

Bronchocele,
a beneficial physiological action.

W. L. Purves



1. A local symptom of constitutional disease.
2. viz^l impoverished blood
3. compounds with ordinary forms the eruptive forms which are symptomatic, & with acute Encephalitic cases.
4. Are there not two varieties. A. Disruptive & local
B. Symptomatic
5. Intermixture of cases A & B.
6. Tetanoid may be common in highlands for aught yet known 418
7. Features - should be general - not local - the latter
momentary & temporary.

As Science advances, so Enigmas
arise, but as steadily do men come
forward, willing to devote their time and
attention to the solution of such problems,
and as surely, and as steadily, does Science
"creep on from point to point". - But, though
proceeding thus slowly, and without the
hope of any science reaching perfection,
in our time at least, it is not the less
our duty, as bound by obligations to those
who have gone before, and who have
done so much to aid us in our
researches, to do our endeavour, though
that may be unsuccessful, to clear away
some of the mists which hang around
many of the disputed questions of
science, so that in time, successive genera-
tions may at least reach the climax to
which it is possible to attain in this
subliminary creation. - Impelled partly by
a sense of this duty, and partly by

a Statute of the University, I propose to devote a few pages to a subject of which I have seen something personally, and which has within the last few years been receiving attention from several of our most learned and scientific Physicians.

2

Nature not only shows her wondrous powers of contrivance, ingenuity, and foresight, in that grand universal round by which the Botanical world is enabled, to supply its wants and necessities from the Elementary, and in its turn, to provide for the demands of the Herbivora, or with them to relieve the claims of omnivorous man, who again returns to his parent dust, but also has established more minute analogous physiological actions in the living body, which though not extending so widely and universally, are not the less admirable and wonderful. - Unlike the inventions of the human mind, the more we study, and the closer we investigate the productions of nature, the higher do we find her power to be, the greater display of marvellous beauties do we discover, and the

the greater must our admiration become. -
 The mechanical productions, and the ingenious
 inventions of man are truly astonishing, but
 if put in the balance with the every
 day actions of nature, they would tick
 the beam and be found sadly wanting. -
 If a machine could be placed before us,
 which not only supplied itself with its own
 fuel, discharged its refuse by its own action,
 and performed its destined work regularly,
 but also could remedy any slight dis-
 organization of function, which was not
 actually fatal to its existence as a machine
 and the performance of its duties, and
 which remedy was called into action
 by the mere fact of its disorganization,
 we might then say that we had
 found a perfect instrument. - Such is a
 living organization, - such is man!

This ever watchful physician, this
 universal acting remedy, called the *Vs medicatrix*
natura, is seen daily at labour, and to
 one of her most beneficial and wonder-
 ful appointments, I beg to call attention
 in the following brief Thesis. -

This

This vis medicatrix naturae is not only placed in each of the separate tissues of the body, by which each tissue is able, of itself, to meet any emergencies which may arise, by supplying itself from the remedies which are placed within its reach; - not only can a sister organ act and make up for the deficiency in another; - but one organ, entirely separate in character and function, may be influenced by, and, as it were, sympathize with, the necessities, and attempt to relieve the "ripe wants" of another. - Examples of this may be found in the physiological actions of every day life. - Dr Beaumont has shown in his treatise on Digestion, that the amount of the gastric juice is regulated by the requirements of the frame, a greater supply being produced, when any greater demand is made for its action. It is also noticed in Hypertrophy of the left Ventricle from Aortic obstruction; - in the supplianee of masticators to the toothless gum of the child, when the time comes

for
 12

Bronchocele apuosa, Sterna Colli, Empysemata,
Hydrocele Colli, Hydrocele Bronchocele, Struma
Cystica, Sarcoma Cellulosa, Cyanus Hyoides &c.

Galen, Morgagni, Santorini, Haller, &c &c

5
for its subsistence upon harder food
than the mother's milk; - or in the vicarious
action of the Skin and Kidneys - of
such a nature, and for such a pur-
pose, is, I believe, the Hypertrophy of the
Thyroid Gland, of which we are about to
make a few observations.

The Enlargement or Hypertrophy
of the Thyroid body, generally termed
in this country *Strumocete*, or *Goitre*, or
Derbyshire neck, is also known by a
host of other Synonyms, only to be
equalled by the extent of its distribution,
over the habitable globe, - extending as it
does from 70° north Latitude to 50° South,
and in all Longitudes from the snowy
peaks of Siberia, Lapland, and St.
Augustine's Land, to Palanua, India and
Siamatra, but having its chief Stations in
an intermediate Latitude, viz in the Valleys
of the Rhine and amongst the Pyrenes, -
or by the attention it has received in
all ages, and from the Physicians of
all countries, comprising amongst them, some
of the most celebrated Medical Men of their
day.

