

Treatise on English bronchocele : with a few remarks on the use of iodine and its compounds / by James Inglis.

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TREATISE
ON
ENGLISH BRONCHOCELE,

WITH A FEW REMARKS

ON THE USE OF IODINE

And its Compounds.

BY JAMES INGLIS, M.D.,

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TREATISE

ENGLISH BRONCHITIS

ON THE USE OF ROPINE

AND IN CONSUMPTION.

RIPON

PRINTED BY JOHN LEWIS LINNEY,

BY JAMES INGLIS, M.D.

OF THE UNIVERSITY OF EDINBURGH,
FELLOW OF THE ROYAL SOCIETY OF EDINBURGH,
AND FELLOW OF THE ROYAL SOCIETY OF LONDON.

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TO SIR GEORGE BALLINGALL, M.D., F.R.S.E.

REGIUS PROFESSOR OF MILITARY SURGERY IN THE UNIVERSITY OF

EDINBURGH, PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS,

ETC., ETC.

MY DEAR SIR GEORGE,

Were it necessary to assure you of my continued regard and esteem, I should adopt another course, rather than that of dedicating to you the present publication.

It is because of the zeal you at all times evince for the furtherance of science, and the interest you take in the investigation of morbid phenomena, and their causes, that I present these pages to you ; remaining,

Dear Sir George,

With grateful recollections as a Pupil,

Your sincere and attached Friend,

THE AUTHOR.

PREFACE.

SOME introductory remarks may be deemed necessary for my thus bringing before the public a Treatise however brief, upon a disease which seldom proves fatal, and on the subject of which so many have already written.

When I first entered on my duties at Ripon, as Physician to the Public Dispensary, I was surprised to find so many Goitrous cases on the records of that Institution; further inquiry however, and personal observation persuaded me, that this disease is as much endemic in some of the districts of Yorkshire, and other English Counties, as in Geneva or any of the Alpine valleys. To such an extent does Goitre prevail in some parts of England, that it is an every day occurrence to see the children running about with pieces of black velvet round their necks to prevent (as is supposed) the formation of the disease, or charm it away when already formed.

I thought therefore that a pamphlet written in some measure, as well for the people, as the Profession, might be of use in calling attention to a disease evidently on the increase, and which, if it prove not directly fatal, may become so indirectly, by inducing a state of the respiratory and circulating organs incompatible with health.

A previous study of the probable cause of Goitre, interested me in a further investigation of the disease; and although it be true that many have written on this subject, it is equally true that the exciting cause has never with any thing like certainty been disclosed. One of the best writers on Goitre says, "As to the particular substance in solution in the water that occasions Bronchocele, (Goitre) I freely confess my complete ignorance; but let us hope that this noxious matter will sooner or later be detected." And it is said by another that "the cause which gives rise to Goitre is by no means certain, and the observations of different writers are of very little practical utility."

If I have approached in any degree nearer to a solution of this interesting question, or if any hints thrown out in these pages be of service in the prevention or removal of this disease, my object in writing them will have been fully accomplished.

Ripon,

February, 1838.

TREATISE

ON

Bronchocele, or Goitre.

EVERY organ of the human system is doubtless given for some definite end, destined to perform some particular function; the non-performance of which would, in a greater or lesser degree, affect the general economy. Certain organs however appear to be of so little service, that neither their anatomical structure, their normal, nor their abnormal states have tended to disclose their use.

The cause or causes of a morbid action, and alteration of these organs, must be more difficult of investigation, in proportion as their express functions are little understood. Of such organs is the Thyroid gland—the seat of the disease under consideration.

In the immediate vicinity of the Thyroid, is another body called the Thymus gland; both receive vital energies from similar sources, and are vicarious, as it were, of each other; and their uses if not altogether unknown, are but imper-

fectly understood; which facts, though anatomically noticed, have not hitherto been physiologically connected.

The Thymus gland is the largest in foetal life; at that period it extends nearly from the Thyroid down to the Diaphragm; in the adult it is quite atrophied, and in old age is lost amongst the cellular tissue.

The Thyroid, generally speaking, is larger in childhood than in the adult, and this is what we might have expected, for the greatest and most sudden diminution takes place in the Thymus, from the first moment of independent life in the child, till nearly the age of puberty, and it is about this time that the germ, as it were, of the disease called Bronchocele or Goitre first appears, requiring only some local cause fully to develop it.

What then causes Goitre to be more prevalent at this period of life than at any other? It is no doubt from the greater stimulation of the Thyroid now than at any future time, by an increased supply of arterial blood.

The Thyroid gland is supplied with blood, by the two superior and two inferior Thyroid arteries; the two former arise from the external carotids, and the two latter from the subclavians. It receives its nerves from the pneumo-gastric and cervical ganglia.

The Thymus is nourished by numerous arteries,

a great proportion of which arise from the *inferior thyroids*. Now as its arteries become obliterated, the consequence must be, that the blood which formerly nourished the Thymus is diverted into another channel; the inferior thyroids conduct it onwards to the Thyroid gland, so that there is an increased circulation through it; it is therefore, as we should say, *overacting*, and overaction, whatever be the material, must impair the machinery. The Thyroid is now in a fit state to receive any morbid impression; and continues so until the Thymus is no longer discernible, when the balance of circulation is restored.*

We see similar phenomena taking place every day in those organs which are vicarious of each other; take for example the Lungs and the Liver; or the Skin and the Kidneys; a diminution of function in the one produces an increased action in the other, and a consequent aptitude to disease.

The Thyroid, like the Thymus, receives its nerves from the pneumo-gastric and cervical ganglia.

From the condition of the Thyroid body when

* Were Prosser correct, when he stated that Bronchocele generally begins between the eighth and twelfth year, the preceding anatomical facts might in some measure explain it.¹ But if we be right in supposing the period between the twelfth and twentieth, to be the time when the Goitrous diathesis most prevails; this aptitude in the gland to receive a morbid impression readily accounts for it, as shall be noticed hereafter.

¹ Dr. Parr's Med. Dict. vol. 1.

diseased, and from the action of Iodine upon it, I think we have reason to consider it as glandular, although the propriety of doing so has been questioned, in as much as its intimate anatomical structure is unknown, no excretory ducts having as yet been discovered in it. The disease called Bronchocele is an enlargement of this Gland, known in Germany by the name of Gotre or Goitre, and in some parts of England, as the "Derbyshire" or "Ackworth neck," from its prevalence in these Districts. Various other names have been proposed for it, but Goitre or Bronchocele being most universal ought to be adopted.

The healthy gland is composed of many distinct lobules, and these aggregating together divide themselves into three lobes, one on either side of the trachea, and the third crossing over unites the two former; sometimes, though seldom, this third lobe or *isthmus*, as it is called, passes under the windpipe, between it and the *æ*sophagus or Gullet, and when this is the case the greatest danger would be occasioned by its enlargement. Any of these lobes may be the separate seat of the disease, or they may all be affected together.

Alibert was the first to show that the right lobe was more frequently enlarged than the left,* which observation has been verified by the cases that have occurred in this neighbourhood. The cause

* Nosol. Nat. Tom. 1. p. 465.

of this may be of the same nature as that alluded to before, regarding the Thymus and Thyroid, depending on the circulation; more blood passing to the right than to the left side of the neck, by the Bracheo-cephalic artery.*

It was said before that the Thyroid is the seat of Goitre; sometimes, however, cysts are found in the neighbouring cellular tissue and become confounded with it. In these cases the gland itself is not unfrequently encysted, and found to contain a secretion varying in consistence. Sometimes the gland assumes the appearance of Scirrhus, as was the case in that extirpated by Desault, in the Hotel Dieu; and Alibert has seen one example of the kind, in which the tumor becoming cancerous destroyed the patient.

The more common and simple form of the disease is when the gland appears sarcomatous, often interspersed with cells or cysts of various sizes, filled with fluid more or less viscid.

* This artery, arising from the arch of the Aorta, ascends for an inch on the right side of the trachea, when it divides into two trunks, the right carotid and subclavian arteries. Whereas the left carotid and left subclavian arise separately from the arch, and not from a common trunk.

But whether the fact, that the right lobe of the Thyroid is generally the first affected, can or cannot be readily accounted for. Meblis makes the following assertion, with regard to all the symmetrical organs, viz., "that the two sides of the body are each more disposed for certain diseases," (*de Morbis Hominis dextri et sinistri*, Göttingen, 1818). And it has been noticed that ulcers affect the left leg with much greater frequency than the right, probably from a more languid circulation. In adults there can be little doubt that a greater arterial action exists on the right side, from the greater muscular action.

Dr Hedenus, of Dresden, whose opportunities of examining the tumor have been frequent, states that he has almost universally found it to be partially converted into cartilage, or bone;* and Celsus concisely but accurately describes the disease in these words: "*Modo caro hebes, modo humor aliquis, melli aquæve similis, includitur; interdum etiam minutis ossibus pili immisti.*"†

From these different states of the gland, the appearance presented externally, may be that of a tumor with a well defined margin, or the marginal appearance may be insensibly lost in the surrounding cellular tissue. To the touch it may be at one time hard and nodulated; at another soft, flabby, and of equal consistence.

According to the continuance of the disease, so in general is the size of the tumor, and also the difficulty of its removal. In the *Nosologie Naturelle* of Alibert there are two cases in particular mentioned; in one, the Goitre descended to the middle of the Sternum, and in the other, to the middle of the thigh. But such extraordinary enlargements are seldom, if ever, met with in this country; the largest which I have seen occupied the whole space in front of the neck, rising on either side as high up as the ears. There are some cases

* Graefe's Journ. der Chir. B. 2.—Quarterly Journ. of Foreign Med. No. 19.

† Lib. vii., Cap. 13.

mentioned by authors, in which, during parturition, the gland suddenly became enlarged, and filled with air;* whilst many women affirm, that although existing previously, the common Goitre was very much increased at this time. The former cannot be considered as Goitre, but as cases of Emphysema, properly so called,† and may arise from a rupture of the trachea at its posterior part, where the cartilaginous rings are deficient;‡ or from the rupture of some of the air-cells of the lungs, and the sudden diffusion of air, which, making its appearance instantaneously in the cellular tissue of the neck, would give rise to the enlargement in question.

In those cases where Goitres have been sensibly

* Edin. Med. and Surg. Journ., vol. iv., p. 279.

† Halliday on Emphysema, p. 46.—Edin. Journ. vol. iv., p. 174.—Med. Commun., vol. i., p. 175.—Med. Tracts, vol. ii., p. 45.

‡ In 1823, Dr. Knox, of Edinburgh, made known a beautiful provision of nature, in the structure of the trachea of the Cassowary of New Holland. It differed from the dilatations found in the necks of many other birds, as the *Anas Clangula*, *A. Cygnus*, &c., which are merely expansions of the cartilages. The rings in the Cassowary are deficient in front, opening into a muscular bag, situated in the neck in both male and female, immediately above the bone called the merrythought.

EDIN. PHILOS. JOURNAL, vol. x., p. 135. (1823.)

So by analogy with regard to the human frame, for however absurd it may appear to some, it is in accordance with the doctrine of the "unity of organization," that there might be a continuing of a deficiency at the anterior part of one or more of the cartilaginous rings, in the trachea of some women. The consequence of which would be, that when the glottis was closed, and any great straining effort made, the chest would be compressed, and the air finding its way through this partially closed opening, would present in the neck the appearance alluded to.

increased, during parturition, the congestion of blood in the gland from impeded respiration must have been the cause.

Since Goitre is so universally distributed over the globe, whilst at the same time it is of such an endemic character, the cause of it might have been expected long ere now to have been discovered. Nevertheless the contrary is the fact, so much so indeed, that scarcely two authors are agreed, excepting upon one point, and that is, the attributing of it to the waters used by the inhabitants of Goitrous districts.

In the Alpine valleys, where Idiocy and Goitre seem to be almost inseparably connected, the cause is attributed to the snow-water. But in Greenland and Lapland, where snow-water is commonly used, Goitre is never met with; and in Scotland and Westmoreland, where the mountains are higher and the snow more abundant than in Derbyshire, Goitre is, if not altogether, almost unknown. And it is evident from Dr. Richardson's account of Goitre at Edmonton, given in Franklin's Narrative of a Journey to the Shores of the Polar Sea, p.p. 118, 119, that it arises, not from the Snow water, but from something in the river or well water; for he says, "the disorder attacks those only who drink from the waters of the river."

"The men being often from home on journies through the plain, when their drink is melted snow,

are less affected; and if any of them exhibit, during the winter, some incipient symptoms of the complaint, the annual Summer voyage to the Sea coast generally effects a cure. The natives who confine themselves to snow-water in the winter, and drink of the small rivulets which flow through the plains in the summer, are exempt from the attacks of this disease. A residence of a single year at Edmonton is sufficient to render a family Bronchocelous." With Sumatra, the question, as to snow-water being the cause, may be decided; there Bronchocele abounds, whilst snow is never found at any season of the year.* But snow-water though in itself innocent, may like any other water be the medium, or vehicle, by which the cause of the disease is conveyed into the system, as shall be seen immediately.

The next most commonly received cause of Bronchocele has been the earthy impregnation of the water. The facts favouring this theory are, that in Geneva the hard or pump water of the lower streets brings on Goitre very speedily.† In Nottingham the disease prevails, and the waters are impregnated with the Sulphate of Lime;‡ in Derbyshire the Water contains much Supercarbonate of Lime; at Studley village, and around

* Watson's Chemical Essays, vol 2., p. 157.

† Coindet's Observations on Iodine, p. 7.

‡ Manson's Med. Researches, p.p. 4, 5.

