganismal emanation, for the diphtheria known to be caused by a microorganism, might be cited which have mild their characters. I have made bacteriological examinations on the samples from two wells from a locality where the endemic character of goitre is strongly marked, but have, up to the present time only succeeded in obtaining such colonies as are usual to be present in well water.
PARAMOUNT.

Prophylactic Measures. Under this heading the first thing which strikes the mind is removal from the affected district. This in most cases is impracticable. If possible, water suspected of containing the poison should not be used for drinking purposes. If such water is however the only available supply, all water used for drinking should be boiled, and afterwards aerated by passing it through a Swiss jet cone mounted above the vessel into which the water has to fall. It has been marked beneficial in cases after this precaution has been adopted. Change of air to the front should if possible be undertaken by persons affected with gout. Liberal diet should be allowed, and attention to the hygienic conditions as very essential in this as in all other morbid conditions.

Acute local wound of goutt naturally divides itself into Medicinal and Surgical.

Medicinal Treatment. — Hodini in our or the form is, and has been, the drug most extensively employed in this condition. In fact some practitioners regard Hodini as a Specific in Goutt, and others hold that when Hodini has had a fair trial and failed, no other local wound should be aroused to. Hodini may be employed both internally and externally.

Externally it may be painted on in the form of the liniment or ointment; it may be applied in an ointment, or a piece of lint soaked in a solution of P.D.H. Hodini may be laid on the gouty, covered with a piece of oil-cloth and retained all night.
might. Internally I prefer the liniment of Godin's keeping its
application in my own hands so that its embalming effect
may be gained against. If the patient is too far away to
admit of this I then prescribe the compoases of Dioscorides.
The liniment is too feeble to be used externally, and the mid-
iment is uncomfortable. Before any thing is applied externally
the skin should be thoroughly cleansed with pure warm water.
no armour any secretion, and I find Shamoine acts so as to
lead to efficient action. It is also advantageous after this
washing to rub the part over with a towel dipped in Uhle, with
a view of removing the fully secretion after the skin.

Internally, Godinus may be given in the form of
Dioscorides. The best method of administration, in my opinion, is to give small doses of one or
other of these every day periods. In some cases Dioscorides
and in others Dioscorides gives the better result. Internally
begin with the liniment, and if not well borne, or if not pro-
ceeding any better, I change it for Dioscorides. I have
had under treatment a case in which I gave Dioscorides, and
at the end of a week, when the patient came before me again,
the suffering from a severe eruption on the forehead, nose
of the face and cheeks. I put her upon a course of Dioscorides
with his Arsenicalis (Dioscorides) which she continued
to take with benefit, and no unpleasant symptoms for a
considerable time, with an occasional interval of a week
during which treatment was suspended.

Dosage: This of course varies with the age of the patient, but in
most cases are must with in adults the dosage for them will only
be discussed. Dioscorides. Internally given from
from my [to my] 8, once daily, and find that this need seldom be
recorded. If more seems to be indicated I believe it is better to
give my 8, twice or three times in the day than to give a single large
dose.

Polas: Podophy I give in doses of from 2 to 6 grains three times daily,
and I find equal benefit by combining with it the PSP, 1 by 8. Ten
grains of Podophy, 1 by 8, or more, I have used. Also Podophy, 1 by 8. Soda
and Ammonia but I have not any advantage thus far from.

It is scarcely necessary to say that before any treatment, with a
view of acting upon the glands, is undertaken, any concomitant
irregularity or departure from health should be looked for and
repressed. In young females Chorea is often present. It is in
such cases that the combination of Polas: Podophy with PSP is
of value, after the Chorea has become almost entire relieved.

Bryant recommends the suspension of Podophy above the patient's
head in bed, with the object of allowing him to inhale its vapors
during the night. I cannot speak from experience of the efficacy
of Chorea of this method, but it must be more or less uncertain
in its effect.