6

The forms of Brouchocele which are written or spoken of, nearly rival the names in number, and we read of Vascular or Aneurismatic Brouchocele, of Gonial Brouchocele, Cyanic Thyroides, Scirrhus Brouchocele, Gross Cysts, of unhealthy and perverted action, adreptic formation, Endemic Brouchocele, Weavers Brouchocele, Gardignous, Congenital, Sporadic &c, but, though believing that all these may, and do occur, I think that by far the most common, way that almost universally known as Brouchocele, is that noticed above under several different names, and which consists in a true Hypertrophy or enlargement in body, and increase in function, of the Thyroid Gland, and it is of this kind I will speak, not treating the subject in full, nor making any lengthened remarks on the points already fully ascertained and certified, but glancing more particularly at those questions which are still in dispute, and endeavouring to elucidate them from the observations of others, and slightly by hasty observations made by myself in a district where Goitre may be almost said to be Endemic. -

2

It will be necessary for the more easy exposition of the subject, to take along with us, for obvious reasons, a slight knowledge of the origin and development, of the secretion and functions, of the relations, and of the difference in the two sexes, of the Thyroid body.-

Of its origin and development, Professor Goodwin says, "it would appear that the supra-renal capsules, Thyroid and Thyroid are persistent portions of the Membrana intermedia of the germinal area of the ovum, retaining throughout their existence the original simple cellular constitution of that portion of the germinal Membrane - During the first stage of the development of the animal ovum, digestion and respiration, - the absorption and preparation of nutriment, - are carried on by the Blastodermis, a structure consisting of nucleated cells and of vessels", - and further on he says, "The structure of these three organs, (the Thyroid, Thyroid, and supra-renal Capsules), is identical with that of the Blastodermis".-

Of its Minute Structure Todd & Bowman

Cyclopedia of Anatomy & Physiology

in describing the gland say "Each Vesicle may therefore be described as consisting of a fibrous coat composed of areolar tissue, internal to which there exists a delicate basement membrane lined by cells of Epithelium, which vary somewhat in Character, but usually are seen as polygonal or almost circular cells of a faintly granular appearance and having a nucleus, which, however, is by no means invariably present. - In most cases the Vesicle can be seen to be lined with a single layer of this Epithelium, and many free cells are usually found floating in the fluid contained in the Cavity. + + + the blood vessels are exceedingly numerous, and form a Capillary plexus round each Vesicle"; and as to the Contents Hanfield Jones from the fact of its Epithelial structure consisting of bare nuclei, and from the chemical nature of the secretion being of a simple kind, compounds with the products of the renal or hepatic laboratories, thinks "that the changes effected by the thyroideal Epithelium on the liquor sanguinis supplied to it, is by no means considerable", and in another part of the

the same Article, supposes that it "is a congeries of (nuclear) particles, which can only be regarded as solidified liquor sanguinis, and not in anywise as a true secretion", and says Chemical Analysis confirms this, as the contents are identical in formula with that of protein. - These facts are confirmed by all the recent writers on the anatomy of this body.

The relations of the Thyroid to the Structures in its neighbourhood are of importance in considering the symptoms which may arise when it is enlarged, and the effects which such enlargement may produce on distant organs. - Of these Haufeld Jones in his Article on the Thyroid above quoted says, "The lateral lobes, concave posteriorly, embrace and rest against the sides of the Trachea, the Cricoid Cartilage, superior and lateral lobes of the Thyroid Cartilage, and the lower part of the Pharynx and upper part of the Oesophagus. + + This relation, one of great importance explains, how certain goitres flatten the Trachea laterally, hinder deglutition, and finally bring on a real Asphyxia

10

Asphyxia from strangulation. - The posterior border of the lateral lobe corresponds to the vertebral column, and rests upon the Carotid Artery, but if enlarged it extends further outwards, and lies upon the jugular vein. - The Sternomastoid, and omohyoid muscles pass, in front of the lateral lobes.

The Functions which have been ascribed to the Thyroid body are numerous. - It has been thought to have been placed there "as a protection to the larynx and the other delicate parts in the neck," but its different site in birds, ranging as it does in them, and not being constantly found over the Trachea, or indeed in the neck, negates this idea. - Again, it has been thought to supply a fluid to the Trachea, but we find no duct or connection with that structure for the carriage of such a fluid. - Galen held that it was placed to fill up the notches and Fossae in the neck of the Female, and to give the neck its rounded elegant appearance, but nature has provided a far more suitable agent for such in the adipose

adipose tissue which we find giving to
the female the graceful rounded contour
so much admired. - Of the suggestion that
it takes up certain moisture from the Recurrent
Nerve, we may merely mention it. - Another
opinion, which has been much insisted
on, is, that it acts as a diverticulum to
the Cerebral Circulation. - Parry thought this
probable, as he found it enlarged in con-
nection with Disease of the Heart, but we
know, that Parry had not the means of
making a Diagnosis of Cardiac Disease
which we now possess, and could not have
said whether the Disease was functional or
structural, and that the means at his com-
mand were wholly inadequate even to allow
him to tell what part of the Heart or
indeed to be certain that it was that
organ per se that was at fault. - In sup-
port of this, it has also been said, that
the relation of the Thyroid Arteries to the
Cerebral, rising as they do, in close proximity
to these vessels supports it, and also, that
the secretion of the Glands is merely a
Modification of Albumen, and that it
secretes

secretes quickly. - To these we should ask, why it secretes Venous Blood? Nature is never prodigal in her supplies, and she would never make the change which does occur serve no good purpose. - Or why should the Gland be of such immense disproportion in the Male and Female, finding it as we do the only organ common to both, in which that of the Female predominates so much in weight and bulk over that of the Male? - while the very opposite would have been expected from the greater size of, and greater demand of action on, the brain of the man, - and also its proportion in relation to the Brain is much larger in the fetus than at any other period of life, just the time at which there is no step put upon the action of the Cerebral tissue, - but nature ever economical of the means at her command has provided much sorer and more certain means of avoiding any pressure on that important organ, the "soul's frail dwelling house", by constructing the brainium, so that it cannot hold at one time, more than a certain fixed quantity of fluid. -