Ripon, the water from all the wells holds the Supercarbonates of Lime and Magnesia, with a portion of the Sulphate of Lime in solution, to such an extent, that the boilers in a short time are so much incrustated with these salts, that they constantly require to be cleaned out to prevent their cracking, from unequal expansion when heated.* In the valleys of the chalky districts of Hants and Sussex Goitre is of frequent occurrence, and in Switzerland "Bronchocele appears to be produced by certain waters which issue from the hollows of rocks, trickle along cliffs of mountains, or spring from the bowels of the earth." "That this is the case," says Dr. Bally, "I may instance some fountains in my own country, (Département du Lemane au Hameau de Thuet) the use of whose waters will, in eight or ten days, produce or augment Goutrous swellings; such of the inhabitants of the above village as avoid these waters are free from Goitre and Cretinism."†

I shall now state the objections to this theory, superadding, what may appear to me, counter objections to them.

First.—"It cannot arise from the impregnation with Sulphate of Lime, for according to Alibert

* Another inconvenience arises out of the feeble conducting power of this incrustation, which is, that it requires at least twice the usual proportion of fuel to boil a given quantity of water in a given time.

† Dict. de Sciences Medicales, t. viii.

the waters of St. Jean, Saint-Sulpice, and Saint Pierre, where Bronchocele is frequent, contain much less of this earth than the waters of Upper Maurienne, where the disease is seldom seen, although the houses are built upon a vast quarry of Gypsum.* Bonpland also observed the same fact in New Granada.

But it matters little whether the houses are built upon a quarry of Gypsum or not, for the waters trickling over its surface, or gushing from its centre, would contain no more than had there been a much less quantity of that earth. It requires about five hundred parts of water to take up one of Sulphate of Lime, and as we know as yet so little, regarding the action of small doses of medicines on the system, we cannot with certainty say, how much this one five hundredth part of this salt may have to do with the cause of the disease. I suspect, however, that a larger proportion of gypsum is present in many waters near here, they possessing a higher solvent quality, from the presence of excess of Supercarbonates.

Second.—“Abstinence from unboiled water, does not diminish or interrupt the progress of the disease.” In opposition to this statement may be brought forward the evidence of Professor Odier, of Geneva, in the *Manuel de Medecine Pratique*. It appeared to him that distilled water, not only

* Cooper's Surgical Dict., p. 237. (1825.)

prevented the increase of the tumor, but even tended to lessen its bulk; and a case in point will be found hereafter, in the communication of Mr. Rumsey. It is that of a young woman with a large Goitre, who, in being put on the use of rain water, completely got rid of the tumor; for the last fifteen years she has continued the use of the rain water, and has never, during that period, had any return of the disease.

Third.—“Patients are cured, and continue free from the disease, who still continue drinking of the same unboiled water as before.” But is this actually the case? The facts around us here would tend to a different conclusion; as also those mentioned by Dr. Richardson, as occurring at Edmonton, where after the disease had been removed, an exposure to the same cause immediately re-produced it. But supposing that it were so, the time when the system is most prone or susceptible (as shown at page 2) has passed by. Or, it might be that the occurrence of the disease once, gives to the system an immunity from a second attack, as is the case in other diseases, from some cause or causes unknown; or perhaps from the effects of medicine continuing much longer in action on our constitutions than is generally supposed.

Fourth.—“The disease is less frequently found amongst men than women.” Our own observa-

tion, as may be seen by a reference to the tables, would certainly incline us to this opinion, but I do not affirm it as an undoubted fact; for as men are less liable to regard a slight swelling in the neck than females, inasmuch as they are less exposed, it may altogether escape observation; or if observed, they would seldom, if ever, come to ask relief for a fulness which caused them but slight inconvenience; whereas females attaching more importance to the disease, immediately apply. We know also, that Goitre in its earliest stages is not difficult to remove; the very fact then of their necks being covered up, may, by the slight pressure given by the neckcloths, be quite a sufficient cause of its prevention in men, or even of its removal when present. The same objection is, of course, of equal force with respect to any substance in solution in the waters, and in all cases may be answered similarly. But further, as was previously noticed, Goitre is exceedingly prevalent at Edmonton; there, the neighbouring plains are alluvial, the soil calcareous, and contains numerous fragments of Limestone. The Saskatchewan river runs past Edmonton, the inhabitants drink of its waters, and are Goitrous. About sixty miles above that town, i. e. nearer to the river's source, the disease prevails to a still greater extent; whilst at a considerable distance below Edmonton, Bronchocele is known only by

name, although the supply of water is from the same river.

This is a fact which at first may appear to be opposed to the Calcareous theory, for the same river produces the disease at one place, whilst the use of its waters at another evinces no such effects. Examine the fact, however, and the apparent inconsistency vanishes; Lime is most soluble as a Supercarbonate, and it is as a Supercarbonate that it at first issues from the bowels of the earth. As the waters dash along from rock to rock in their channel, the salt not being permanent, is decomposed; one portion of its Carbonic Acid escaping, whilst the insoluble Carbonate of Lime is precipitated, and thus a Calcareous deposit is formed in the bed of the river. The nearer then to the river's source, so must the waters be most impregnated, and vice versa. Thus, in the vicinity of the sources of the two rivers, the "Elk" and the "Peace," Goitre is most prevalent; whereas as you descend the river's course, or pass off into the interior of the country the disease decreases.

The physical objections to this and the following theory, viz., the production of Goitre by carrying heavy burdens on the head, by vomiting, crying, coughing, anger, and during parturition, and the like have been in some measure answered already (p.p. 7 and 8.); but further, it is remarked that

such events take place in all countries and places, whilst the disease is confined to certain limits.*

We have seen that Bronchocele prevails in those districts where snow-water is used by the inhabitants, but we have found it also abounding where the water is "hard." Although snow-water is of itself like rain-water, "soft," it may become hard by impregnation with calcareous earths, for what else forms our fountains and springs, but the condensed evaporations and waters of the sky, showered down upon the earth, filling the cavities in the interior rocks, or percolating through masses of lime stone, granite, and other formations? Is then the Alpine snow-water soft? Amongst the Alps, in greatest perfection, is met with that double Carbonate of Magnesia and Lime, called "Dolomite." It usually occurs in white masses of a granular texture, the grains cohering loosely. When the snow melts, the water must pass over much of this salt, and doubtless carries with it a portion in solution, so that after all, the snow-water may be the vehicle there, as the spring-water is here, of the cause of the disease, i. e., supposing calcareous matter to be that cause.† In support of what I

* Coindets Observations on Iodine, p. 7.

† Dr. Dalton first noticed the singular fact, that, unlike other earths or salts, lime is more soluble in cold than in hot water; and Mr. Philips found that water at 32° F. (which will be the temperature of the snow-water,) is capable of dissolving twice as much lime as at 212° F.

have advanced, I may state that the Magnesian limestone so profusely distributed in this part of Yorkshire, where Goitre is prevalent, is an impure earthy variety of Dolomite; and so far as my observation carries me, it would appear that the Magnesian limestone districts predisposes to the disease in a much greater degree, than those where the pure vitrified limestone abounds. This may arise from the inferior solubility of the latter.

About two years ago, I was informed by a gentleman who had travelled through South America, that at St. Pauls, a populous town situated on the banks of the Rio Gronda, Goitre prevailed to a great extent, and also up along the river, so far as it was habitable: and that there the only opinion of the natives was, that it arose from vegetable matter carried down from the forests, and mingled with the waters of that river which they drink.

How far this theory can be supported I shall now proceed to examine. We know that the coal formation is of vegetable origin, or in other words, it is decayed and compressed vegetable matter, and it was noticed before that in Nottingham Goitre existed. But it prevails also in other coal districts, where the water drunk is from deep wells, as in Derbyshire and many parts of Yorkshire. I am informed that in Tirhoot, about four hundred miles from Calcutta, Goitre

exists to a very great extent; the water used by the natives is taken from tanks or ponds, whose surface is ever covered with green semi-decayed vegetation. There is only one instance known of a European taking the disease, because, as is stated, the Europeans seldom use water, and when they do, it is carried from a considerable distance (twenty miles) in skins. The individual mentioned, however, was a water drinker, and what he used was taken from the same ponds as that by the natives. (I may mention that the soil in and around Tirhoot is very much saturated with Saltpetre.)

In those parts of Switzerland and Germany where Goitre prevails, there is certainly abundance of vegetation in almost every stage of growth and decay; the mountains bounding the Valais are covered with *forests*, rocks, precipices, and glaciers. Foderé observes, "that the disease is not prevalent in very high places, nor in open plains; but that it becomes more and more common as we descend into deep valleys, made by torrents, where there is a good deal of marsh, and abundance of fruit trees." If then decayed, or decaying vegetable matter has anything to do with this disease, it matters little by what channel it enters into the system. The poisonous malaria may be absorbable by water, and being introduced into the stomach, acts on the

system through it. Or, it may be introduced into the lungs by inhalation, when it would act with equal certainty, and even more powerfully, because the absorbing surface of the lungs is of much greater extent than that of the stomach. Therefore, should the emanations from certain marshes, i. e. the miasm from vegetation, be constantly respired, it must exercise as much its septic influence on the constitution, as the imbibing of waters would do impregnated with a like putrescency.

Dr. Clarke, like Foderé, thinks the cause originates in the damp marshiness of situation, and states, "that it is probable if the villages situated in the low, close, marshy situations of the Valais were destroyed, and the inhabitants removed to elevated dry situations, Cretinism and Goitre (which he believes to arise from different degrees of the same cause) would disappear."*

From a number of facts collected by Dr. Gibbon, he also concludes "that Goitre may be found endemic in all mountainous and marshy districts of the United States, generally in valleys where the soil is rich and sheltered;" and Dr. James Johnson in his tour through France, Switzerland, and Italy, makes some excellent remarks to the same effect.† After alluding to the malaria and waters of the valley of the Rhone, as "superlatively dis-

* Notes on Climate, Diseases, &c., of France, Italy, and Switzerland.

† p.p. 56.—58.

gusting," he goes on to state that "it is remarked that Cretinism is bounded to certain altitudes above the level of the sea. The Valais itself, and the ravines on the gorges of the mountains, by which it is enclosed, are the chief seats of this deformity. All, or almost all those who inhabit the higher ranges of the mountains overlooking the valleys, are exempt from the malady." * * * "In short, we find in the Valais, and in the lower ravines that open on its sides, both Cretinism and Goitre in the most intense degrees; as we ascend the neighbouring mountains, Cretinism disappears and Goitre only is observed; and when we get to a certain altitude both maladies vanish." This altitude is stated by Saussure Ferrus and Georget to be about five or six hundred toises. Dr. Reeve has made similar observations.

But to show how difficult it is to come to any definite conclusion, with regard to the cause, I shall quote shortly, from the observations of the celebrated Humboldt, as given by Dr. Crawford in the Cyclop. of Pract. Med., p. 327. "In South America, Bronchocele is met with both in the upper and lower course of the Magdalen river, and on the flat high country of Bogota, 6000 feet above the bed of the river. The first of these regions is a thick forest, while the second and third present a soil destitute of vegetation. The first and third are exceedingly damp, the second par-

ticularly dry. In the first the air is stagnant, in the second and third the winds are impetuous. In the first the thermometer keeps up all the year between 22° and 23° of the centigrade scale; in the third it ranges between 4° and 17° . The waters drunk by the inhabitants of Mariguita, where Goitres are the most hideous, are not those of snow, but springs which flow over granite." I shall only add one more quotation to show the same difficulty; it is from Ramond's *Observations on the Pyrenees*." "Goitre exists amongst these mountains even in greater extent and degree than in the Valais, and under circumstances very different, viz., in open, well watered, and well ventilated valleys." An idea exists that those valleys are exempt from the disease which are swept by the North East wind; for instance, those opening on the sides of the Valais. But this is certainly not the case, the Valais itself runs in the direction of North East and South West; besides, there are other valleys running parallel to each other, the exposure and ventilation in every respect being similar; whilst the disease rages in the one, and is almost unknown in the other.

The non-existence of Goitre in several coal districts, and in many peat countries, may be brought forward in opposition to those places of a similar character, so far as vegetable matter is

concerned, where Goitre abounds. But in such places they may be something present, counter-acting the septic influence of the vegetable matter (supposing it to be the cause). For instance, in some of the coal districts of Yorkshire we find immense strata of Iron Ore; this in consequence impregnates the water with Iron, and Iron is one of our best tonics or antiseptics; so that in Iron districts we should not expect much Goitre. A similar cause of exemption will be noticed hereafter in those places abounding in mineral springs, of which Harrogate is an example.

Bronchocele has also been thought to be a concomitant of Scrophula, or the same disease assuming a different form. Such an erroneous confounding of disease is now for the most part exploded. Goitre, like any other disease, may certainly occur in patients of a Scrophulous diathesis; but as the two diseases are so completely distinct, and have been shown satisfactorily to be so by Postiglione, Prosser, Wilmer, Kortum, Alibert, and others, it is unnecessary to make any further exposition of the error.*

Having advanced thus much respecting these two theories, it remains for us to decide on the more probable. So far as I have yet heard, it

* Postiglione, *Memoria sulla Natura del Gozzo*, p. 25. Alibert, *Nosol. Nat. tom. I.*, p. 465. Cooper's *Surgical Dict.*, p. 238. (1825.)

would appear that lime, in some form or other, was present in the waters of all Goitrous districts. This is tangible evidence, capable of proof by chemical analysis. But it would be difficult to say that some principle of vegetable origin was not also present. This however is only conjectural, and must, until proved, remain in subservience to the other. If we suppose lime to be the cause, we are still ignorant of the manner in which it exerts its morbid influence on the Thyroid gland. We cannot therefore with certainty say, that the presence of Goitre and of lime in the same districts are not simply coincidences, and unconnected as cause and effect.