The length of time during which treatment with Podophy or the
Podophy is necessary cannot be laid down by any hard and
fast line. 9/10 of cases vary in each case, and with the length
of time the glands have been in existence. If brought under
control early, three or four weeks may suffice, but in the
majority of cases it must extend over months or even years,
with all the end of that time, in old standing glands little or no
benefit. It necessarily follows that many persons give up all hope
of cure by medical means, and so relinquish all treatment, in
their cases of long standing.
Godoform has been tried both externally and internally in the local sweat of goiters. In Selous, who gave from 10 to 15 per cent in "Kinds of Influences, our cases the goiters "rapidly diminish in volume. In a case where the disease had existed seven years, and the goiter had the dimensions of "a horse's back, in four months the lamnor was as "diametral to the size of a small cornet. In another case "flew the goiter, dated from years back and was large enough "to inspire with delusion, the lamnor disappeared, almost "entirely in a few months." (Annals of Medicine, p. 226). Dr. S. is very to say that in any hands Goceform has not given much brilli-
ent results as the two enumerated above.

This disadvantage of Godoform preparations is the character it has of inducing Godoform, and this is most marked with Godoform, but this, instead of being the means of diminishing it as a curse of local anesthetic, as suggested by the great and of Niswan, only above that it should be given and watched with care, and if symptoms of Godoform anesthetics it should be replaced by Dr. Godoform. Dr. A. in treatment, with intervals from time to time during which the Godoform local anesthetic showed its superiority. This quite unnecessary to recapitulate here, the symptoms which characterizes a person suffering from Godoform.

Godoform is of rare use, if indeed it is of any use at all, in gothi goiters. This class of goiters can hardly be said to be affected by any medicinal local anesthetic. It is most effective in the hyperplastic and fibrous goiters, and in efficacy diminishes with the degree of limit the goiter has existed.

Bromides of Ammon are more properly magnesium Hydrargyri
Hydrangiæ Pudendi Rubri. This drug has been used in India for many years. It is applied to the skin to relieve pain. The method of application is as follows: A mixture of mercury ointment is well rubbed in over the affected area. The patient is then exposed to the rays of the Sun. During the day more ointment is rubbed in, and the patient is left home. In most cases a single application is said to be sufficient, but in cases of long standing a second course of treatment may be required. Good results from this mode of treatment in India are infrequent, and Dr. Crocker states that his success was not marked even from a strong light in place of the Sun.

Acid Phosphoric. This drug has been used by Dr. Edward Crocker and the results of his experience, extending over a period of about 10 or 15 years, are published in *The Lancet* (March 19th, and 26th; and April 2nd, 1887). He found the remedy proved successful in about 87 per cent of his cases. He employed a half per cent solution of the pure orthophosphoric acid, in which the drug can be dissolved by the stomach, and does not affect glass. He usually began with a half drachm or more of this solution, but found it necessary to increase it gradually up to doses of two drachms, which appears to be the limit of toleration for the drug. Sometimes it produces nausea and slight headaches. When it showed its best effect the strength of the solution was reduced, and from the mouth to two per cent. In some cases the improvement goes on to a certain point only,
only, when he recommends Godin injections, after Smith, always begins again, and the acid alone keeps it up. In some cases a second Godin injection is required, but this
is often such that by using Acid Fluorid, the number of
Godin injections is materially diminished.

They voided Fuhring. This method of treatment was at the personal
occupy by the attention of those interested in the therapeutics
of Godin. Prin. Wobst (Duiin. med. tech., July 31st, 1894,
Dr. Prin. Wobst. Z. med. tech., Vol. 17, 1894.) noted
the diminution in size of goitrous swellings in from 4 to 6
ins an persons, and a similar diminution was also noticed
in a person with a goitre who was also treated with Thyroid.
Some of the patients showed any unpleasant symptoms.

P. Wobst. (Duiin. med. tech., Oct. 4th, 1894., cit. p. 8,
Prin. Wobst. Z. med. tech., Vol. 17, 1894.) has tried Thyroid
feeding especially in young goitrous persons. Acute goitres is
not amenable to this local treatment. In 12 of his cases the
goitre disappeared entirely. Butting 16 in great measure in 9. In
4 of these cases completely cured, the Thyroid was enlarged in all
its parts. In their 30 this cases, in persons between 23 and 57,
the result was favorable, after six weeks in one case and
fourteen days in the other 2. In our case only did unpleasant
symptoms occur, and that after the patient had taken 4.6
grams, distributed over 14 days.