Jones

Jones admits that it is a secreting Gland of some kind, and if so, that its secretion must be capable of absorption: - Simon thought that it was for secreting a large amount of nutrient material on any diminution of the nutritive force in the Brain, and Goodsir says, speaking of the Thyroid, Thy: glands and supra-renal capsules "Their probable function, namely to prepare by the action of their nucleated cells, and to throw into the vascular system a matter necessary for the nutrition of the Animal during the period of its active growth, - a function which the observations and opinions of the majority of Physiologists have assigned to them, - is also essentially the same with that of the Blastodermis, differing from the functions of the Blastodermis only in this, that the Blastodermis not only elaborates nourishment for the Embryo, but absorbs it also from without, that is from the Yolk, whereas the three organs in question, only elaborate the matter which has already been absorbed, by the other parts, and is now circulating in the vessels of the more perfect individuals; -

but

114
but Hewson was the first to point out, that the blood Corpuscles were derived from the Lymphatic glands, and this view is confirmed by Professor Brunett, who in the Summary of his Work on Leucocythemia concludes "that the blood Corpuscles of Vertebrate animals are originally formed in the Lymphatic glandular system, and that the great majority of them on joining the circulation become coloured in a manner that is yet unexplained. - Hence the blood Corpuscles may be considered as a secretion from the Lymphatic glands, although in the higher animals that secretion only becomes fully formed after it has received colour by exposure to Oxygen in the Lungs. - That in Mammalia, the Lymphatic glandular system is composed of the Spleen, Thymus, Thyroid, Supra-renal, Pituitary, pineal and Lymphatic glands," and some would also add the pia mater. - That in certain hypertrophies of the Lymphatic glands in man, these cell elements are multiplied to an unusual extent, and, under such circumstances, find their way into the blood

blood, and constitute an increase in the number of its colourless cells.

On consulting Quain and Sharpey's Anatomy, I find that the Thyroid body is, in the Female of the average weight of two ounces, while in the male it is only one ounce. The other blood glands mentioned, the Spleen and supra-renal Capsules, have the same average proportion in the two sexes, that the other organs of the body common to both sexes, maintain, i.e. those of the male in all cases, predominate over those of the female. - This single exception to such a universal rule surely points directly to some connection with the different genital organs of the sex, and if we look at the prevalence of the enlargement of the Gland amongst females, or at the age at which such is most apt to be developed in them, or at the causes assigned for its appearance, we will, I think, find abundant proof, that there is some very close connection between the functions of this Gland, and the functions or Diseases of the genital system of the Female.

W. J.

Willis

Of the relative frequency of Bronchocele in the female, I need say little, as it is admitted on all hands, and has been noticed by all writers on the subject. Without troubling with wearisome particular Statistics, I may merely mention, that of 607 cases gathered from reliable sources in the different works I have consulted on the subject, only 77 were males, the remaining 524 being females, and even this is above the usual proportion, 1 in 12 being held by some to be the average, and some go even higher than this. But I find that Continental observers in the localities where it is seen to such an extent that the want of the goitre is the exception, tell us, that the proportion of males is much greater there, being about as much as 1 male to 2 females.

Of the Age at which the Bronchocele is developed, we have not such accurate Statistics, but we have a few. Some have seen Congenital cases, but they are, from all the researches I can make, few, and ten cases have been the whole.

I can find - of six of these we get no description of the state of the Child in relation to its Vigour, or whether it survived for any time, - of the other four, recorded by Professor Simpson, we have the following; - two died shortly after birth, and two of them were hydrocephalic. -

Of 111 cases recorded by Inglis, 63 occurred between the ages of 10 and 20, 24 between 20 and 30, and the remaining 24 at different times before 60 years of age. - In the Cases of Vertigo, he says, in Females it occurred generally between the ages of 20 and 30, - and in Males from 32 to 36. -

In the Edinburgh Medical and Surgical Journal for 1854, 25 Cases are mentioned, of which all except one, occurred between the ages of 20 and 30. - Dr. Brillant says of a collection of "22 cases of which accurate accounts have been given in British Journals," 20 to 30 was the most frequent age for the development of the Bronchocele. - Copland, who saw a great amount of it, thinks, that it never occurs before puberty, and many circumstances point to the general correctness of

McClelland, Balby, Angus

Cutten

18
of this observation. - It will therefore be noticed that the enlargement almost universally occurs during what may be called the reproductive period in females. -

The causes assigned for the enlargement of the Thyroid Gland are multiform, but we need only mention them so as to make our deduction from a general view of the whole. - The popular opinion, and that supported by many medical and non-medical investigators, is, that it is caused by the water drunk in those parts where it is endemic, containing some substance which has the effect of producing this action on this particular organ of the body; and the substance generally thought to be present is Lime, - and so universally is this acknowledged to be one of the great causes of Bronchocele, and by some thought to be the only cause, that in one of our newest British Handbooks on the Practice of Physic, Spirit Bronchocele is defined, as "a specific affection of the Thyroid Gland, induced by the persistent use of water, which has percolated through Magnesian Lime Stone rocks or strata, containing the soluble

soluble salt of Lime in solution:-

Magnesian lime-stone (Englis), Alimo (Coventry),
Tufa (Glover), Sordine (Chatin), Copper, - oatmeal
(Good), Snow Water (Pliny), Action of Cold (Carlisle),
Humidity (Foderi Flank), Deep valleys, Pump Water
more than surface water, Changes of habits of
life, carrying heavy loads, Congestion of Head
& necks by climbing hills, Confused state of the
atmosphere, have all been thought to cause it.