If carbonate of lime be the cause, might we not suppose that a course of that medicine would be followed by Bronchocele. But has that ever been the result? Or if it be the sulphate of lime, we would anticipate a similar sequence. This is the only mode I think of trying the soundness of the theory, together with a careful and unprejudiced examination of facts. I shall still go on investigating the subject, and shall be glad to be favoured with the observations and opinions of gentlemen residing, or who may have resided, in other Goitrous districts; for I think that by a close examination of the subject, the cause, which hitherto has been spoken of only in uncertainty, may be fully disclosed. A summary of

the facts stated in the preceeding pages, show us that lime in some form or other is to be detected in the waters; and a review of the communications hereafter to be inserted leads us to a similar conclusion.

I cannot say however, that in all lime districts Goitre prevails, on the contrary, I know that it does not in many places where the blue vitrified mountain limestone is very abundant. Nevertheless, I think that I am correct in supposing, that the presence of the *Magnesian limestone* always predicts the co-existence of the disease. Take for example that ridge of Magnesian limestone running from North to South through the centre of Yorkshire, and margining the shires of Derby and Nottingham. All along that line we have Goitre to a very great extent; whereas on our diverging to either side, the disease is found to diminish. The towns situated on this ridge are Nottingham, Alfreton, Chesterfield, Rotherham, Ackworth, Pontefract, Abberford, Wetherby, Knaresbro', Boro'bridge, and Ripon. After this, the Magnesian limestone dips, then re-appears in the County of Durham; it continues its course almost due north from Darlington to South Shields, where at Tynemouth it meets the sea. In many of these towns I know Goitre prevails, in the others I should suppose it did, excepting where we approach within the influence of the sea, when

the morbid action would be counteracted, for we found before, from Dr. Richardson's statement, that the disease itself was removed by a sea voyage.

Before concluding these observations on the cause of Bronchocele, I shall briefly state another, which, although it be not the immediate, I suspect has a great deal to do in the propogation of the disease.

We know that disease is handed down from parent to child in successive generations; that the immaterial mind itself, influenced in this world by the shape of the material brain, takes also its character from its natural predecessor. We know too, that every individual has some peculiarity of constitution, some idiosyncrasy as it is called, and this is an inheritance *sui generis*; I could mention many illustrations of this, one may suffice. I attended a family in the south of Scotland, in whom there was, first, a tendency to contract twice, those epidemics which affect most individuals only once, such as Small-pox, Measles, and Scarlatina. Second, there was found the greatest difficulty to get cathartic medicines to act on the bowels; it requiring at least double the quantity for them, than for other children of a similar age. The cousins of this family lived in the neighbourhood, and in them I found the same idiosyncrasy existing.

How far then, may we apply these remarks to Bronchocele and Cretinism? Here whole families are affected together, whilst others living in the same village are unaffected. Dr. Clarke and others have made similar observations; thus, a woman has Goitre whose grandmother, father, parental aunt, and cousins also had it.* Then, with regard to that miserable state of existence in the Valais, known by the name of Cretinism, the victims of which are but a degree raised from the inferior creation. It cannot be produced by the drinking of water of any kind. Decidedly not; it is from original mal-formation of the Cranium, and the intermarrying, or otherwise, of these wretched beings, re-populating whole districts with a progeny more disgusting than themselves. Sir Richard Clayton says of them, that their only passion seems to be that of propogating the species; and Baron Larrey, in reference to the Goitrous inhabitants of the valley of Maurienne, says, "that in many of these people with this frightful deformity is joined that of *Cranium*, of which the *excessive smallness* and *excessive thickness* are especially remarkable."† Seeing then such an obvious cause of Idiocy in these Cretins, we do not require to ascribe it to the

* Clarke on the Climate and Diseases of France, Italy, and Switzerland, p. 109. (1820.) Thomas's Practice of Physic, p. 573. (2nd Ed.)

† Mem. de Chir. Milit., tom. 1., p. 123.

state of the gland as Professor Foderé does; nor like Dr. Rush, from similar data, to form a theory regarding its uses.*

In Savoy, Switzerland, the Tyrol, and Carinthia the form and situation of the tumor are considered as indications of beauty. Now, when this is recollected, we are not surprised that the Goutrous women sooner get married than others in whom this appendage is wanting; the consequence of which will be an inheritance of the same by the children, and a necessary increase of the disease. It is only by such an inference that we can explain the following fact, stated by Humboldt, in the *Journal de Physiologie* par F. Megendie. Without giving any cause for it, he says that in South America Bronchocele is progressively extending itself, from the lower province to the flat elevated regions of the Cordilleras; and this in so serious a degree, that in 1823 the subject was adverted to in a report made to Congress, by M. Restreppo, one of the Columbian Ministers.

Besides peculiarity of constitutions, there are certain periods at which remarkable changes take place in the same individuals, i. e., the entire organism presents successive degrees of perfection. One of the most remarkable of these stages is the period when youth and maturity are, as it were, equipoised. Yet a little longer and the balance

* Medical and Physical Journal, vol. xvi., p. 208.

is to be changed, organs are soon to be called into activity and use, whose functions formerly played no part in life. But now, as is the case throughout the whole of the animal kingdom, the organs last developed keep in subjection all the others; and should their functions be impeded, health must be impaired.

Now, when external symptoms manifest, even to the most unobserving, some great internal change, we are not surprized at the mystic importance attached by the vulgar to this period of life. The commencement of almost every disease incident to the female is referred to it.

But whilst we give sufficient weight to the opinion of the mass, as having generally some data to go on; we are not to allow ourselves to be carried along in the common whirlpool of error and superstition. In the case before us, however, we shall examine how far fact justifies us in ascribing a predisposition to this disease at the period alluded to. Dr. Hunter says, that the Bronchocele frequently appears two or three years before or after the commencement of menstruation, and that it sometimes spontaneously disappears when this evacuation goes on in a regular manner.* Mr. A. Burns affirms the same thing; and I am informed by Dr. Paley, that when at Halifax he never recollected having seen a male patient

* Cooper's Surgical Diet., p. 239. (1825.)

with Goitre, (and he practised there upwards of twenty years). So much indeed was he persuaded from the cases he had seen, that it was a disease peculiar to the period of menstruation, that when he came to Ripon and saw it in the male, he doubted at first of the similarity of the disease, considering it to be a scrophulous enlargement of the gland. Shortly, however, he saw his error, and subsequent observation has persuaded him that even males are most subject to an invasion of the disease, at the time of *their* passage into puberty. He goes further, and states that most are attacked between the ages of twelve and twenty, next between twenty and thirty, and fewest before the age of twelve. Prosser, however, asserts that "the tumor generally begins between the eighth and twelfth year;" and that the change in the constitution hardly ever affects it.

From my own observation, I think that in by far the greater number, the disease has commenced at or about the time when the Catamenia ought to have appeared; and generally speaking our patients have been irregular, the secretion not having appeared till between the sixteenth and nineteenth year. And further, the greater proportion of those who had families state, that they have observed a considerable increase of the tumor during pregnancy. Or, as sometimes happens, a woman residing in a Goitrous district

may, being "regular," escape in earlier years the disease; but on getting married, the Thyroid gland is found soon after to be on the increase. Out of many cases, one may suffice as an example. A woman residing at Kirkby Malzeard escaped until she was forty years of age, both marriage and the disease; she at last got married, and in less than six months there appeared a very respectable Goitre. From such facts it would appear, either that they are mere coincidences, or that the Uterus has some sympathetic connexion with the Thyroid gland. But when we see so great a regularity of sequence, we ought rather I think to place them in the relation of cause and effect.

The doctrine of sympathy between certain organs is, as yet, little understood; but that certain sympathies do exist, no one, with even a slight share of observation, can well doubt. For instance the testes and stomach sympathize to such an extent, that in orchitis, an emetic is the best means of affording relief; and how does it act? It is said by revulsion, or call it by what name you will, I believe the mode of action to be simply this: a rapid succession of the three stages of inflammation is induced in the stomach by the emetic introduced; a similar action is excited by sympathy in the testicle, the third stage of inflammation is urged rapidly forward, and the dis-

ease is thus got speedily rid of.* The uterus and mammæ sympathize; thus, in an obstinate case of Amenorrhœa, the most likely means of bringing on the natural discharge is by exciting the mammæ, as the French do, with sinapisms, or the application of a leach or two about the nipple; and thus a corresponding state is induced in the uterus, and the secretion is restored. The various sensations in certain diseases, felt in parts far distant from their seat, come also under the head of sympathy.

May not then the Thyroid gland sympathize with the uterus by some means or other? We know that the mammæ do; but the mammæ (at least parts of them) are of erectile tissue, and so is the Thyroid.

The Thyroid may therefore be affected by the uterus, through the medium of the mammæ; and we found before that the Thyroid was, at this period, (from another cause, p. 3.) in a state ready to receive any morbid impression, and what is more likely to give that, than the suppression of a natural discharge of such importance as the

* It is now known that all inflammatory action exhibits three distinct stages. First,—A contraction of the vessels. Second,—A dilatation of them. And third,—A re-contraction, or return to their natural state, accompanied by a secretion more or less profuse, according to circumstances. From a uniform result in the observance of these phenomena, it may almost be given as an axiom in medicine, that, in proportion as the *first* stage is prolonged, so will be the duration of the attack, and vice versa. This is exemplified in every local inflammation, in intermittant fevers, and in the Spasmodic Cholera.

catamenial? I stated before that another corroborative fact is given us by our patients, who affirm that during pregnancy, there has been a sensible increase of the tumor; one quite distinct from that at the time of parturition, which latter arises from an increased quantity of blood, i. e., congestion in the gland from suppressed respiration.*

When such evidence forces itself upon us, we must certainly admit that this peculiar state of the system has something to do in predisposing to the disease.

* In a number of my patients I have found a similar increment to take place from a similar cause; whenever they ascend a steep hill, or whenever they take a common cold. In some the sense of suffocation is so great, that they are compelled often to sit down to regain breath.

A FEW

OBSERVATIONS AND TABLES,

SHEWING THE RELATIVE NUMBER OF GOITROUS CASES

IN DIFFERENT DISTRICTS.

HAVING now spoken of the disease, and stated what I considered worthy regarding its cause, I have thought that it would not be uninteresting to bring forward here, the information I have received from various Goitrous districts, together with a few tables, which take cognizance of the number of patients admitted into Hospitals, Dispensaries, or into private practice, for several years back, in such a manner as to enable us to come to some conclusions respecting the average of Bronchocele to other diseases, and then, of the average number of males to females affected. In Germany, the number of males attacked has been stated to be about fifteen per cent. Prosser states, that in a village in Derbyshire, there were fifty girls labouring under the disease, and that he had never known a single instance of it either in man or boy. At the Hampshire County Hospital, Dr. Crawford informs us, that during ten years there were admitted forty-nine cases of Bronchocele, and that out of them, only one was a male; i. e., nearly two per cent. On the

authority of Dr. Forbes we find, that at the Chichester Dispensary and Infirmary, the number of cases, admitted within nine years, was seventy, out of which two were males; the percentage being thus about three. At Bishopton Grange, near Ripon, the number of Goitrous cases treated by Dr. Paley, within the last nine years, amounts to one hundred and eleven. Of those, six only were males; being thus, in the ratio of nearly five and a half per cent.

The patients admitted at the Ripon Public Dispensary, brings the percentage nearer the German. But a correct estimate of the *total* number of cases in a Goitrous district, cannot be given by any Hospital or Dispensary Reports; for many suffer so little inconvenience from the disease, that they allow it to go on unnoticed. Of this, any one may satisfy himself on a market-day in Ripon; when, by observing, he will be surprized to find so many girls with the disease, whilst so few in proportion apply for relief. Nevertheless, when we speak of Goitre *as a disease* needing our aid, then we may fairly appeal to these tables and average it with other diseases.

By an examination of the tables, this average will be found to vary according to situation, and it is by such a variance that we may expect to be led to the real cause of Bronchocele. Taking

the English Goitrous districts as a whole, I should say that there applied for relief, from one to three cases of Bronchocele out of one hundred cases of other diseases. The apparent smallness of this percentage, might make some enquire the use of the present investigation. But when we consider that although the percentage of any other disease may exceed that of Bronchocele, we must also recollect that *these* tables are *local*, and that whilst we have here one, two, or three *per cent*, we may not find the same number in as many *thousands* in other places. On this ground then, an examination into the cause of the disease is an interesting one; but in a much greater degree does it become so, when we think of the hideous deformities that this disease now and then presents to us. Death itself, as shown before, on the authority of Alibert, has been induced from Bronchocele assuming a malignant character; and suffocation has resulted from the pressure of the tumor on the trachea.* At all events, the probabilities of life are diminished by Goitre, in as much as it predisposes to disease of the heart, phthisis, and other affections of the lungs, with a tendency to apoplexy. The liver too must suffer, and there will be a consequent derangement of the chylopoietic viscera. All these consequences,

* L. Windslow, Bulletin du l' Athénée de Méd.

though unsuspected, are often indubitably to be attributed to an unchecked Goitre.

Dr. Parry has remarked a frequent coincidence between enlargement of the Thyroid gland, and Cardiac diseases.* In a case mentioned by Flajani, the palpitations of the heart were so severe, the pulse so irregular, and the breathing so oppressed, that the patient was obliged to submit to venesection every month, by which he became quite emaciated;† and in the *Medico Chir. Journal*, vol. 1, p. 181, three other similar cases are mentioned.

The following Table is one I made out from the private books of Dr. Paley ; it contains a list of patients seen by him at his own residence, within the last nine years. It gives first, a numerical view of the patients that applied indiscriminately, called in the table "general patients." Next, of the Bronchocelalous; thirdly, it shows the number of males to females affected; and lastly, the various ages of the Goitrous patients, at the time of application, are specified.

* Elements of Pathology, p. 181.

† Collezione d' Osservazioni di Chirurgia, t. 3., p. 270.

Table of Patients seen at Bishopston, by Dr. Paley.