Kropfemacher (Rev. Klin. Tech., Oct. 10th, 1895., cit. p. 371,
Prin. Wobst. Z. med. tech., Vol. 17, 1895.) has treated 22 cases
of Goitres with Thyroid tablets. In 11 patients, symptoms varied
from two to around three years, there was marked diminution in
in any but never complete disappearance; 9 of these were diagnosed as simple by perniosis, the other two as adenoma. In 5 cases, our aged twelve, the others from seventeen to thirty years, there was slight but evident improvement. In 5 more cases, aged 8, 9, 17, 17, and 53, no result followed, and in three Jodini localement failed. In 4 of the cases Jodini was benefited the nipc removal was maintained from three to six months later. He regards the explanation of the diminution in size under the thyroid localised, that the thyroperniosis is due either to the sclerosis of the gland being too great, or to certain parts of the body being in a condition of diminutive functional activity. In this case the gland being put out of action by jarring with its cat and part of atrophies, whilst the rest becomes its functional activity.

Thorne (Sb. Med., Nov 10th, 1895, cit. par Brit. Med. Journ., Epitome. 3, 452, Vol 17, 1895,) record a case in a girl aged 19, who was improved under the thyroid localised; it had been, to be surprised, any signs of thyroperniosis vanishing. Thorne holds that the risk of this for the thyroid localised was that the illusion shall be moderate in case, arrest in rigidity, and the patient young.

Staspein (Vsrach., 800. 2, 1896, cit. par Brit. Med. Journ., Epitome. 3, 226, Vol 7, 1896.) stage: 1. Induced thyroid localised, the goiter diminishes in size and may even return to its normal condition. 2. When the treatment is carefully carried out and the effect watched no complications occur. 3. It has also a beneficial influence on the nervous system.

in 25 cases treated with full Thyroid gland, 20.34 grains with Thyrodein. Improvement. Average duration. Insanitary duration.

1. 25. 3.3 cm. 6.8 cm.

In 4 cases he said he had complete cure, but 2 relapsed when local mant was discontinued.

He treated 60 cases with Tabelleids with similar results, but the average duration in any case amounted to 0.9 cm. He also that Roald has apparently given up the local mant of goiter with Thyroid.

I have at present under observation three cases of goiter in which I am trying the Thyroid local mant. All three are in females whose ages are 18, 19 and 23, and a goiter has been noticed for a period of 16 months, 12 months and 3 years respectively. In the girl aged 19, the first to come under this local mant, after taking Tabelleid of Thyroid gland for 10 days, the circumference of the neck had diminished in size 1½ inches, and after a further period of 15 days the 1½ diminution was augmented to 2½ inches. I gave him for the first ten days one of Burroughs and Wellcome's Tabelleids, equivalent to 5 grains of Sheep's gland, dissolved in hot milk, and for the second period of 15 days 2 each Tabelleids. She is now for the third period of 15 days taking one Tabelleid daily. The other two cases have not been so long under local mant, but I hope to have more cases, and to report a summary of them altogether at a later date.

From the Roald I have been able to collect, and from my short experience, Thyroid gland as above appears to have a decided influence upon cases of goiter, and I believe the most probable explanation of its effect is that of...
Quinine. Dr. Archy of Dublin had a patient, the subject of a goiter of four months duration, and accompanied by periodic urgent symptoms recurring at the same hour daily. He ordered 10 grains of quinine daily; in less than a week all unpleasant symptoms had gone, and in six weeks the goiter had also disappeared. This probably suggests, as Sir T. Coke Cormac pointed out, a malarial origin.

Electricity externally has been used in the treatment of goiters. In Chrewick of Varina used a constant current of sufficient strength to produce a slight burning sensation on the skin. Each application was left just over six minutes, and he moved the electric rods each minute. He stated that he had got some satisfactory results in an old standing goiter which had resisted treatment with iodine. In only case I have tried the external application of electricity in, was that of an old standing goiter in a man of 50, and who had been treated with iodine some years before it came into my hands, but with no benefit. This appeared a suitable case in which to try this method of treatment. I accordingly used a battery of four cells, placed the negative pole on the spine below the fifth cervical vertebra, and the positive pole I moved about over the surface of the lunom. I repeated this process on three occasions, with an interval in each case of three days, each sitting lasting eight minutes. I was unable to detect the least improvement, and at the time of writing six months
months afterwards, the swelling remains unchanged. In clinical (loc. cit., p. 243) say, that it is especially in vascular goiters, when electricity is of most value.

Cold douche was suggested by Professor Vermeul. He contends that the douche acts by causing a abundant congestion, and counter-balancing effect which favours the absorption of abnormal products. (Smith, loc. cit., p. 237.)