Of the more specific and immediate causes
noted by British and Continental observers, we
may mention Parturition and Menstruation, (Copleland
says always so in his practice), Leucorrhœa
Menorrhagia, Dyspeptic and Uterine derangement,
Hæmorrhoids, improper performance of the
functions of the Ovary, in short any Uterine
derangement or loss of Blood is apt to
cause it. - others again have attributed it
to the same cause as Intermittent fevers,
and thought the one negates the occurrence
of the other; - while others hold that Pectus
and Goutre must look to the same origin,
including in these poverty, dirt, impure
atmosphere, humid exhalations, bad food &c.,
and these ideas are supported by McCalland's
researches

Good, McQuillan &c

researches in *Humor*, and who says that
 Gout and Gravel are but varieties of the
 same disorder, and that the proximate cause
 of both is an error loci or derangement of
 the functions of the absorbent system," and
 he is supported by many in thinking, that
 "delicate, ill fed, and neglected children in
 certain villages became affected by the Disease
 in the course of a year or two after they are
 taken from the breast". - Some again have
 tried to trace a predisposition to it in
 families of the Scrofulous Diathesis, and
 Robertson has held that it is only seen
 in such in England, and McCalland
 says the circumstances which give rise to
 Scrofula, would under the exciting causes of
 Gout give rise to it. -

That all of these causes have been
 noticed by the writers who mention them,
 and that they are causes of Bronchocele
 we can have little doubt, but that there
 is any one particular cause to the exclusion
 of the rest is, I think, a mistake. - Because
 Lime or Magnesia is found in one locality
 where

21

where it is endemic, and not in another, does not entirely negative the Statement, that the same may be the cause of the Procello: cele, - or because it is seen frequently connected with some ultimate functional derangement, does not prevent it occurring as a consequence of some imperfect performance of the functions of the absorbent system, - And the immunity of some from a Disease though exposed to the same exciting causes, and the liability of others to it, are facts, which have been universally observed in all ages, and with respect to all Diseases, even including those which exhibit the most contagious properties. -

It will be noticed that most of the Causes are of a debilitating kind, either by the introduction of substances into the body which will have a deleterious effect on the system, by impoverishing or destroying the life giving fluid, or by the actual drainage of that fluid from the body, or by the want of supply of the requisites for the formation of blood, or the matter being supplied, by influences which prevent

prevent the due assimilation, and production of the blood, so that the system is unable to maintain its usual normal standard. - It may be observed that all these causes point to one common necessity of their action, or to the more immediate cause of the Bronchocele, an impoverishment of the blood. - The sex of the affected also favours this view, liable as they are to many more of the causes adduced peculiar to the Female; - or as Gabanis says "by a severe necessity attached to the role which nature assigns to her, woman is subjected to many accidents and inconveniences; her life is nearly always a series of alternations of health and suffering, and too often the suffering predominates". - As it is to meet such emergencies that we have such a normally enlarged Thyroid in the Female, over that presented by the male. -

That this impoverishment of the blood is the cause of the Bronchocele is most likely, from finding that Anemia is produced under the same influences, long continued

continued Hemorrhages, exhausting Discharges, Starvation, Chronic Diseases, certain poisons, defective assimilation &c. - that it is so universally present with Bronchocele, & Begbie saying that he has seen "no instance in which some Anæmia was not developed, nor some light given by the history, or mitigation or removal by the proper treatment" - (it being remembered that the eye may not detect Anæmia, and yet "the Murmurs at the base of the heart, the humming in the un-supplid Veins, and the throbbing pulse of the un-filled Arteries" heard by Auscultation, all testifying to its presence), - and that all the symptoms are capable of mitigation, by means which improve the quality of the blood.

That there is an oligæmia present is also spoken to by many of the symptoms seen in the goitrous, and of these we will take a passing sketch. - Begbie speaks of the pulse being small and jerking, ranging from 100 to 130, of inordinate action of the heart, tinnitus aurium, Vertigo, headache, bruit in the large

large Arteries, bellows Murmur in the Aortic orifice &c, and in another case of the Continuous rushing sounds in the Veins of the neck, and Thyroidal swelling, and the whiff of the Carotids. - The haemic Murmur spoken of in the above is always of a soft nature, - it never takes the place of the first sound at the base of the heart, as the organic systolic Murmur will do, - and the whiff in the large Arterial trunks is of an intermittent character, being heard with each pulsation, while the Venous bruit is one continuous "hooning" sound. - The causes of these sounds are yet doubtful. - They have been ascribed to "unusual Vibration among the particles of blood, either by mechanical obstacles in its passage, or (whether directly or indirectly), by a change in its constituent Elements, and quite independent of such obstacles". - For their production in anything like perfection, Dr. Marburton Begbie thinks that there are two circumstances necessary firstly a marked excess of Water over the Corpuscular Elements

of the blood, and secondly a considerably
 exalted action of the heart", and says "When
 these conditions have co-existed, I have never
 failed to identify the Cardiac and Vascular
 Murmurs". - Have we such a bruit
 in any other normal or pathological condition,
 or can we produce such? In the
 pregnant Uterus we have the placental
 bruit no doubt arising from the sudden entrance
 of the blood from narrow vessels to the comparatively
 large spaces of the placental cells; - also
 we find it a diagnostic in excessive tumours,
 the blood vessels to which have also been
 greatly enlarged, - or we may produce it
 by pressing the stethoscope on the jugular
 Vein and so partially obstructing the
 passage of the blood. - May it not there-
 fore in this case arise from the same
 causes, from the small amount of blood
 entering the large vessels, which are capable
 of, and generally hold a much larger
 amount of blood normally? -