	1828	1829	1830	1831	1832	1833	1834	1835	1836	1837
Jan.		1 30	4 42	33	1 44	52	1 48	4 47	28	31
Feb.		44	35	2 42	1 73	59	1 63	50	1 17	1 34
March		3 74	3 68	2 83	72	21	3 56	20	3 34	29
April		55	82	3 61	1 71	75	1 42	15	1 43	31
May		49	50	55	42	2 119	5 59		40	1 30
June		1 64	1 36	85	50	68	4 77	1 23	1 45	61
July		2 59	2 48	50	55	2 69	4 73	2 34	1 51	1 56
August	2 32	38	44	1 42	54	64	57	1 36	34	2 61
Sept.	51	46	24	1 62	37	1 55	2 54	1 25	3 59	1 52
Oct.	5 39	41	1 33	2 49	48	1 53	3 46	2 34	1 49	
Nov.	31	1 34	38	37	2 43	3 20	2 37	20	1 30	
Dec.	1 29	38	25	1 72	1 27	1 24	26	21	1 31	
Total.	8 ¹ 182	8 572	11 525	12 671	6 616	10 679	26 638	11 325	13 461	6 385

There are 5054 General patients Of those, 111 were Bronchocelalous, and of the latter, six were males.

The ages I have arranged under three divisions:—First, under 12; second, above, but including 12; and the third all above, but including 20.

FIRST GROUP.		SECOND GROUP.		THIRD GROUP.	
Years of age.	Cases.	Years of age.	Cases.	Years of age.	Cases.
1	0	12	3	20	8
2	0	13	3	21	3
3	0	14	11	22	5
4	2	15	6	23	3
5	2	16	3	24	2
6	0	17	13	25	2
7	3	18	8	26	1
8	1*	19	6	28	2
9	1			29	2
10	2			30	5
11	2			31	1
				34	1
				36	1
				40	2
				42, 44, 45, } 46, 50, 60, } & 62 each }	1
Total.	13		53		45

* This was a congenital case—the mother was Bronchocelalous.

From the above it will be seen that the statement made at p. 26 was correct, so far at least as the present table leads us. The cases were not noted down, at the time when seen by Dr. Paley, with any view of giving them publicity, so that, the ages when the patients were first attacked are not specified, it applies merely to the time of application. We may infer, however, that the first ten years of life are comparatively exempt from the disease, and that the second ten are most subject to it; as out of one hundred and eleven cases, only eleven appear during the first ten; sixty-three during the second; and twenty-five in the following; the fourth ten years present five cases; the succeeding, four; and from the ages of fifty to sixty-two only two cases are found.

The ages of the males on application were seventeen, twenty, fourteen, seventeen, fifteen, and fourteen.

The following Table is one formed solely from the books of the Physician of the Ripon Public Dispensary, and does not take cognizance of the patients admitted under the Surgeons.

The Institution was established in March 1835, consequently the period for observation is brief, yet there are a sufficient number of cases to admit of our drawing inferences.

Table of Patients seen at the Ripon Public Dispensary

	1835		1836		1837	
January			1	26		35
Feb.				22		40
March	2	53	1	30		37
April		26		22		33
May		18		30	2	45
June		20		37	1	47
July	2	28		24		40
August		22	1	21		32
Sept.		25		26	3	33
October		11		21		33
Nov.		21		22	2	42
Dec.		11	2	20	2	40
Total.	4	235	5	301	10	457

Total amount of General Patients, 993.

Total amount of Bronchocelatous Cases, 19.

Out of those 19 affected with Goitre, 2 were males. The proportion of Bronchocelatous cases being accordingly to the whole, in the ratio of nearly 2 per cent; and that of the males to females about 12.

The ages of the Bronchocelatous cases I have arranged as in the former Table :—First, those under 12; second, those who have applied from the age of 12 to 20; third, all above, but including 20.

FIRST GROUP.		SECOND GROUP.		THIRD GROUP.	
Years of age.	Cases.	Years of age.	Cases.	Years of age.	Cases.
1	0	12	1	20	0
2	0	13	1	21	2
3	0	14	1	23	1
4	0	15	2	25	1
5	0	16	4	30	2
6	0	17	1	35	1
7	1	18	0		
8	0	19	1		
9	0				
10	0				
11	0				
Total.	1		11		7

Out of these nineteen cases, the first ten years of life presents us only with one case; the second ten, with eleven; the third ten, with six; and from the ages of thirty to thirty-five we find only one case. The ages of the males were seventeen and twenty-one.

The next table is one containing a numeric list of Patients taken from the printed Reports of the Halifax General Dispensary, comprising a period of twenty-two years.

<i>Number of General Cases.</i>	<i>Number of Bronchocelalous.</i>
in 1810 were 1140	 6
1812 1376	 3
1813 1455	 3
1814 1378	 1
1815 1380	 4
1816 1417	 4
1817 1798	 5
1818 1840	 5
1819 2634	 5
1821 2947	 24
1822 2472	 18
1824 2960	 14
1826 3763	 24
1827 3907	 18
1828 3852	 15
1829 3450	 8
1830 3836	 32
1831 4344	 11
1832 4062	 6
1833 4054	 11
1834 4314	 15
1835 3849	 10
General Cases <u>62228</u>	Bronchocelalous <u>242</u>

The ages of the Goitrous patients in the preceeding table could not be obtained, nor the proportion of males to females affected; this, however, must have been very small, since, as as before observed, in a Medical experience of twenty years, Dr. Paley did not recollect of seeing an instance of the disease in a male.

The number of Goitrous cases, however to the whole, will be found to be in the ratio of rather more than one third per cent, which ratio is far inferior to that of either of the former tables. Halifax therefore appears to be less favourable than Ripon and its vicinity to the production of Goitre. A small rivulet running through the lower part of Halifax divides it, as it were, into two unequal portions, at least nine tenths of the town is situated to the west of this brook; the water used by the inhabitants is all soft enough to wash with, and neither coal, nor lime, is to be found on this side for many miles. But on crossing the stream to the East, the water is harder, and traces of coal are almost immediately discovered, and within six miles are found, in abundance, both coal and the magnesian limestone. It would be interesting to know, whether the Goitrous cases admitted into the Dispensary, came principally from the town itself, or, from the districts to the East of the above mentioned rivulet.

Being anxious to obtain all the information I could on the subject of Goitre, I transmitted into various districts the following queries.

First.—Does Goitre prevail in or near * * *?

Second.—If so, what are the characteristic features of the infected districts? (As to their Geological formations, altitude, humidity, &c.)

Third.—Is there much wood, plantations, or vegetable matter in the neighbourhood?

Fourth.—What is the popular opinion as to the cause?

Fifth.—What is your opinion?

Sixth.—Does the water used, deposit on boiling, any sediment? (Is it hard or soft?)

Seventh.—What may be about the age at which Goitre appears to you *first* to attack the patients?

Eighth.—Has irregularity in the Catamenial period any influence on the disease?

Ninth.—Should there be a Dispensary or Infirmary, could you send me the printed annual Reports, i. e. if they contain a numerical list of the various diseases admitted each year, by which may be seen the proportional number of Goitrous cases to the whole. If no such Reports exist, could you draw out a table from your own practice, so as to enable me to form some idea of the proportion of Bronchoceles to other diseases, and of the proportion of males to females affected?

Answer of W^M. CLARKE, Esq., Surgeon,
at Ackworth.

“Goitre prevails to a great extent in Ackworth, but not so much at Pontefract.”

“Ackworth is situated at the extremity of the coal district on the West, and on the East it is bounded by the limestone. The atmosphere is rather dry. The altitude varies from 700 to 1000 feet above the level of the sea.”

“The cause by some is attributed to the water, by others as being hereditary.”

“The water deposits, on boiling, much sediment. In different parts of the village there are both soft and hard springs. The complaint prevails most in Low Ackworth, where there are mineral springs.”

“We have not any great extent of wood in the neighbourhood.”

“In Ackworth School the number of males to females is, I should say, about one to five. The children are not admitted until nine years of age, and the disease generally commences about a year afterwards. It prevails much more in the summer than in the winter. In private practice I find the most cases after twelve years of age. I do not observe that the Catamenial changes make any difference in the disease, except in young females.”

Subjoined is a table of cases admitted to the Pontefract Dispensary, from the year 1831 to 1838.

<i>General Patients.</i>		<i>Bronchoceles.</i>	<i>Females.</i>	<i>Males.</i>
From 1831 to 1832	786	.. 10 ..	.. 10 ..	.. 0
—32 .. —33	616	.. 13 ..	.. 13 ..	.. 0
—33 .. —34	522	.. 3 ..	.. 3 ..	.. 0
—34 .. —35	490	.. 14 ..	.. 13 ..	.. 1
—35 .. —36	660	.. 7 ..	.. 6 ..	.. 1
—36 .. —37	553	.. 10 ..	.. 10 ..	.. 0
—37 .. —38	610	.. 3 ..	.. 3 ..	.. 0
	4139	60	58	2

Extracts from the communication of THOMAS BENT, Esq., M. D., Senior Physician to the Derbyshire General Infirmary.

"No classification or tabular arrangement of the diseases treated in this Institution, I regret to say, has hitherto been preserved. Although the complaint in question has long been known by the name of "Derbyshire Neck," I have great doubts if it prevail more commonly in this county than in many others. I can speak from my own observation as to the northern parts of Staffordshire, where I had an opportunity of seeing the practice of a large Dispensary for some years. It is certainly more general among the population employed in the manufacture of earthenware in that district, than in the southern parts of Derbyshire; I have also reason to believe that Nottingham is not less infected with it. I have not data at hand, just now, sufficient to enable me to make an accurate comparison between the frequency of its occurrence in the Peak and mountainous parts, and those more immediately within the range of my own practice. With regard to the causes of this malady, which have been assigned, whether popularly or professionally, I am of opinion that no reliance can be placed in the truth of any of them. That snow-water, or hard, or calcareous water, or water impregnated with mineral substances is necessary to its production, I think there are numerous facts to contradict."

"The same may be said as to poverty and the eating of oaten cake; and the notion that it has its origin in irregularity or disturbance of the uterine function, is not, in my opinion, more consistent with the facts presented to our observation."

"That Goitre occurs more frequently about the age of puberty in females, I regard as pretty certain; but the energies of the constitution, being employed in giving development to the sexual function at that period, occasions the system not unfrequently to be deficient in tone and power—a state, I am disposed to believe, a necessary preliminary to the production of the complaint. That

it occurs in males as well as females, though in a much less proportion; and that children of seven or eight years of age are not exempt from it, as I can testify from my own experience, are circumstances affording ample demonstration that the disease occurs independently of causes directly connected with the uterine system."

"If I were compelled to assign a solitary cause for Goitre, I should be disposed to attribute it to a humid atmosphere rather than any other; but it is from the influence of such an exposure, in producing diminution of vital energy, that the effect arises; and if I might be permitted to state the result of my own experience, derived from pretty extensive opportunities of observation, I should say, that whatever enfeebles or lowers the tone of the system, occasions an aptitude to the disease. I think it is a fact, that persons of what is called a lax fibre, and manifestly a lymphatic temperament, are those who are most prone to it. Nevertheless, I am aware that many instances occur, in which those of other temperaments fall under it. But such exceptions are common enough in other disorders, as in the case of scrofula, which afflicts the sanguine and phlegmatic for the most part; but which is often met with in those differently constituted. I am fully aware how very imperfect the information is, which it is now in my power to give, and how far short of that you seek."

"I feel very unwilling to send you any statements, the perfect accuracy of which I cannot vouch for, and prefer acknowledging my want of sufficient data, rather than return to your inquiries such answers as might be, in some degree, conjectural."

Extracts from the letter of NATHANIEL RUMSEY,
Esq., Surgeon in Buckingham.

"Goitre may be said to be very prevalent; but not equally in all towns, hamlets, or residences."

"Our country is varied by hill and dale, the hills not rising

higher than to give a pleasing character without boldness—in descending to the valleys you find the soil chalk, after you get, say one third down the hills, generally—the valleys have small mill-streams—there is a pleasing quantity of wood-land, chiefly beech and oak—the wood-land lessened within the last thirty years. The soil *on the hills* is *gravelly overlaying clay*, in general ; so that the hills are supplied with land-springs, the wells not being more than twelve to fourteen feet deep, and not reaching the chalk—chalk is to be found under every locality, if sought for deep enough. There is *dampness of soil* on the hills, on account of the springs, i. e., on account of their being covered with clay—the *soil* in the valleys is *dryer* ; in the latter, houses have cellars, in the former they cannot have—in the valleys the *atmosphere* is more humid, on the hills dryer—the valleys in the winter months are less ventilated, and having streams, are more foggy and damp—the hills are foggy too, but less so.”

“Regarding the cause there is no prevalent opinion, seeming to be derived from ancient or popular observation. I believe Goitre to be produced by the water, which, in the valleys, deposits much white sediment on boiling, forming incrustations on the kettles, I believe this to be chiefly sulphate and muriate of lime ; but not merely these. On the hills, the sediment is browner, but still is calcareous ; it effervesces strongly with sulphuric acid—the water is bad for washing, it chaps the hands ; on the addition of oxalate of ammonia to it, a good deal of lime is thrown down.”

“The country around, although well peopled, is nevertheless wooded to a considerable extent ; the leaves are allowed to collect from year to year and pass into decay.”

“The Goitre is in most cases trifling, and remedies are not often sought—many cases, however, are very serious and very large—I have seen a slight idiotical tendency with it, in two or three instances.”

“I cannot say how many cases I have seen ; but I have thought in the affected valleys, I could see a degree of enlargement so fre-

quently, as to have said it might be distinguished in every sixth (female); this is a rough guess. I should conjecture that there might be forty females to one male, having Goitre—but I have seen very bad cases in males—I have seen it *congenital once*, the mother having it.