Venereal, venereal with electricity, press we have all had their advocates, but there comes another under the head of Surgical methods that medicinal, and I believe the most important medicinal methods have been already adopted.

The Surgical treatment of this condition should not be lightly entered upon. In cases of goiters, as long as it does not give rise to any serious symptoms, does not warrant active surgical interference. Operations in this region more perhaps than in any other, require the patient to a number of serious risks, among which may be mentioned uncontrollable hemorrhage and Septi-

cemia, and this should be borne in mind before undertaking an operation for the removal of a goiter little consideration for a merely aesthetic purpose. 

(Bull. Acad. de med., 1850) range of cases of goiter uncomplicated by functional symptoms, that they advised...
should be regarded as "contre les coups à chaquelin n'a
reni à faire." Dicke (J. Acad. Chir. Soc. 1895) and Brijbanga (Deutsche Zeitschrift, 1876, p
44), go as far as to place the large pile of goiters among
the contra-indications for surgical interference.
Each case must be judged on its own merits when
the question of surgical interference comes forward, and in
a goiter slowly progressing it may become a question
whether it should be attacked at once or whether one should
wait and watch for the development of compression effects.
The varying of goiters should also be taken into account, the
lyphatic variety holds out more hope to the Surgeon, near
the Collar, and more difficult to deal with surgically
and the Fibrous and Vascular goiters.

When surgical interference has been decided upon, the
form it takes will depend upon the varying of goiter which
has to be dealt with. I do not propose to enter fully into
the various surgical methods which have been adopted
and advocated from time to time, I shall not content will
mentioning a few of them.

The Scleron. This is one of the oldest methods employed in the
treatment of goiters, and it has been especially advocated in the
paracervical or carotid variety. It has been practiced by Krüker and
Dupuytren among others. Dr. Fannaro, in his "Mecan," 1795, states a case of
"a goiter in the gland while the glandular swelling continued
unaffected." (Burn's Surgery, Anal. of Head and Neck, p. 191)
About 1775, Cornand stated that many cases had been reported to
the Royal Academy of Surgery in Paris as cured by means of a
a Selon. The ocular virial ecancerre of Selon was also noted by Richet in 1788. This method was particularly noted by Pocé in his work on gobiers. The use of the Selon was revived by Quadri of Naples in 1817, and he regarded it as a sure method of treatment. In his first case the Selon was passed from above down through a depth of about 4 lines from the skin surface of the inner eye. In other cases he has introduced a Selon on each side. He insisted that the Selon should be retained a few lines (Vide Dr. Sommerville's remarks, Med. Clin. Paris, Vol. X, p. 16.) Dr. A. C. Hutchins practised the local man of gobiers by Selon, and his cases are reported in the Med. Clin. Paris, Vol. X, p. 235. Dr. Hey of York treated gobiers successfully by the same means. (Proc. Med. and Surgic. Tourn. Sept. 10, 1849.) In some cases one or more simple Selon's were used, if patches of sick in Shins are seen. The Selon was employed.

The objections to this method of local man are the length of time required, its unreliability, and often painful nature, and much danger as Pyemia, Homeorrhages, Sanguine. It has however been practised with success in recent years and away Shins by thickness. This is not a method I have had any experience with, nor one for the injection asked above, which I should care to adopt.

Cauterisation. Superficial cauterisation has but little effect. It has been suggested as a means of preventing a goître passing behind the sternum, since it has that end. In this case superficial cauterisation is practised, as a palliative measure, in the hope of producing ulcerating adhesions, between the goître and neighbouring parts.
Drugs can be chosen by punching Cantharide ponsides into the substratum of the granules is full of dangers, its chief being hemorrhage, intense inflammation, the impossibility of controlling the action of the Cantharide.

Subcutaneous Laceration. This was first suggested by Canitell of Paris who accidentally spilled a hypertrophic galenic fluid containing it, after which resolution of the abscess occurred. Billroth, with the same object in view, passed into the subcutaneous of the Peron: a Peron and Cantharide, for within the Cantharide in cabin, he moved the Peron in all directions. His first case so treated was successful, the second died.

Subcutaneous Injection. Various liquids have been used, e.g. Perchloride of Iron; Alcohol; Alcoholic Solution of Chloroform of Lime; Pig Skin and Fluid: Tetral.