Now the position of the gland
 to the carotid, "pulsation is often visible,
 especially when one side is chiefly affected,
 caused

caused by the rapidly beating Carotid lying beneath, and it may simulate an Aneurism on that Vessel:-

Hopland in speaking of the symptoms which may be present says, "When the Tumour is very large or hard, or when it has increased suddenly, it not unfrequently occasions most urgent symptoms by its pressure on the Trachea, Oesophagus, or Jugular Veins:- It is free from pain usually, unless when pressing upon some nerve:-

Latham says we find with a host of other symptoms the "surface pale and cold, palpitation and Dyspnoea, Appetite powerless, digestion imperfect, nutrition insufficient, secretions scanty and unhealthy, pain everywhere, a shattered nervous system, and enfeebled brain, all pointing to one common source, an impoverished state of the blood":-and this tallies closely with the description of the goitrous peasants of the Himalayas as described by McClelland, or of the alps as pictured by Willis:-

But of all the symptoms which are seen

27
seen occasionally with it, that which
has engaged the greatest attention lately,
and indeed the connection or association
with which has only been recently pointed
out is the Exophthalmos, or Puff-blow,
of which so much has been said and
written within the last few years, and
its association with which has received
several distinct names as Graves' Disease,
or Bowdoin's Disease, - Lawrence and others
indeed deny the connection, but there is
on the whole an acknowledged relation, but
the cause of the protrusion has afforded
a fertile ground for controversy. - One thing
we may premise, that there is generally
no pain, and that the vision has been
little affected, though this is sometimes
seen, as in one case which I saw in
the South of Scotland, where the protrusion
became excessive, so much so as to make
the eyeballs hang in a very unseemly
condition out of the orbits over the
malar protuberance, the vision became
completely lost, and for some time before
the patient's death, which was caused
by

28

by another disease, she was wholly blind. - The Ophthalmic Condition has been thus described by Dr Pegibie in one of his Cases, "The eyes were prominent and staring, giving a wild and startled expression to the Countenance, the Arteries unusually visible, and darker than natural, from a highly developed Vascularity. - There was a painful sense of distension of the eyeballs, but no dimness of vision. - These conditions were aggravated when the face was flushed, or the heart more violently excited. - An enlargement of the Thyroid was manifested simultaneously with these symptoms, but in the majority of the recorded Cases it preceded the enlargement of the Eyeballs, yet was consecutive to the palpitation."

The Cause of the protrusion has been alleged or supposed to arise from many circumstances, mechanical or Nervous. - Some have supposed there was Effusion in the Vitreous humour. - one prevalent opinion maintained by the German Physiologists and by others in this Country is, that it

Basedow,

Keatinge,

Walton

Withusen

Stokes

Bellingham

Mackenzie

Stecher

Paper read to the Medical Chirurgical Society
of Edinburgh Jan'y 7th 1863.

29
it is caused by a want of tone
in the ocular muscles. - Congestion in the
posterior part of the eye, increase of
the cellular tissue, or of the fat in the
cellular tissue behind the eye, enlargement
of the eyeball per se, congestion of one or
several of the different venous plexuses so
abundant in or around the eye, as of
the deep seated veins, or of the Choroid;
Dropsy of the globe; - Pressure of the
blood vessels on the nerves of the muscles
of the eye; - Varicosity of the ophthalmic
veins; - or simple hyperaemia have been
alleged to be all causes of the protrusion.

Professor Laycock in speaking of the causes
of the Exophthalmos says. "In cases of
death from strangulation the eyes are seen
staring and prominent. Under a powerful
emotion of fear or terror, and even when
severe bodily pain is felt the eye
stares. - Then there are cerebro mental Diseases
involving the emotions and the intellect,
in which the same appearance is so
common, that the expression of the countenance
in cases of Exophthalmos is described by
several

several writers as being wild and
maniacal. - As to all these various instances
it is a fair presumption that in each
the same mechanism of the eyeball is
influenced through the nervous system,⁴ and
in a part of the same paper in
theorizing on the causes of symptomatic
Ophthalmos from these data he says "we
might conclude, that when it occurs in
strangulation it is probably due to mechanical
injury to the Cervical sympathetic by the
tightened cord or other violent means used;
in the emotional form the condition is
probably like that when the sympathetic
is galvanized, the face being pale and
the eye staring; in certain morbid cerebral
conditions such as mania with Epilepsy,
and general paralysis, the lesion is
probably in the first instance, paralysis
of the sympathetic, and subsequently of
the Fifth and Seventh, and finally, that
in the class of cases under consideration,
when the Ophthalmos is symmetrical
it is spinal, the Cervical and upper
dorsal region being the seat, together
with

British Medical Journal - May 1863.