“I find that the localities which favour Goitre are productive of other diseases, and give modification to disease; they are fertile in producing phthisis, and painful and scanty menstruation; in short, have a tendency to produce cachexia in general. The towns which surround me are for the most part in the valleys, and are full of Goitre; the valleys seem to run in all directions. Beaconsfield is situated on a hill, and is free from the disease; two young ladies who had left, and gone into neighbouring towns, have returned with it. It has been known to abate in persons previously affected, who have come to Beaconsfield. A young woman in an affected town, having a large one, was put upon the use of rain-water, and lost it; she has for fifteen years used rain-water and the Goitre has never returned.”

A well situated in a Goitrous spot, { Carbonate of Lime, and
near Penn, contains in its water . . { Sulphate of Lime,

Another Goitrous village called Penn { Muriate of Lime,
contains in its waters { Muriate of Magnesia,
A trace of Iron, and
Silicious Earths.

An analysis of the Coleshill water could not be obtained.

Beaconsfield a non-Goitrous district { Sulphate of Lime,
has been found to contain in its { Muriate of Lime,
waters { Muriate of Magnesia,
and Silicious Earths.

“Why Beaconsfield should be exempt, whilst Coleshill and Penn, two other hilly villages alike in soil and elevation, are liable to the disease, is a matter of difficult solution, if soil and water are the cause. They are all on the summits of hills—they are on stiff gravel overlaying clay, the chalk being underneath.

The chalk can have no influence because the springs are above it, and no wells pass through the clay. The lime in these waters is not derived from the beds of chalk—I cannot answer your question whether the impregnation is equally great in all."

"It should be observed that the soil differs often at different parts of the same neighbourhood. I am acquainted with a family, living in a solitary cottage under a wood, who have been liable to Goitre. Their well, situated one hundred yards from the house, throws down no cloud whatever when tested with oxalate of ammonia."

"Many slight cases are seen in children under twelve—I should say they are most numerous from twelve to twenty-five—the worst and largest are at later periods." * * * * *

Extracts from the communication of J. BRIGGS, Esquire, Surgeon to the London Public Dispensary, Lincolns' Inn.

"The enteries for the last twelve years at the Dispensary have been carefully examined, with reference to your enquiry, and the following is the result."

In 1825,	August,	1	Case of Bronchocele.
1827,	September,	1	" "
1828,	May,	2	" "
1831,	June,	1	" "
1833,	July,	1	" "
1834,		1	" "
1835,	June,	1	" "
1836,		1	" "
		9	

"The case in 1833 occurred in a middle-aged woman, it was of many years standing, and the tumor contained fluid. It was punctured, and a fine silk thread passed through a portion of the cyst: the tumor ultimately vanished altogether."

"Now, as our enteries amount to about 5000 annually, the

proportion of Goitre to that of all other complaints is exceedingly small, in London ; and of those that do occur, I am inclined to believe that the greater part of them are not indigenous, but come from a distance, so that the disease may be scarcely said to exist here. I am told that the disease is very common about Ryegate, a part of the country intersected by the large chalk hills which run eastward from Guilford, and possibly those, or similar mountainous districts, may be the cause of all that we see."

"The whole of the cases I have seen, to the best of my recollection, have been those of females, for I do not remember to have seen any thing similar to it in the male sex." * * * *

"I have a recollection of two or three cases in which the disease ended fatally, perhaps from the tumor bursting into the trachea ; they occurred in persons advanced in life. * * * My answers are of a negative kind, and go at least to show where the disease is not to be found. * * * * *

Extracts from the letter of C. JOHNSON, Esq., Surgeon at Lancaster.

"Goitre does not prevail in the neighbourhood of Lancaster. There is very little wood or plantation around. The town is supplied for culinary purposes entirely from wells and pumps : these springs percolate through crevices of freestone and beds of gravel ; it is rather hard, and the hardness is derived from muriate of soda in part, but principally from the sulphate and super carbonate of lime. From an analysis of the waters made twenty years ago, I found that the water on the high ground was invariably the hardest, whilst the softest water was mostly in the lowest parts of the town. There was one exception in the Market-street-pump ; its waters were the hardest, but this was derived especially from saline matter, which was continually draining through daily from the fish markets. Dr. Whalley allows me to say that he has not had four cases of Bronchocele during thirty years, in public and private practice together." * *

To these extracts I might add many others, did not the necessary limits of a Pamphlet prevent. I hope, therefore, that those Gentlemen who have favoured me with replies, will attribute the non-insertion of them to the proper cause—the want of room, and not *their* want of value.

Sufficient has been said to show that certain localities favour or produce, whilst others prevent or at least check the progress of Goitre; the letter of Mr. Rumsey sufficiently exemplifies this: we found by it, that two young ladies, free from the disease, went from Beaconsfield into a Goitrous district; that they soon after returned with Bronchocele; whilst a young woman, having Goitre, came from an infected district into Beaconsfield and the tumor subsided. London exhibits to us a wider field of exemption; at the London Public Dispensary we found that out of sixty thousand patients, only nine were Goitrous; and that those in all probability, were importations from the chalky hills of Surrey. The water used by the inhabitants is soft, the neighbouring soil consists of hills, of what is called “London clay,” of a blackish or bluish colour, and often exceeding five hundred feet in thickness. Passing from this soil into the chalk districts, as at Buckingham, we find the disease prevailing; or, going still further north, into the vicinity of the magnesian limestone, existing to such an extent, as to have

a name from that locality. From Nottingham the magnesian limestone ridge runs almost due north, and up along this course we have found the disease to prevail. Upon it, under my own immediate observation, are the towns of Knaresbro', Boro'bridge, Ripon, Masham, and Bedale, with a number of smaller villages.

At Knaresbro', on the banks of the Nidd, are situated two Flax Mills, and as each contains a considerable number of girls, generally, (if not natives) residents of some standing, there is a good opportunity of examining the state of the disease. Mr. Powell, Surgeon, accompanied me to these Mills, when, on inspection, we found that in almost every one of these girls there was a tendency to Goitre, and that the tumor had appeared about the age of puberty. In many it had attained a considerable size, and in such, there was invariably some catamenial irregularity.

These girls all drink of the river water, which they informed me was soft; but this I doubted, in as much as its waters roll through immense tracks of the magnesian limestone on every side. Many instances of the disease are met with amongst the inhabitants of the town. The spring-water used by them is exceedingly hard; but on analyzing the river-water, and that from a spring in Park-row, considered the hardest, I found as much lime in the former as the latter. The earths pre-

sent, are magnesia and lime—the acids; muriatic, sulphuric, and carbonic.

Harrogate, although in the immediate vicinity, is exempt from the disease.

At Mickley, a village situated near Kirkby-Malzeard, on the banks of the Ure, Goitre exists to a considerable extent. Here, by the kindness of Mr. Weatherald, I had a similar opportunity of examining the girls employed at his Mill, and with a similar result. A little above the village is a Dropping-well, if not more beautiful in situation, at least no less powerful in its petrifying properties than the one at Knaresbro'. Its waters after trickling naturally over a mass of petrification, pour down into the river beneath. The girls employed at the Mill, and the inhabitants, take the water they use, either from the river, or from this clear hyper-carbonated spring. Both of course contain lime in great abundance.

At Boro'bridge, where there are only a few hundred inhabitants, Goitre prevails considerably.

Of Ripon I have previously spoken.

Before arriving at Bedale the magnesian limestone dips, to re-appear at Darlington. Mr. Buckle, however, informs me that even at Bedale a great number of cases present themselves to him.

If now we pass off from the influence of this ridge of limestone, we shall find the disease to diminish;

thus, to the east of it, as at York, I am informed by Dr. Simpson, that he scarcely recollects of a case having been admitted on the books of the Dispensary. I should say, a similar inaptitude to the disease will be found to exist in Stokesley, Northallerton, Thirsk, and perhaps Easingwold and Wetherby. Then, if we pass westward from this ridge, we find an exemption, but not to so great an extent; for on this side we have interspersed, immense projections of the mountain limestone. As we proceed further west, towards the sea, we then lose Goitre altogether, as is shown by the letter of Mr. Johnson of Lancaster.

Dr. Leake supposed that the cold damp air might, by some mode of action, be the cause of Goitre; as it generally, he says, appears in winter, and rarely in the warm dry climates of Italy and Portugal.* The Italian writers on Goitre have disproved the latter assertion; and we find, by Mr. Clarke's letter, that at Ackworth "it prevails much more in summer than in winter."

Dr. Bent confirms the statement I have formerly made, "that Goitre occurs more frequently about the age of puberty." Why this should be the case, has been previously considered. He appears inclined to attribute a humid atmosphere to be the cause of Goitre, by enfeebling or lowering the tone of the system. In London, however,

* Cooper's Surgical Dict., p. 239. (1825.)

where the atmosphere is humid enough, and the systems of at least one half of the population are at as low an ebb as possible, we have nothing of Goitre; and in the lower parts of Edinburgh, where filth and misery are combined, the disease is almost unknown. In the neighbourhood of Ripon, where there are no humid valleys, nor any extent of poverty and its consequences, we have Goitre to a very great degree; we see it in the upper ranks of society, and we find it in the lower. It is to be found sometimes in those of a scrophulous diathesis, but oftener in those whose constitutions have not the slightest strumous taint; so that, an enfeebled state of the system, whether hereditary, or brought on in the individual, by some evident causes, can only *predispose* to Goitre; which latter is the consequence of some local agent, acting on the healthy, as well as on the diseased.

TREATMENT.

FOR the cure of Goitre, the treatment which naturally suggests itself, is the stimulation of the absorbents in the part, in order that the absorption may exceed the secretion, and thus the tumor be lessened. This for a long time was effected in a greater or lesser degree, by the application of stimulants to the gland, and the internal use of those medicines, which, by their local action on morbid growths, or by their general action on the system, promoted the effect of the external applications.

It were needless long to remain examining the worth of the by-gone treatments; suffice it, that the increased local action caused by heat or cold; by friction, with or without stimulating lotions, embrocations, or ointments; by setons, blisters, or caustics; by electricity or galvanism, has been in many cases successful, in many the reverse, and in some even fatal. Where death has been the result, it appears to have been caused by the hyper-inflammation brought on by the caustics, or the seton, followed by extensive sloughing and hæmorrhage; Dr. Hedanus has

seen tetanus follow the use of the seton, and terminate fatally.*

Generally, in combination with one or more of these local remedies, burnt sponge, the favorite internal medicine, used to be exhibited. It was given in doses of from one to two scruples twice or thrice a-day, made into a lozenge with pumice-stone and syrup, which was to be kept under the tongue until dissolved. The treatment commenced with an emetic at the full of the moon, then the burnt sponge, and afterwards purges of calomel. (For a further account of this treatment, called the "Coventry practice," see Dr. Parr's Med. Dict., vol. 1, 1809.)

We now enter upon a period when chemistry bestowed upon medicine one of her greatest boons. Towards the end of the year 1811, Mons. Courtois of Paris, had the honour of discovering the substance called Iodine.†

As at the first,‡ the names of Gay Lussac and Sir Humphrey Davy were found in opposition, regarding the discovery of some of the chemical properties of Iodine; so three competitors are now in the field, each claiming priority in the discovery of its medicinal virtues.

* Flajani Collez. d' observ., t. iii., p. 283. Alibert Nosol. Nat., t. i., p. 466. Medico. Chirurg. Transact., vol ii., p. 235.

† Annales de Chimie, vol. lxxxviii., p. 304.—vol. xci., p. 118.

‡ Annales de Chimie, vol. xci., p. 121.—vol. lxxxviii., p. 311. Le Moniteur du 12 Decembre, and Nicholson's Journal, No. clxxxix, p. 69.

To Dr. Coindet, of Geneva, we owe most of what we now possess regarding Goitre. In 1820 he read a communication to the Helvetian Society of Natural Sciences, announcing his treatment of the disease by Iodine. This mode of practice he was led to, from observing that the *fucus vesiculosus* was recommended by Russel in the cure of Goitre, and he knew that this *fucus* yielded Iodine, he therefore inferred, that as both the well known remedy sponge, and this *fucus* were of marine origin, they might owe their properties to the same substance.

A communication however of Dr. Straub, dated December, 1819, appeared in Prof. Meisner's Periodical, in February, 1820, five months before Dr. Coindet read the paper above alluded to. In it, Dr. J. C. Straub, of the Canton of Berne, states that from the similarity of smell between Iodine, burnt sponge, and other marine productions, he was led to suspect its presence in them; and from the fact, that certain compounds had been substituted for burnt sponge in Goitre, without success, he concluded that the absence of Iodine in them was the cause of failure. This conjecture of his seems to have been made previous to 1819, and at that time confirmed by his actually obtaining Iodine from the sponge. Fearing the poisonous nature of Iodine from the statements of Orfila, he first recommended its salts, and subsequently the substance itself.

On reading the Eighth Bridgewater Treatise, by Dr. Prout, at page 100 will be found the following note: "It may not be amiss to notice that the author of the present volume *first* employed the hydriodate of potassa, as a remedy in Goitre, in the year 1816, after having previously ascertained, by experiments upon himself, that it was not poisonous, in small doses as had been represented. Sometime before the period stated, this substance had been found in certain marine productions, and it struck the author that burnt sponge (a well known remedy in Goitre) might owe its properties to the presence of Iodine, and this was his motive for making the trial." "The above employment of the compounds of Iodine, in medicine, was made no secret of at the time; and so early as 1819 the remedy was adopted at St. Thomas' Hospital, by Dr. Elliotson, at the author's suggestion."

From this it would appear, that although in the first instance a Foreigner, before our Countryman Sir H. Davy, must be allowed, in justice, to have the honour of discovering some of the chief chemical features of Iodine, in the latter, England has the priority in the discovery of its medicinal qualities. Nevertheless, all the three may have equal merit, priority detracting nothing from originality: similar instances of synchronous discoveries are presented to us every now and then in

science. Candour, however, ought always to be observed, and I think Dr. Prout might, at least, have introduced the names of Dr. Coindet, and Dr. Straub.