Alcohol. The evidence as to the efficacy of the use of this in cutting down is conflicting, some surgeons report favorably of it, others the reverse. Schwalbe (Berl. Klinisch. Beobachtung., no. 13, p. 171, 1875) and Stobbe (Berl. Klinisch. Beobachtung, no. 4, 1873) have employed it in many cases with success. Billroth however recorded a sudden death after its use with ichorous inflammation and Sepsisemia. (Billroth, Surgery, Vol. 1, p. 443. For Syd. Soc.)

Pig Skin has been injected by Loghill (Journ. 1877, 1877, p. 168) and Dapp (Boston Med. and Surg. Journ., 1877.) Such injuctions are probably most remeable in Fibro-vasculitis or Vas emolens.

Iodoform is the drug most surgeons prefer for intercuticular injection.
injections in goitre. It is probably the least dangerous operation one can perform upon a goitre when proper precautions are taken. Dr. Anton was probably the first to practice this injection of Podrid's about 1863, andcribes that since it has been used by Belleri, Mortell Reckenzig, Amoros Baracs, Corolinii and many other surgeons with more or less success.

All are agreed that the needle should be thrust into the pith

-planes of the goitre, so that the Podrid's may sink it, and not the cellular tissue of the neck. Care should be exercised to prevent injecting the fluid, or air, into the veins, for such purposes it is better to wait a short time after the needle has been introduced, to see if a vein has been injured, before injecting. If a vein has been injured, a little time should be left before making the injection, to allow coagulation to occur, or the needle should be withdrawn and introduced again.

The goitre should be pleased while making the injection, and I have always found it an advantage to have the patient in a semi-recumbent position on a couch, for the surgery is more easily manipulated than with the patient sitting, and it is useful in case the patient faints.

Only a small quantity of Podrid's should be injected at the first sitting to test the susceptibility of the patient, and by the reaction obtained the dose can be afterwards regulated. I believe that the first injection should never exceed one-
fifth, and the range of doses afterwards may be from one to

- fifth. Some people are very susceptible to Podrid's when applied in this way, and I remember seeing a case in which alarming symptoms appeared after a single injection of Podrid's, but afterwards there was a considerable shrinking in the

-
any of the humour, but the patient could not be prevailed upon to perseveres with the local ointment.

When the injection has been made, the patient experiences a sensa-
tion of heat in the part, which may spread to the shoulder and face on the side which has been injected. The patient soon detects a tach of fevers in the mouth. The Coûtre becomes painful and another, and the patient may become slightly feverish. In a day or two these symptoms abate and at the end of a week some diminution in the humour may be noticed. On the other hand a considerable time may elapse, and many cross injections may have to be made before the humour diminishes in size at all, and some goûtres show no improvement after this local ointment.

It is advisable to wait at least a week before repeating the injection and then slowly and be repeated too often a dach of fevers might be set up. For this reason, this local ointment is contra-
indicated, as only to be preceded in able with great care in failure of patients or those of tender years. This, as other methods of local-
ment, more effect me in recent cases of Coûtre.

In the hands of some Emperors the number of cases is increasing
care; and figures the results obtained by Sir Fowell Macanegi
in 73 cases, and in Ansthn in 48 cases, as example:-


<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curd</td>
<td>59</td>
<td>80.8</td>
</tr>
<tr>
<td>Improvement</td>
<td>9</td>
<td>12.3</td>
</tr>
<tr>
<td>Pressed milk</td>
<td>3</td>
<td>4.1</td>
</tr>
<tr>
<td>Unknown</td>
<td>2</td>
<td>2.7</td>
</tr>
</tbody>
</table>

In Antonio's 48 cases: (Art. Coûtre: Dictionnaire de médecine
et de chirurgie pratiques, 1873). He reportes as follows:-
follows:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Figures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cures complete</td>
<td>32</td>
</tr>
<tr>
<td>Marked Improvement</td>
<td>12</td>
</tr>
<tr>
<td>Palpebral, injections deemed, improved</td>
<td>2</td>
</tr>
<tr>
<td>Frozen oil</td>
<td>2</td>
</tr>
</tbody>
</table>

Sodoform. Kappes (Cay. de l'âge, Sept. 2, 1873, cit. p. 11, Brit. Ind. Med. Journ., April 25th, Vol. 17, 1873) made a solution consisting of Sodoform 1 part, Ellen and Olive oil 2 parts each. The solution was injected into the lumen of the testicle. He then made a needle of steel 6 inches long, the patient is then told to swallow, when it is noticed if the needle follows the up and down movement of the lumen of the testicle. The injections are made at intervals of from 1 to 3 days, and if the lumen is a very large one he infuses as much as six grammes of the fluid at each sitting. Total cure was always obtained. He had treated 8 men and 6 women by this method. After the injections extending over two months the circumference of the neck was diminished by 6 centimeters, and after two more months by 8 to 10 centimeters. Improvement was manifest one month after cessation of treatment.