31

with the corresponding cervical and dorsal divisions of the sympathetic, but when insymmetrical, it is due to Disease of the trigeminal ganglion, and branches of the fifth pair".-

The pathological appearances do not favour these many theories, and we are reduced to two, that of Professor Laycock, and that of Fletcher.- That the protrusion may be occasioned by lesion of, and that the eyeballs are under the influence of, that part of the Spinal Cord known as the oculo-spinal, and which comprehends more especially the two last cervical and two first dorsal nerves, is, I think now clearly proved, and that it may result from lesion of the portion of the sympathetic in connection with this part of the Spinal Cord, no one will deny, but that it is occasioned by other means in some instances, is, I think, pretty clear from several observations made in connection with this as well as other cases.- For instance Fletcher says "it may be reduced by pressure applied to the Carotids, while in fatal cases, the eyes

eyes are observed to recede within the orbit after death,"- and we know it may be produced by pressure on the jugulars, and so preventing the return of blood from the head, when there would be no such lesion of the sympathetic as Dr. Laycock thinks necessary for the protrusion. In a case recorded by Dr. L. we find the following "on examination I found that there was a thick neck, and a small Bronchocele, of which the right half was larger than the left. The Stasis was now limited to the left eye, the patient being unable to raise the lid, and there was increased heat on the left side of the head. - After treatment with extract of Chamomile, Tincture of Sassafras, and Sulphate of Iron in small doses, the Stasis and other symptoms disappeared, and the enlargement of the Thyroid was now restricted to the right lobe." - In this case had not the reduction of the Thyroid anything to do with the removal of the Stasis? That the Thyroid may press, when enlarged, upon the Internal Jugular Vein

33

Vein is of the greatest probability, if we keep in remembrance its relation to that Vein, and that it does so we know. - Sir Henry Marsh records a case in which one lobe of the Thyroid lay over the Carotid, and received a pulsation from it, and on post mortem examination it was found that the internal jugular Vein of the right side was found to be "one and a half inches across when empty," evidently speaking to the amount of pressure it had been subjected to. - And again, we find in death from suffocation in a drunken fit, when no cords or other means of pressure are present, by which the sympathetic could be hurt, that the face is turgid and livid, the Veins of the head and neck swollen, the eyeballs starting from their sockets, and the swollen tongue protruding from between the teeth, all certainly pointing to a hyperæmic condition of the external parts of the head. - And again we find that Neuroses of the Heart occur infinitely more often on the left side than the right, and

34

and we would expect that the left eye, or left lobe of the Thyroid would be correspondingly the most frequently affected, while in reality observers have given us the opposite statement, and Alibert, NicKwood and Greenhow, who are the only observers of this point that I have met with, all concur in saying that the right lobe of the Thyroid is more often enlarged than the left, and Dr Raeb says of 9 cases of Proptosis, 3 were unilateral, the right being the one affected. -

May the muscle of the orbit of the sheep, so recently for the first time described by Mr Turner, and which evidently seems to be for the purpose of protrusion, if present in the orbit of man, not have something to do with this much disputed Proptosis? -

Does the sequence of the appearance of the three great symptoms not favour any of these views? - If any, it leans towards the support of the Thyroideal Enlargement being the cause of the Proptosis, and all agree that the palpitation

D

Begbie - W. Begbie

palpitation nearly always precedes the other symptoms, then the gland enlarges and afterwards the eyes become prominent.

It has been contended that the whole of the symptoms are of a nervous origin, something influencing the cardiac nerves, which again act on the Thyroid body, and then on the Eyes, - while others amongst the principal of whom are Dr Beclie and Latham hold that the Essence of the Disease is an impoverishment of the blood, which acting by the rapidity of the circulation on the cardiac nerves, excites the heart and vessels to over action. - Those who maintain the nervous origin of the Disease, say that the fact of the great majority of those affected being Females, speaks to this view, though I think this, as fully supports, if not more so, the hæmic origin of the Malady, if we remember the much greater liability of the Female to the causes which give rise to the affection, and the close relation and sympathy through the Spinal Cord, between the Uterus and the Thyroid. - Does it

Hensinger

Microscopical Journal for 1863.

its frequent concomitance with hypertrophy of the spleen, and a leucocythemic condition, not favour the opinion that it is a blood disorder? - and I think the actually leucocythemic condition of the blood of the goitrous when it is endemic, goes also far to prove this. - Dr Holland in recording a case says, the "spleen was normal in size, colour, and consistence - The blood taken from the left ventricle exhibited a fine demonstration of that state to which Professor Virchow gives the name of Leukemie, and Dr Bennett that of Leucocythemia, the colourless corpuscles being about seven or eight times more numerous than they appear ordinarily in healthy blood, and I had an opportunity of having this observation confirmed by my friend Dr Robert MacDowell of Dublin, who was at that time in Vienna." - In another case which the same author gives, in which the thyroid was enlarged four or five times its usual size, while the spleen was in every respect normal, he says that "Blood taken from the pulmonary artery contained so great an excess of

Medical Times & Gazette for 1854.