I mentioned before (page 21) that certain localities may be exempt from Goitre, whilst the supposed cause is present, i. e., we may have two or more places, in all of which we know the supposed cause to exist, and yet the disease only to prevail in one. From this, however, we are not to infer that the substance abounding is not the cause, for as stated previously, Nature may have mingled the remedy with the cause of the evil, so as to counteract its influence on the system. For instance, Iodine itself, this almost specific remedy in Goitre, (although of marine origin) may be found existing in places far removed from the sea's vicinity. It is found in innumerable mineral springs, diffused apparently without partiality for any clime.* In the mineral kingdom it has been found combined with silver, at Albaradon, near Zacatecas, in Mexico.

The fact of its being found combined with silver and other metals may, I think, be readily explained by those natural convulsions, which, ele-

* Thompson's Anal. of Phil., vol. xii., p. 390. Phil. Mag., vol. vii., p. 10.—Vol. viii., p. 61. An. de Chimie et de Ph., vol xxviii., p. 221.—Vol. xxix., p. 99. Traité de Chimie par J. J. Berzelius, Paris, 1829, p. p. 297—306.

vating continents from the bottom of the sea, caused the removal with them of those marine productions in which Iodine exists; or, by the depressing of them caused their inundation by the ocean, and we may suppose, that on some subsequent recession of the waters, they left behind them as everlasting memorials, not only the innumerable traces of the inhabitants of the deep, so often found, but also the sea-weed, which, wrenched from their fastenings, floated on the surface, or adhered to the rocks beneath. During the lapse of time, these fuci would undergo (especially if combined with animal matter) putrefactive decomposition, and sulphuretted hydrogen being generated, the liberated Iodine, from the strong attractive energies which exist between it and silver, would combine with the latter, and thus explain the formation of the Iodo-argentine mineral described by Berzelius. If silver were not present, the Iodine would combine with any other metal—metallic oxide, alkali or earth—and the subsequent percolating of waters over it, would cause their impregnation with it, and thus we might explain the origin of all those mineral springs in which Iodine is found. The presence of Bromine in these springs admits of a similar explanation.

In the waters of Harrogate we have an instance of a mineral spring containing both Iodine and

Bromine, and we have here too, as stated before, an instance of a district exempt from Goitre, although it is found existing to a great extent all around. On enquiring of Mr. Richardson, who, for many years, has been Consulting Surgeon to the Harrogate Hospital, I found that he did not recollect a case having ever come under his observation at Harrogate.

From the time that Iodine was first introduced into medicine, to the present day, it has been rising in the estimation of the Profession. Its compounds are increasing in the remedial tables, and the irrefutable results of their exhibition are carrying before them the barriers of old and ill-founded prejudices, which too long have retarded their progress.

After its introduction into Geneva, Iodine was looked upon as a specific remedy for Goitre; its powerful action upon the human frame had not yet become known—its virtues alone were lauded on every side, from the highest to the most humble inhabitant of Geneva—its fame flew far and fast; all heedless, seemed eager to experience its salutary effects, and familiarity with the remedy begat too great liberality in its use, the consequences of which were speedily apparent. It is only necessary to read the graphic description given by Dr. Gairdner, of the horrific scenes he witnessed at Geneva, consequent on the lavish abuse of this

remedy, to refute for ever the assertions of those, who, from a narrow experience, maintain that Iodine is inert.

Instead of being inactive, it is one of the most powerful agents we possess; exciting the absorbents to a fearful activity, and making an impression on the nervous, sanguineous, and muscular systems, with a celerity, which unless witnessed is almost incredible. So great indeed were its ravages in the Pays de Vaud, that its sale was prohibited by the Government of that Canton.

Whilst the abuse of Iodine does much mischief to the general system, its administration in proper seasons, in fit doses, and in an appropriate form, seems admirably adapted for the cure of Bronchocele, and other glandular diseases. In Switzerland and those countries where Idiocy is combined with Goitre, the individuals affected are those of a lax fibre, or scrophulous diathesis; and in England, as was remarked before, our patients are generally females, and the worst cases occur in those of amenorrhœal tendency; in such a state of the system, tonics are indicated. Now Iodine besides producing, (if I may use the term) its specific influence on the Thyroid, is most highly beneficial as a tonic. After its exhibition, the patient feels revived and invigorated, his long lost appetite returns, and he relishes what he eats; this not only improves the digestive organs, but

also enables us to strengthen the general constitution by wholesome nourishment, so much to be desired in such patients. Besides by it, every channel of the body is opened; its action on the kidneys is well ascertained, and its cathartic influence is equally admitted.* In some patients it produces remarkable salivation, whilst its particular action upon the absorbing system, renders it so admirably adapted for the removal of Bronchocele.

The external application of Iodine is no less remarkable than its internal administration. Lugol says, "it is not exaggerating to say that Iodine changes the appearance of scrophulous ulcers, sometimes more quickly than mercury modifies that of syphilitic sores." It is remarkable that those who deprecate Iodine most, are those who have tried it least; they say that it induces emaciation, and destroys the fulness of the female form; that it causes Hæmoptysis; inflammation of the gullet; Gastro-Enteritis, &c., &c. But what medicine is there that may not become injurious by its abuse? There is indeed no medicine capable of doing much good, which is not capable also of doing much harm.

What, however, do those, who have had most experience in the use of Iodine, say regarding it?

* Lugol on Iodine in Scrophula, (translat.) p. 19;—and Observations on the Ioduret of Iron, by A. T. Thomson, p. 19.

Lugol who was awarded, by the Institute of France, 6000 francs, as some recompence for his researches, remarks, that "far from being hurtful, it is a powerful stimulant which revives the organic functions, fortifies the general constitution, and encourages the growth and increase of size. His general results are "first.—That thin females have attained a state of embonpoint. Second.—That corpulent women have not become emaciated. Third.—That those not belonging to either of the preceding heads have lost nothing of their middle state, but have gained increased strength and improved health." And further, "so far from Iodine producing thoraci disease, we have known several patients, in whom the disease partially involved the pulmonary organs, and in whom the affection of the lungs was much improved under the Iodine treatment, as well as the ophthalmia; coryza, tubercles, and other external symptoms."

* * * "Iodine does not produce Pulmonary tubercles, Hæmoptysis, nor other accidents apprehended by certain Practitioners."

About twelve years ago there appeared a work of considerable interest, with little ostentation, entitled "Medical researches on the effects of Iodine, in Bronchocele, Paralysis, Scrophula, &c." Dr. Manson's extensive practice and observation, fully justified him in making public these excellent "researches," and show that those,

who vociferate most against the use of Iodine, are those who affect a knowledge of what, in reality, they know nothing.

Iodine being now admitted to be almost a specific in Goitre, I shall have only to make a few remarks with regard to the mode of its administration in the disease; and terminate this Treatise with some observations on that state of the system induced by an abuse of the remedy, which may not inappropriately be termed Iodism—a condition nearly allied to mercurial erethism.

Either Iodine itself, or its Salts may be used in the treatment of Goitre. It is soluble in alcohol or ether, but sparingly so in water; water only taking up about a seven thousandth part of Iodine.* By addition of a salt, especially the nitrate of ammonia, water becomes a much better solvent of it, without the decomposition of the salt. Alcohol has, however, been the most common vehicle of its administration. The tincture recommended by Dr. Coindet, of Geneva, consisted of $\mathfrak{z}\text{i}$ of Iodine to $\mathfrak{z}\text{i}$ of alcohol. Dr. Manson's tincture of $\mathfrak{z}\text{i}$ of Iodine to $\mathfrak{z}\text{ii}$ of alcohol (sp. gr. 916.).

From an improper use of this form of the medicine, I believe it is, that Iodine ever came into discredit; thus, if the tincture of the strength

* Gay Lussac, *Annales de Chimie*, vol. xci., p. 7.

recommended by Coindet were used in any quantity, the result would be, a deposition of pure Iodine upon the mucous membrane of the stomach, on account of the affinity which exists between alcohol and water. Nor would the evil stop here. Iodine has a great affinity for hydrogen; so that, whenever it comes in contact with either vegetable or animal matter, it decomposes it, taking its hydrogen to form hydriodic acid: the mucous membrane of the stomach would therefore suffer, which dissection proves really to take place after death, by poisoning with Iodine; there being always found, as Orfila has shown, ulcerations on the mucous membrane of the stomach and intestines. If the dose of the tincture were not sufficient to cause this destruction of parts, the irritation would, nevertheless, be considerable, and no doubt injurious; and the system would exhibit the symptoms of intestinal irritation.

On this account I prefer, even to the weakest tincture, an aqueous solution, either of the hydriodate of potassa, the hydriodate of iron, or of Iodine, rendered more soluble by the presence of a salt, such as the nitrate of ammonia, the hydrochlorate of soda, or the hydriodate of potassa.

Lugol exhibited Iodine with the hydrochlorate of soda in aqueous solution. This he termed "Ioduretted Mineral Water;" and, making it of three strengths, he commenced his treatment with the weakest. His "concentrated solution" con-

sisted of Iodine ʒi , hydriodate of potassa ʒii , distilled water ʒviij . The dose of this for adults was $\text{g}^{\text{tt}} \text{vj}$. twice a day, to be increased every week $\text{g}^{\text{tt}} \text{ii}$. daily, until xxxiv . be taken. For children under seven years of age, $\text{g}^{\text{tt}} \text{ii}$. at first, to be increased gradually to xxx . daily.

Dr. Gairdner used the simple solution of the hydriodate of potassa, in the proportion of ʒss . of the salt to ʒi . of distilled water:—dose, $\text{g}^{\text{tt}} \text{x}$. thrice a day in mint water.

I myself prefer the Ioduret of Iron *, because, as Dr. A. T. Thomson says, in his valuable pamphlet regarding this preparation, “There is much reason for supposing that the hydriodate of iron is decomposed in the system, and the protoxide of iron, and the alkaline hydriodate which result, exert their separate influence on the nervous and the vascular organs; the former operating as a tonic on the vital solid, and the latter as a powerful stimulant to the capillary system.”

His formula for its administration is—

R Ferri Iodureti, grs. iii .

Aq. distillatæ, ʒxi .

Aurantiaë Tincturæ, ʒi .—*M.* ut fiat haustus ter die sumendus.

* Preparation of the Solution of the Ioduret of Iron:—Take of Iodine grs. 190, chips of clean iron wire grs. 100, distilled water f. ʒvi . Boil (at first slowly, afterwards briskly) in a narrow necked matrass, till the solution lose its brown colour. Filter when hot, covering the funnel. Dilute the solution to f. ʒvi . with boiling distilled water, and cork it up in darkened, well stoppered phials, each containing a fragment of iron wire. Gr. i. of the Ioduret is present in gtt. x . of the solution.—*Christison*.

It was stated formerly, that in our Goitrous patients we found generally some catamenial irregularity, more particularly amenorrhœa. Now I have found that when the tinctures of cantharides and of the muriate of Iron failed to induce the natural secretion, the Ioduret of Iron often succeeded; its use is therefore peculiarly indicated in Bronchocele. The manner in which I generally prescribe it is as follows.

R Ioduret. Ferri, ℥ss.
Hydriodatis Potas., ʒi.
Aq. distillat., ℥iss., solve.

Capiat g^{tt}. xx. ter die ex aqua.

It is a useful precaution to introduce into the phial, containing the solution, a small coil of pure iron wire, in order to prevent the decomposition of the Ioduret. The Ioduret of the shops is, for the most part, impure, and the medicine is no longer to be depended on as a medicinal agent. The colour of the solution ought to be of a pale greenish yellow. On solution should there be a brown rust-coloured deposit, the Ioduret has undergone decomposition; this may take place from the action of light, it is therefore necessary to keep both the solid Ioduret, and its solution, (which is then a hydriodate) in darkened bottles. I should recommend every Physician, or General Practitioner, who may have to prescribe the Io-

duret, to have it made under his own immediate inspection.

M. Lugol confirmed, by innumerable experiments, the beneficial effects of Iodine in all scrophulous diseases; and Dr. Thomson has proved the utility of the Ioduret of Iron in "all diseases connected with, or depending on, general debility, and more especially with an atonic condition of the capillary system."

Of all the compounds of Iodine now in use for the preparation of ointments, the hydriodate of potassa (Ioduret of potassuim); the Ioduret of lead; and the Ioduret of mercury, are the principal. All of them *may* be used in the treatment of Goitre; but an ointment of hydriodate of potassa ʒss , Iodine ʒi , axunge ʒi , will be found to answer every purpose.

Should the Bronchocele be of short duration, soft, and small, it is only necessary to use the solution of the Ioduret of Iron internally; but on the contrary, if the tumor be of long standing, hard, and large, then we may employ the ointment, of which, a portion about the size of a nut is to be rubbed into the enlarged gland, twice or thrice a day.

Should the indurated Bronchocele resist this treatment, I have seen decided benefit arise from the application of half a dozen leeches to it, repeating the leeching three or four times, at intervals of four or five days; then administer the

solution, and after the wounds caused by the leeches have healed, apply the ointment. Should still no abatement in the size of the tumor take place, at the end of three weeks, stop the remedies for a short time, and put on a blister, when, in a fortnight the medicines must be resumed.

In obstinate cases, electricity has often been known to have a decided effect in stimulating the gland to activity, and assisting the action of the Ioduret of Iron.

The yellow Iodide of lead has long been recommended as a remedial agent in scrophulous enlargements, and ulcerations; but I am informed by Mr. Bruce, of this city, that he has employed, with much greater benefit, the white Iodide of lead;* the proportion in which he uses it is from $\frac{1}{2}$ to $\frac{2}{3}$ of the Iodide, to $\frac{1}{3}$ of axunge.