Brielso: pummelcon has most application in vascular goitres. It is often a tedious and grueling process, and the result obtained is oftentimes not at all satisfactory. There are still many complications attached to it, and they are of a serious character in most instances. (J. Duncan: Brit. med. Journ., June 10, 1876, Allhams, I bid., Nov. 13, 1876.)
Ligation of the Thyroid Arteries was probably suggested as early as 1807 byranges. Dr Ballyard first operated with his device in 1811. He first the arteries of an enlarged thyroid, and in a week the tumour was reduced one third; then the Ligation alone was applied, and the patient died of Hospital gangrene. Walker of Sandford was the first person to successfully tie the Thyroid vessels, on June 3rd, 1814. He tied the left superior Thyroid, and on June 17th of the same year he tied the right superior Thyroid. In 1815 the Bells of Salisbury successfully tied the superior Thyroid in a boy of seven years. (Dictionary of Practical Surgery, Boston.) At the present time this operation has practically fallen into disuse, in consequence of the far easier ligation, difficulty of reaching the Thyroid vessels and the uncertainty of a salutary result.

Seso. of the Sterno-mastoid and Cricoid fascia has been practised as a palliative procedure to relieve urgent symptoms. The muscles are in most cases so much abraded that section of them can do little good, and this is an operation which today has few supporters.

The Surgical Treatment of Cystic Goitres requires a short special paragraph. They are frequently soft and can be operated upon with much hope of ultimate success. They may be treated by Simple Aspiration; Excision; Injection.

Aspiration in most cases is only palliative, although cases are on record in which a cure has resulted therefrom, when the cyst has been small and thin walled. As a rule a cyst after aspiration soon fills up again.
Precision may be practiced, but it is an operation by no means free from danger. The object is to leave the wound patent, and various methods have been adopted to effect this. The cyst may be opened with the knife, or by a combination of knife and cannula.


Puncture and Injection of Cysts. Various liquids have been employed. Furnell (Arch. Ital. End. Tum., Vol. 7, 1874, p. 643) used a solution of Tartrachol of Snow of a strength varying from 1 to 8 per cent. He explained that tapped the cyst with a probe, and cannula, injected his solution, and left it in two or three days. Supcrpolation was set up, and the pus discharged through the cannula. Shidle had been left inflamed. Out of 59 cases so treated, he had 58 cures, and 1 death from entrance of air into the lungs.

The liquid most frequently employed is Podium, and DuBois treated twenty cases with an injection of a solution of Podium, divided in Uter, to an ounce of Absolut Alcohol.

I have treated one case of cystic goitre successfully by Podium injection. The cyst had been lacerated but on each occasion refilled. I drew off the fluid with a large probe and cannula, and then injected two fourths of one dram Podium, mixed with a solution of Bismuth as I had heard suggested in the local part of Hydrocele. With this the cannula and sucked the cyst vigorously. Inflammation, with its concomitants occurred, and after a month had elapsed the man came before me again with a much smaller cyst. I again treated this with the Podium injection as before, and this time with complete relief.

In another case, Shidle similarly treated, only one in-
Address was made, and this resulted in a diminution in
any of the cough, but not a complete cure. The patient, a
female, in this case, was much more affected by the local
aspect than the preceding, and had to be confined to bed
for several days; and so also is an elderly subject, and the quills
is causing her no inconvenience. I have still considered it
justifiable to proceed with this method of local pain.
Curettage of the larynx with a view of keeping open
the larynx has been practiced by the lauded surgeons. I have
no experience of this method of local pain, but it cannot
be other than abov and uncertain in its effects.

The medical history is the last and surgical procedure directed against
this condition. Since I shall mention it briefly in the removal
of the thyroid in both or pertaining. Partial thyroidectomy is now left if
possible, as a rule, to achieve maximum may occur.
The earliest successful cases I can find are by Vogel in 1774, and
Fry in 1778, (cited par. Smith, loc. cit., p. 240.) By Desault also
operated on a woman in the Hôpital-Dieu in March 1794. (Desault
Art. "Palliation of Thyroid Ecland." p. 105.) And by D. H. Hadi who
operated on six occasions with success.