37
these colourless corpuscles, that they filled
the greater portion of the field". - Dr
Keale confirms the above observations of Dr
Holland, and on examining the blood in
seven cases of Juvalis with goitre he says
"those only who have had the opportunity of
examining the blood microscopically in cases
of Leukemia depending on splenic disease, will
see the close analogy of the blood in that
disease with the cases above noted, although
the pale corpuscles are not so greatly in-
creased in the latter as we often find
them in the former affection". - These
observations I can myself confirm, as I
have found the same condition in all
cases of goitre which I have examined in
the south of Scotland, in some of the
valleys of which it is endemic. - Dr Keale
observes further on "in all the above cases,
the number of the pale corpuscles was
decidedly increased, in some greatly so, and
in most, the size of the pale bodies
was also materially increased". - Is there
any link between the increase in size of
the corpuscles, and that seen in the
fatal

50
fetal Capillaries? In the fetus all the bloodglands are in their greatest activity, and attain their greatest proportions. - In pregnancy also, not only does the Thyroid gland frequently enlarge, as has been before noticed, but the observations of some would lead us to believe, that there is also an increase in the size of the Spleen, and in one patient of Professor Simpson, there was an enlargement of the spleen at each pregnancy, and this to such a great extent in some cases, that it has ruptured in the efforts of Parturition. - Virchow also asserts that there is always a leucocythemic condition present in pregnancy.

It has been held, that there is a relation between Gout and several other Diseases, more especially to Gpne, and as mentioned formerly they have been ascribed to the same causes, and it was thought that the presence of Gpne in a locality negatives the existence of Bronchocle, and that Gpne having disappeared in districts where formerly it was

was prevalent, Bronchocela has taken its place and become endemic. - But it would seem that wherever goitre is prevalent there also are seen many debilitating diseases; - for example, McClelland in his Tables of Disease, which occurred at the two different Stations of Peterofaur and Lohoghat (which were two of the places he cites as examples of the Disease, in consequence of the action of Magnesian Lime Stone), it is seen that at Peterofaur, where goitre occurred in an extensive degree, and there alone, that other Diseases, as Dysentery, Diarrhoea, Fevers and other debilitating maladies occurred more extensively, - to nearly double the amount, - that they did at Lohoghat, and that while four deaths occurred at the former, none occurred at the latter station. - And we find that Cretinism, Idiocy, Rickets, Goitre, Stunted growth, and deaf and dumb states are all often associated together. -

The blazes of the persons affected point to an enfeebled condition of the system, - Manson, Prober & thinks that it is seen
in

Army & Medical Sanitary Report for 1860.

140

in those only where there is a want of
tonicity. - Robertson thinks that in this
country it is only seen in scrofulous
families, and in this McNeilland concurs in
relation to India, and says "in those little
communities or hamlets where Gaithe prevails
to a certain extent, the people are
characterised by a want of enterprise and
bodily vigour, as compared with their im-
mediate neighbours who are exempt from the
Disease". - In one of the Army Reports I find
that at Pisaneon, Hautes Alpes, at an elevation
of 4,285 feet above the sea level, in a
garrison of 954 men, 53 was attacked by
it; - The Report says "the men who came
from maritime places, and who were placed
at Pisaneon under quite unusual conditions
suffered most". - If we look to the
Disease in the lower animals, we find
it also associated with them with cir-
cumstances which deprive the system of its
due proper healthy tone. - For example, in
Siberia, and also in the lands bounding
the Gurduk, where it is seen in dogs
and other animals, those affected are
puppies

41
"puppies of a month old, bred from English dogs", and it is well known as a fact of universal observation, that the removal of any of our English dogs from their own temperate climate to any of the tropical countries, entirely inverts them, so that the bulldog or Greyhound, which in their own climes are models of fierceness and fleetness, become dull, lazy, and spiritless, under the influence of an Indian Sun.

It is well ascertained that those who drink hard waters, are liable to the renal diathesis - Is such seen amongst the gouty who drink water from calcareous strata, and which has been proved beyond doubt, to be the most prolific source of rheumatisms?

That there is a relation between Gout and Cretinism is I think admitted by every one, but what that relation is has not yet been clearly determined. - The Cretin is generally Gouty, but the Gouty are by no means always Cretins. - The appearances of the Gouty as we found them in a former paper, have a striking

Johnson's Change of air

Watson, Blackie,

striking similitude to that of the Cretin
as we find it described by those who
have visited and observed them in their
native valleys. - The symptoms of a deteriorated
blood are at once plainly visible, "the skin
is of an unearthly colour, flesh soft and
flabby, eyes red, prominent, watery"; - and
another visitor to the valley of the Rhone
in Lower Vallais finds "stupidity, weakness,
ugliness, and various diseases to be the
characteristics of the people"; - the villages are
"full of dirt and uncleanness, the houses
closely packed together, the people poor, and
but ill supplied with the very necessaries of
life; - and all the appearances which at
once disclose a chronic diseased state of
the system, as Rickets, Stunted growth, Scurvy
&c are found in abundance." - The Causes
of the two affections seem also allied, so
much so, that some have even held
them to be the same, and it has
been remarked that "when both parents
are goitrous for two generations in suc-
cession, the offspring of the third genera-
tion is a Cretin; - and Copland says
that

40

that the same Causes which occasion
Goutte, when present in a more intense
degree, will also produce Cretinism, - or as
Welleland puts it, they are varieties of the
same disorder, and arise from the same
cause, an error loci or derangement of the
function of the absorbent system. - Some
have held that the excessive amount
of lime taken into the system by the
inhabitants of those valleys where goutte
is so prevalent, - for it is only in remote
valleys and hamlets away from towns, or
well populated agricultural districts that
cretinism is seen to any amount, - induces
"indue ossification and thickening of the
base of the cranium, thereby diminishing
the size of the foramina for blood vessels,
and it is fair to connect the unusual
quantity of lime taken into the system,
with such premature and abnormal
ossification." - There is one decided objection
to this theory, viz: that Goutte is endemic
in many parts of England, arising from
the same cause, or seemingly the same cause,
and yet a cretin there is truly a rara avis. -
Hoses

44

Those who maintain the nervous origin of Goitre, also contend that Cretinism must claim the same parent, and hold that in the former, the Vaso motor system may alone be affected, and yet thus not affecting the intellectual faculties, while in the latter, the whole nervous system is affected, including the Vaso motor system, or the system regulating the Blood Capillaries; - while others say, that it is a predominant activity of the sympathetic, and an imperfect development of the Cerebral system.