Of the Iodides of mercury, the biniodide is the one most used in medicine. An objection to both it, and the Iodide of lead, is that they are insoluble in water or alcohol, so that, if there be any benefit to be derived from these compounds, a simple ointment composed of axunge and these Iodides does not give it, the compound being insoluble, consequently undecomposed. The biniodide of mercury, however, may be made one of our most

* This white preparation I suppose to be a Protiodide: I formerly noticed it in the January Number of the Journal of Science, for 1836. (Third Series, vol. viii., No. 43., p. 19.)

efficient remedies, by being dissolved in excess of hydriodate of potassa; thus, take $\bar{\text{z}}\text{i}$ of the hydriodate of potassa and dissolve it in $\text{f. } \bar{\text{z}}\text{iss}$ of water, to this add $\bar{\text{z}}\text{i}$ of the red biniodide, and mix it intimately with $\bar{\text{z}}\text{iv}$ of axunge.—A white ointment results, of which it is only necessary to rub into the scrophulous tumor; or on the abdomen in *tabes mesenterica*; or over the site of the liver, when enlarged and indurated, a piece about the size of a large pea, night and morning. After doing this for three or four days the ointment is absorbed, vesications are found, and a better counter irritation established than could be effected by the common blister.

The same effects may be produced without using the pure biniodide, by an ointment composed of from $\bar{\text{z}}\text{i}$ to $\bar{\text{z}}\text{ii}$ of hydriodate of potassa, $\text{grs. } \text{xii}$ of the bichloride of mercury, and $\bar{\text{z}}\text{i}$ of axunge.

Should this ointment excite too great irritation it of course can be weakened, when it will be found very efficacious in enlargements of the liver, in ascites, &c.

The preparations of zinc have long been employed in the treatment of indolent ulcers, and ulcers of a scrophulous character. Some time ago I found the biniodide of mercury to be soluble in an aqueous solution of the hydriodate of zinc,*

* "Extracts from a Prize Essay on Iodine, by James Inglis, M. D."
Philosophical Magazine, third Series, No. 43, Jan., 1836.

and this solution, whilst it possesses all the properties of the salts of zinc, exhibits also the characteristic ones of Iodine and mercury; consequently its use is indicated in syphilitic ulcerations, and in that singular disease peculiar to the south of Scotland, called Sibbens.

Whilst I would thus advocate the use of Iodine and many of its preparations, I cannot conclude this Treatise without cautioning those who use it, of the effects produced by an abuse of the remedy.

When either from the injudicious use of Iodine, or from a difference in the purity of the Iodine, used at different times, or from the spontaneous decomposition of its medicinal compounds, that state of the system is induced which I have called Iodism; it is proper to be aware of its invasion, that measures may be taken to arrest the progress of such a tedious and wasting disease (for it is a disease). When once excited, twelve months have been known to pass by without any mitigation of the symptoms.—A slight trembling of the fingers, quivering of the eye-lids, and occasional subsultus tendinum, will first attract the attention of the watchful Physician; and if the medicine be not stopped by those timely symptoms, then there succeed, dimness of vision, indistinct hearing, fallacious taste, insomnia, breathlessness, palpitation, general nervous excitement, and more particularly a tremor over the whole body. There

is a spasmodic irritation of the stomach and bowels, incessant vomiting, attended with excruciating pain, and strong spasms of the voluntary muscles, the pulse becomes frequent, small and depressed, the eyes sunk and hollow, the countenance pale and cadaverous. The legs at first become swollen, but speedily emaciation succeeds, so much so, that in a short time the most robust and corpulent become reduced almost to a spectre. There accompanies this physical change, an alteration of the mind not less remarkable; it is an extreme anxiety, a mental depression which continues a very long time after the medicine has been discontinued; it is not the melancholy of hypochondriacism, for the present seems to absorb the whole attention, without the slightest reference to the future.

Such then are the effects of an overpushed course of Iodine. But in the exhibition of Iodine, the idiosyncrasy of the patient ought also to be considered, for the same dose that might be beneficial to one, might to another prove fatal. Magendie for instance, swallowed a spoonful of the tincture containing about a scruple of Iodine, without any bad effects ensuing, whilst a much less dose has been known to cause death in a few hours.

In the treatment of Iodism it is to opiates that at first we must trust, of which, the acetate and muriate of morphia have been found most useful. Bitters and astringents in the first, or choleric

stage, are hurtful, and purgatives are decidedly pernicious. The warm bath is of infinite use in allaying the general excitement, and ought never to be neglected. The patients should also be removed to airy situations, where diet and exercise will do more for them than medicine. Stimuli of all kinds should be avoided, and the food must be mild, sparing, and nutritious.

I have lately been trying the effect of the salts of Bromine, combined with the Iodine salts, in carcinomatous affections, but, as yet, have arrived at no decided conclusions. The hydrobromate of potassa must be used cautiously : I give from five to fifteen drops, three times a day, of a solution of hydrobromate of potassa $\mathfrak{v}$ i, distilled water $\mathfrak{z}$ i. This produces, at first, a peculiar sensation of cold and trembling about the stomach, and throughout the whole body, and its action on the bowels is gently aperient. The peculiar sensations produced by the hydrobromate may be completely prevented by the following tonic.

R Sulp. Quinin., $\mathfrak{v}$ i.

Acid Sulp. Aromat., $\mathfrak{z}$ iv.

Aq. Fontis, $\mathfrak{z}$ v. Fiat solutio ex qua quotidie
g^{tt}. viii. mane meridiæque capiat.

I have observed more than once, when my patients have been under Iodine treatment, that they have complained of a peculiar tingling sensation over the whole surface of the body, which was

especially remarkable over the cicatrix, or site of any old wound. One man had, many years previously, got one of his clavicles fractured, and the right tibia cut with an axe; and of both of these accidents he was reminded by this tingling pain at these once injured parts. When the sensations arising from the hydrobromate were present, he never felt any of those produced by the Iodine.

There is one other disease which I shall briefly notice as one likely to be greatly benefited by the use of Iodine. I allude to the Summer catarrhal asthma, or hay asthma, more commonly known by the name of *hay fever*. This disease attacks certain individuals generally between the months of June and September inclusive, and the severity of the attack is in proportion to the warmth and *brightness* of the season,—a bright, sunny day, exciting the symptoms to a much greater degree than a day that is dull, although it may be as hot, and even more sultry. The causes of the disease have been attributed to the pollen of flowers, hay, &c. The proximate cause, however, seems to be a morbid sensibility of the mucous membrane, which lines the nostrils and sinuses communicating with the nose, called the Schneiderian membrane. The mucous membrane of the eye participates in this irritability; and as this membrane communicates directly with the schneiderian, any increased irritation of the former by the sun's rays, would

soon be transmitted to the latter; and thus we see why a sunshiny day should be more injurious than one that is cloudy. The sense of irritation and tickling is so great, that I have known patients even awaked from sleep by the exertions used in rubbing the eyes. This irritability seems to increase with the duration of the attack, for when a person has for some years been subject to the complaint, it is not necessary that there should be much sun; tolerably warm weather, with the aid of *smells* of various kinds, will induce a paroxysm.

The disease does not appear to be hereditary, it generally commences early in life, increasing every season in severity. Any change of air to an inland situation does not mitigate the attacks; but almost immediately on approaching the *sea-coast* the symptoms vanish. A patient we shall suppose is recommended to try the sea air, he does so, and remains well for some time, at length on a bright and sunshiny day he ventures several miles into the country, and is attacked with a sense of constriction of the brain, especially about the frontal sinus, violent and incessant sneezing comes on him, accompanied by a very profuse watery discharge from the nostrils and eyes, and this is followed by difficulty of breathing, or asthma. Having taken, without effect, nauseating doses of Ipecacuanha, Antimony, &c.; Sulphate of Quinine, Gentian and other tonics, with innu-

merable antispasmodics and opiates, and knowing from experience his only chance of relief, he hastens to the shore, and whilst luxuriating amongst the fuci, and inhaling their grateful ordour, all his direful symptoms disappear. Here then is the first indication of the treatment of Hay fever by Iodine, Chlorine, or Bromine.

The sensations in the nostrils experienced by those liable to attacks of the disease on inhaling the fumes of Iodine confirm me, as it does themselves, that Iodine is a remedy which will be found to answer all the purposes of a sojourn at the sea-coast.

All the benefit derived from tonic medicines is to be had from the solution of the Ioduret of Iron; beginning with five drops, three times a day, gradually increasing the dose. The Iodine fumigations can readily be effected by dropping a small portion of it on a piece of hot iron; and for gentlemen, whose occupations may lead them into the fields, I would recommend that they constantly carried with them a small glass stoppered phial containing Iodine, in order that, when they felt any [approaching symptoms, they might have immediately the benefit of an artificial sea-breeze.

I have made these few remarks on Hay fever at present, in order that those labouring under it during the summer months may give Iodine a trial. Should the results of my own experience bear me

out, in what I have advanced, I shall not fail to make them public.

In now drawing to a close this treatise, I cannot do better than adjoin a short quotation from the termination of Dr. Gairdner's Essay on Iodine. He says, "the medicines which exert their action on particular textures or systems are very few indeed, and the few we possess are so uncertain in their operations, they are liable to such frequent failures, that sceptical physicians doubt of their efficacy altogether, and even of the efficacy of medicine. There is something peculiarly gratifying to their vanity in supposing themselves freed from the common errors, and above the credulity of the vulgar. Iodine, however, is not liable to the sneers of such narrow minds. It is a real heroic remedy—a true present from the science of medicine to mankind."

APPENDIX.

SINCE the preceding pages were written, I have had occasion to revisit Scotland; and my observations there lead me to confirm the statement I made at a former part of this Treatise; viz., that Goitre is, in the greater part of Scotland, if not altogether, almost unknown. To the north, in the shires of Sutherland, Ross, and Inverness, the disease is of so rare occurrence, that, during several years' practice, my friend, Dr. E. M'Kay, informed me that he had never seen a case of it, nor had one ever been admitted into the Great Northern Infirmary. Lime, to a considerable extent, exists in these counties; but, as in other parts of Scotland, it is the pure mountain, and not the magnesian limestone. To the north-east, in the shires of Elgin, Banff, Aberdeen, Forfar, and Perth, Goitre is also unknown. Throughout Lanarkshire and the Western Highlands, a case of the disease is seldom met with. Dr. Ritchie, of Glasgow, informed me, that in that town, and in a district of thirty miles to the west of it, one case of Goitre is not met with, probably in ten thousand patients. He himself, after a practice

of twenty-three years in these districts, and having the charge of a large dispensary in Glasgow, has only seen two cases of what at all approached to the resemblance of Goitre.

To the south of Scotland I can speak from personal experience: throughout the whole of Galloway, I think I only saw two cases of the disease. Dumfriesshire and Ayrshire are, I understand, equally free from it.

In Edinburgh, very few cases present themselves, either at the Infirmary or Dispensaries; and the few that do are isolated cases of Goitre, which come from various districts in Scotland, but from no one shire in particular. As there is much lime in the vicinity, I visited several of those places where it abounded most, with the view of ascertaining whether or not any credit could be given to the theory which holds that lime *alone* induces the disease.

I first went to the famous limestone quarry of Burdiehouse, where I examined several females, and all the boys and girls in the village school, but could discern no trace of Goitre. Here the village is close upon the quarry; and if lime could produce any effect on the thyroid gland, it has ample scope for exercising it.

I was informed by Dr. Marr, of Edinburgh, who had practised for some years at Pennicuick, that he had seen in that village about a dozen

cases of Goitre. He was kind enough to accompany me thither, and point out these cases to me. The first was a woman named Veitch, aged forty. Her's was a decided case of Goitre: the iodine had been used with only slight benefit. The hereditary nature of the disease was here strikingly illustrated. In one of her daughters, the Goitre had first made its appearance at seven years of age: it got to a very great size, the breathing was gradually affected, palpitations of the heart succeeded, and she died suddenly, in consequence, no doubt, of disease induced by this apparently trifling affection. Two other daughters have Goitrous necks, and one of her sons had also the disease. Besides these hereditary cases, I saw three others, one of which had attained a considerable size. I next visited the paper mills of Messrs. A. Cowan and Sons; but on examining the girls to the amount of one hundred, I found that in only one of them I could discover a very slight enlargement of the thyroid. The girls were, for the most part, natives of Pennicuick; many of them descendants, no doubt, of French parents, a detachment of French prisoners having been long stationed at Pennicuick. Almost all of them bore marks of their descent in their physical formation and features, exceeding in elegance any similar number of the same class of females I had ever seen, either in Scotland or

England. This circumstance ought not to be lost sight of, inasmuch as it may tend to explain the introduction of Goitre into Pennicuick, and its subsequent propagation. The village is situated within the range of the Pentland Hills: in its vicinity is abundance of the mountain limestone; viz., at Mount Lothian, Fullerton, and Burdiehouse. From what I have stated, Pennicuick cannot be said to be a Goitrous district, except speaking *relatively* with regard to the rest of Scotland.

I next proceeded to Lasswade, and examined a sufficient number of females at the mills of Mr. Brooks, to convince me that the disease did not prevail here. This opinion was confirmed by Dr. Smith, who, in a letter, expresses himself as follows:—"I have only seen about half a dozen cases of Bronchocele during the twenty years I have been in this place. * * * * All the cases of Goitre that I have seen were in females: none of them produced so much inconvenience as to impede respiration—the deformity being the cause of the patients applying to me. Leeches, and friction with iodine, was my general treatment. I remember being consulted by a poor woman, above the middle age, about ten years ago. The gland was at that time as large as an orange. She left this neighbourhood, and I heard nothing of her for several years. About five

years ago, she came here to show it to me, from the neighbourhood of Glasgow. It had increased to about three times the size it was when I had first seen it, and was covered with ulcers of a malignant character. I have heard that she died since from hæmorrhage from the parts. * * * *
We have no wraught lime nearer than Burdiehouse, but all our spring-water is impregnated with it. Your impression that Goitre prevailed in this locality may have arisen from having heard me mention a case of it, where a surgeon plunged his lancet into the tumour, and when I had much difficulty in stopping the hæmorrhage." As Lasswade is within four miles of Pennicuick, the few cases that occurred there might possibly be of the same foreign origin.