Before 1850 the mortality after this operation reached at least 40
per cent; but up to 1883, Hackett had operated 101 times with a mor-
ality of 12.8 per cent. Before 1876, Bills had removed 36
glandes with a mortality of 36.1 per cent. (Chiri Sing., Jour. Rgyd. Soc.,
p. 175.) But often later cases he has been more successful.


Yet stenosis in angina has been a variety of chapters, bu
but it must depend upon the size of the lumen, and its position. After the lumen has been reached all vessels should be tied with double ligatures and divided, and all bleeding points should be stopped before proceeding to the second step, or incision of the capsule. Incision of the capsule should be made as much as possible be made with the finger, and not with the knife. The frequent adhesion of the gland to the neighboring parts has led Kocher to incise the lumen, after incision of the capsule which covers it, so that the capsule remains in situ and is a certain extent prevents the spread of possible suppuration.

Two preliminary operations have been suggested; first, a preliminary tracheotomy as suggested by Przor. This has its disadvantages, especially if the trachea is softened, and it adds to, rather than detracts from, the permanent ease of the operation. The second is ligation of the thyroid pedicles as suggested by H. McLone in 1873. He advised that as soon as the lumen is laid bare, that the anterior neurovascular bundles, in the four angles, should be caught and ligatured.

It is not always easy to find these bundles in a young child, it is always more or less deformed.

Cases of Death. The two most serious are hemorrhage and respiratory trouble. Among others may be mentioned: ischial laceration; opening of important vessels in the neck in consequence of adhesions; entrance of air into veins; resection of important vessels, especially the recurrent laminar glands; secondary hemorrhage, and Suppuration. The two great cases of anxiety in the older Goiters.

With these brief notes on Thyroidectomy I now close the consideration of the Surgical Treatment of goiters.
The medical treatment is more hopeful as the case comes under medical control earlier, the least hopeful being goitres of long standing. One cannot hope to influence large goitres, pain and anxiety, by medical treatment, but there is often accompanying them in some part of the gland, a hyperplasia or fibrous condition which may be relieved, and so lead to a diminution in the total bulk. The treatment by drugs should be persevered in for several months before being finally abandoned as useless, and the importance of remaining under observation cannot be too strongly impressed upon the patient.

The treatment, which has given the best results in my hands is, that indicated under the heading Podium, with Injel: Podi or Podas Podidi, T dig. Arseniacis, or by means of thyroid gland, and the most convenient form in which this can be prescribed is the tablet of Burroughs Wellcome and Company, which I have previously mentioned.

The surgical treatment in those cases where this appears to be indicated, should first be by injections into the substance of the tumour of Injel: Podi in hyperplastic, fibrous and probably colloid (if not much of the gland is affected) goitres, and probably with Injel: Podi or Podas in various goitres, but the surgical treatment in three latter I have so far had little experience of. In acute goitres the best and safest treatment which can be adopted is deprivation followed by the injection. Injel: Podi with Creasie, after which the goitres should be vigorously shaken to ensure that every part of the interior of the cyst wall should come in contact with the
The fluid. If an aspiration pus blood is drawn off after a time, in consequence of rupture of blood vessels in the eyelid wall as described above, my practice is either to cease the operation, apply cold to the hzemom and aspirate again after the lapse of a few days, or, if the bleeding is not excessive, to draw off as much as possible and then make the injection, after which I apply elastic bandages by means of a quantity of absorbent wool and a bandage, for 24 hours, keeping the patient at rest in bed.

Of these methods poised and the gòlíns is threatening the life of the patient the question of Thyroidectomy, in part or full, should be taken into consideration. Each case must be judged upon its own merits, and it is a mistake to lay down hard and fast lines in theory which cannot be followed in practice.

Since writing the above I have, in presenting my inquiries into the physiology of this condition, elicited the following facts which I consider of sufficient interest to add here.

At Pygam, a town five and six miles from Bangor, goûlis is confined to those people living in one part of the town and drinking water from troughs which are supplied from springs which arise in the Grindon. The people who live in the other part of Pygam and who drink their drinking water from deep wells sunk in the mountain springs, are free from goûlis. The water derived from such wells is extremely hard.

April 1896. Thomas Fenton.