A great portion of the lime used in Edinburgh and in East Lothian, comes from Cousland, a village situated about four miles to the south of Musselburgh, and eight to the south-east of Edinburgh. I went there, and examined many of the families in the village, but could not discover any traces of Goitre: there were, however, in some of them, scrofulous enlargements of the sub-maxillary glands. Neither at Musselburgh could I find any cases of the disease; and Messrs. Sibbald, Sanderson, and More, informed me, that after many years' practice in these lime districts, they were satisfied that Goitre did not prevail, even to the smallest extent.

I next visited Dollar, a well-known town, situated at the base of a portion of that range of hills, distinguished by the name of Ochils. Passing from Stirling down along the foot of these hills, we find, nearly similarly situated, the towns of Alva, Tillicoultry, and Dollar. With regard to each of these I shall offer a few remarks.

Bencloch, the highest of the Ochil range, is situated on the north-east of the parish of Alva, extending partly into Tillicoultry: its height is 2400 feet above the level of the river Devon. Near the summit of Bencloch, at the bottom of a ridge of rock, snow may be seen in the month of June. The inhabitants of all the villages in the vicinity of the Ochils are supplied with water by mountain streamlets, which descend into the valleys, working their way through many deep and rocky glens, until they reach the Devon. The humidity of these hilly districts is very great, and the mists rise up so quickly, as often to bewilder the traveller. "At present, no diseases are peculiar to this spot, [Alva]; yet it is observed by medical men, that when any epidemic prevails in the east country, it generally visits Alva, bringing death and desolation in its train. * * * *

The stature of the people is considerably above the average; and certain families, long resident, exceed six feet in height, are strong, well proportioned, and have been remarkable for fine

physical organization during several centuries. Branches of these, however, show signs of degeneracy, from having intermarried too near relatives. * * * * Alva is distinguished from the surrounding country by the luxuriance of its forests and plantations. * * * * This parish is part of the great coal-field of Scotland which crosses the island diagonally from east to west.*” I saw Mr. Thomson, the author of these remarks, who informed me that he had never met with a case of Goitre, either at Alva or Tillicoultry. He, however, said that scrofulous diseases were exceedingly common, arising, as he supposed, from the continued intermarrying above alluded to.

At Dollar I called on Dr. Walker, who informed me of the existence of the disease there, although not to a great extent. The village is situated on the northern bank of the river Devon, at an elevation of 120 feet above the stream, and 200 above the Forth at Alloa. From its proximity to the Ochils, the climate is rather moist. The Ochil Hills are of the trap formation, contain neither limestone nor granite, but abundance of whinstone and porphyry. Lead mines have been wrought in the parish of Alva, about six

* “A Statistical Account of the Parish of Alva, Stirlingshire.” By J. B. Thomson, Surgeon,—pp. 4, 6, 14.

miles to the west of Dollar; and a considerable quantity of silver and cobalt was at one time obtained there. The surrounding neighbourhood is well wooded, and abundance of coal is found in the valley immediately at the base of the Ochils. On the south side of the river Devon there is plenty of limestone and argillaceous iron ore. Here, at a place called Vicar's Bridge, one of the strongest mineral springs perhaps existing is to be found. The specific gravity is 1.0109. An imperial gallon contains the following ingredients:—

Muriate of Soda.....	5.87
Sulphate of Soda	170.99
Sulphate of Alumina.....	953.18
Dipersulphate of Iron	1753.10
Persulphate of ditto	141.55
Silica	58.70
	3083.39 grs.

Thus an imperial gallon of the water contains more than a troy pound of saline matter.

Dr. Walker is of opinion that he could trace the greater number of Goitrous cases to those families who partook of a mountain stream which has its origin from one of the highest of the Ochil hills, and which, he says, is, for many months during the summer and spring, covered with snow nearly half way down. The water from the rivulet is soft; but, from its numerous impurities,

deposits, on boiling, a copious siliceous sediment. There being no dispensary at Dollar, Dr. Walker kindly favoured me with the accompanying tabular view of his own practice for the last ten years.

	1828.	1829.	1830.	1831.	1832.	1833.	1834.	1835.	1836.	1837.
Jan.	11	28	1 37	19	26	18	35	30	23	69
Feb.	19	32	34	25	1 33	22	87	26	15	38
March	19	31	37	39	30	10	17	21	1 31	28
April	11	31	36	17	16	14	20	19	28	23
May	16	21	32	22	20	50	33	20	37	21
June	29	20	19	23	15	21	18	14	33	38
July	53	25	21	27	18	1 32	18	1 33	29	30
August	35	18	18	30	22	16	23	23	38	33
Sept.	36	43	22	29	16	18	25	23	39	23
Oct.	38	29	24	19	19	10	28	21	22	21
Nov.	1 42	31	15	15	10	15	21	12	33	14
Dec.	49	33	42	18	11	23	52	14	19	1 24
Total	1 348	332	1 335	284	1 236	1 249	377	1 256	1 347	1 369

Total Amount of General Patients, 3233; of Bronchocelatous, 10, (9 females & 1 male.)

From this table it will be seen, that although Goitre does exist, it is to a very trifling degree; and, indeed, it would be difficult to say why Goitre should prevail at Dollar, whilst the other similarly situated villages are exempt from it; unless we were supposing an importation of it originally, and an hereditary descent of the disease.

From what was stated before, one should have

thought Alva the most likely locality for Goitre, everything being there present to favour the disease, with the exception of the magnesian limestone.

On the south side of the Forth, between Stirling and Edinburgh, there are several large lime-quarries, such as Queensferry, Lime-Kilns, &c.; but at none of them is Goitre known to exist. Here, as in other parts of Scotland, it is the mountain limestone.

Sufficient has now been said, I think, to show that Scotland is free from Endemic Bronchocele, with the exceptions, perhaps, of Pennicuick and Dollar.

I cannot conclude this Appendix without alluding to an article in the Calcutta Transactions, by Mr. Bramley. I am the more glad to quote from it, inasmuch as his opinions, from observations made in the Cis and Trans-Himalayan regions, accord, in many respects, with my own. Thus, with regard to the prevalence of Goitre amongst men, he makes the following observations. "It is generally supposed that women are more liable to the disease than men, in the proportion of ten to one." (See Holbrook on Hydrocele and Bronchocele, p. 65.) But the Author, from the results of his own enquiries, comes to a different conclusion, as the two following tables will show.

TOWN OF DEOPATAN.

Inhabitants.	Without Goitre.	With Goitre.	Total Counted.	
Men	474	34	508	Males to Females, 39 to 44. Percentage on the whole, $5\frac{3}{4}$
Women..	411	38	449	
Boys	218	5	223	
Girls	269	6	275	
Total	1372	83	1455	

TOWN OF HANDIGANG.

Inhabitants.	Without Goitre.	With Goitre.	Total Counted.	
Men	325	29	354	Males to Females, 32 to 33 Total Percentage, $6\frac{1}{4}$
Women..	340	31	371	
Boys	169	3	172	
Girls	145	2	147	
Total	979	65	1044	

* * * * *

“ It is frequently so partial amongst men, that many are not aware of its existence. I had many striking examples of this in the Bhotia inhabitants of both the Trans and Cis-Himalayan regions, who annually visit Nipâl. On being asked

whether the disease was very prevalent in Bhote, the usual reply was, that all the women had it, but very seldom the men; yet, upon examining the necks of these very individuals interrogated, the thyroid was, without an exception, more or less enlarged," (p. 195.) Reverting to the subject, the author, at p. 239, states, that his impression at first was, that men were less liable than females to Bronchocele; but, on a closer examination, he found it present in almost all, being, however, of a different size and form. "This difference of size may be accounted for by the diseased gland remaining beneath the sternocleido-mastoidei muscles, and, as it enlarges, it passes laterally outwards and backwards, maintaining its relative position with the muscles by which it is bound anteriorly; instead of, as is ordinarily the case, the diseased growth emerging from beneath the sterno-mastoid, sterno-thyroid, and sterno-hyoid muscles, either pushes the sternal edges of these to the side, or passes round them, and becomes situated in front, between the sternocleido-mastoidei and platisma myoides. There is only, in consequence, an enlargement of the lower and lateral parts of the neck, which, in most instances, does not occasion a deformity sufficiently conspicuous to attract common observation," (p. 241). Why it has this different position, I will not hazard an opinion; but I can confidently

assert, that when it is situated as I have described it, the tumour will never attain a large size ; and the only way to account for this seems to be, by the unremitting support it receives from the powerful muscles by which it is bound anteriorly, the degree of pressure varying according to their contraction and relaxation, while this change of action at the same time keeps up a constant friction on the morbid growth. As preliminary recommendations, then, in the cure of Bronchocele, pressure and simple friction should never be neglected. * * * * Pressure is, perhaps, not so much the object, as support ; and a *neckcloth* (which I have always found sufficient) offers the additional advantage of guarding the neck against the varied effects of the atmosphere *," (p. 242.) These remarks approach nearly to what was stated at p. 13 of this Treatise.

" No period of life is exempt from the disease ; children are sometimes born with it, as are also animals. Several instances of the latter occurred during my residence at Nipâl : on one occasion a goat brought forth a kid, with a Goitre as large as its head. Puppies of a month old, bred from English dogs, are very frequently affected by it, as are also lambs.

* Some account of the Bronchocele, or Goitre, of Nipal, and of the Cis and Trans-Himalayan regions, by M. J. Bramley, Esq., given in the Transactions of the Medical and Physical Society of Calcutta, 1833. Vol. vi., p. 181.

“ In 124 males with Goitre, 15 boys were under ten years of age ; and of them, six were under six years of age.

“ In 140 females with Goitre, 15 girls were under ten years of age ; and of them, three were under four years of age.”

(Compare this with the Tables given at pages 36 and 38 of this Treatise).

In reference to the localities of the disease, I may add here the observations of Mr. Bramley to that of Humboldt, formerly given, (p. 19.)

“ I have witnessed,” he says, “ the prevalence of Goitre amongst families who reside on or near the summits of mountains not less than 7000 feet above the level of the sea, and amongst the highest habitable points of the Himalayan range,” (p. 188.) “ It is scarcely necessary to observe, after what has been said, that within the limits laid down is to be found every variety of physical circumstances affecting the human race. Extreme heat, extreme cold, the mean of these ; the steadiest of temperatures, and the most suddenly and violently variable ; extreme dryness, and extreme humidity. * * * * Nor are the circumstances of the people less remarkably diversified in respect to food. Yet over the whole of this space is Bronchocele abundantly found ; not less so amongst the scattered inhabitants on the crests and sides of mountains of every variety of eleva-

tion, as far nearly as the points of perpetual crystallization, than amongst the inhabitants of the sheltered levels and plains," (p. 223).

Then, with regard to the immediate cause of Bronchocele, the author supports what I have advanced at page 2; and also thinks that the age of adolescence is that most favourable to an invasion of the disease: and although he has said nothing regarding pelvic sympathy, (if I must so call it), he has not overlooked facts which naturally lead to it. Thus, he narrates a case of the sudden disappearance of Gonorrhœa, synchronous with the development of Goitre. "In such cases, (p. 233), and in those resulting from accident, we cannot overlook the presence of inflammation in a greater or lesser degree; for although the disease, in all such cases, cannot strictly be said to advance with increased irritability, it must be admitted that the symptoms indicate *arterial excitement*, rather than defect of the lymphatic system. * * * * * Women being subject to Bronchocele after parturition, is an additional proof that determination of blood to the part is often the immediate cause of the disease." Corroborative also with what I have advanced, is an opinion found in the Travels of Spix and Martius in Brazil. When alluding to the prevalence of Bronchocele at Jacarehy, near St. Paul's, it is stated, that "excess in sexual en-

joyments may be considered as one cause of Goitre, as it is at Rio of sarcocele and hydrocele."

Mr. Bramley doubts of the hereditary nature of Bronchocele, supposing that Goitrous children born of Goitrous mothers are equally under the infecting influence. But I think I have stated cases which admit almost of no doubt: besides, by his own tables and by mine, we find very few children under ten years of age with the disease, unless it had been congenital. Moreover, there are doubtless some constitutions or idiosyncrasies more liable to become affected than others, which peculiar susceptibility is derived from the parents, *i. e.* it is hereditary. (See Treatise, p. 25).

Cretinism, which was long supposed to be an almost necessary concomitant of Goitre, is quite unknown throughout the Himalayan regions, although, in many places, forty-eight out of fifty inhabitants are Goitrous. The same immunity has been observed at Brazil*; and of the Goitrous inhabitants of this country I have already spoken†.

In conclusion, I shall again only briefly allude to Iodine as a remedy. In the paper of Mr. Bramley, from which I have already so largely

* Spix and Martius' Travels in Brazil, in the years 1817—1820, book ii. ch. iii. p. 316.

† Treatise, p. 25.

quoted, the internal use of Iodine is deprecated; and although innumerable proofs of its beneficial effects are daily presenting themselves, there are still some who dread its exhibition. The female form is supposed to be injured by the action of Iodine*, and the male himself, unnerved by its use, to become its unwilling victim†; but if the remedy be properly administered, and in combination with iron, as already recommended, no such fears can be realized. On the contrary, the emaciated and weak are strengthened and revived; all the organs of the body regain their fulness and vigour; the animal functions, unimpaired, perform their offices, and the mind itself enjoys an unclouded tranquillity, the necessary result of healthy actions established in the system by the judicious use of the Ioduret of Iron.

* Lawrence's Lectures on Surgery. Article, Bronchocele.

† Case by M. J. Bramley, Esq. Calcutta Transactions, vol. vi. p. 262.