By others, poverty, dirt, humid exhalations, impure atmosphere, and bad food, have been thought as important causes as any.

D^r Guggenbühl, whose views from his extensive opportunities of observation, must be received with the greatest respect, has said, that Cretinism is a "Disease of the Cerebro spinal system, causing a want of development of the body and perceptive faculties, and considers, that if this Disease of the body be removed, the maladies of the mind will be more easily overcome, than in those cases in which

45

which the body is in full vigour, and the mind Idiotic:-

But might those two Maladies which are so often coincident both in the same district and in the same persons, not arise from different causes, to both of which the sufferers from them are exposed? - Might the Bronchocele not arise from one or more of many of the many alleged causes which we have previously glanced at, and the Cretinism from any of those causes, which we find in other Countries to affect the Cerebral system to such an extent, that those afflicted are said to be of unsound minds? - The mere fact of the one being found apart from the other would give countenance to such an hypothesis, and if, on examining, we found that those who were affected with both Cretinism and Goitre, were exposed to those circumstances, which if separated, would give rise to either the one or the other; while those affected with Bronchocele only were exposed to its specific causes alone, I think we might be justified

1858, Vol XI

X

46

in concluding that they arise from dif-
ferent and separate, though oft con-
comitant, causes. - If we look at any
of the Statistical Reports on Insanity, of this
or any other Country, we will find that
the great, and clearly determined cause
of Insanity is marriages of consanguinity. -
So much so is this the case, that
Esquirol thought, that six-sevenths of all
his patients had been blighted by the
heritage of insanity. - Dr. Pennif in a
paper in the Transactions of the American
Medical Association, in speaking of the
offspring of consanguineous Marriages, says
"insanity results far less frequently than forms
of imperfect development, such as give rise to
Idiocy, deaf mutism &c." and gives the
following table of 6321 Marriages of Cousins,
giving birth to 3917 deaf & dumb, blind
Idiotic, and insane Children, 1116 were
deaf and dumb, 648 were blind, 1854 were
idiotic, and 299 were insane. - Are these
inhabitants of the Valleys of the Rhone,
of the Pyrenees and of the Himalayas, subject
to this disastrous intercourse, alike condemned
by

47

by the law of God, and the experience
of man? We do not know of any
statistics on this point, and therefore cannot
point to such, but I submit from the
circumstances in which they live who are
thus affected, a thinly peopled hilly
country, containing distant and remote ham-
lets, far removed from the circumstances
which would admit of a wide and free
intercourse with the inhabitants of other
countries, or towns, or even villages, that such
is highly probable. - We might also argue
the proposition negatively, if we considered
the absence of fretting in those parts
of England where Gout is prevalent, but
where there is a thickly populated and
wide spread agricultural community, and
where all the means of intercourse are
of the best, and most easily attainable,
description. - And this holds good even in
the coincidence of the two affections in one
country, for Braunley in his Account of
Jepaub, says he never saw fretting there,
though he had abundant opportunities
of observing Gout, which McNeillan explains

48

by saying, that Braumley did not journey into the interior of Nepal, to the huts, and thinly populated and scattered hamlets, of the Country, where Cretinism abounds, - And we find in Britain, that the only parts where Cretinism is alleged to exist, are in those parts where travelling is as yet, comparatively in its infancy, and where consanguineous marriages by far the most abound. - I mean the Highlands & Western Islands of Scotland. -

The treatment of Cretinism is to improve the general bodily health, and the magnificent Hospital built on the Abendberg by the philanthropic Dr. Guggenbuhl, at a height of 4000 feet above the sea level, regulates the treatment of the deformed Cretin on these principles. - Dr G. having found that Cretinism was caused by "bad air, bad food, unhealthy origin &c", and having found the symptoms to be "atrophy and weakness of the muscles, complete loss of observation and mind, no memory, extraordinary appetite, coldness, laziness, dirty skin, bad health, with contusions and distortions of the frame", a general tonic

tonic regimen is carried out, - the provisions are nourishing and abundant, and along with "the dietetic, the medical treatment is attended to, for the development and formation of the system depends on healthy digestion, and the formation of good blood, + + and this is best assisted by the use of Iron, in the form of the Muriate, or of the lactate and carbonate". - Cod Liver oil is also largely employed, as are also baths, frictions, and exercise in the open air. - In short the treatment is just that which is employed in the best establishments for the insane in this Country, coupled with the necessaries for a debilitated and ruffled Constitution. -

Of the Diagnosis of Bronchocele we need say nothing, it is self evident, - and of the Prognosis we may dismiss in a word, - treatment being submitted to, it is favourable. -

Of the Treatment of Bronchocele. -
Hitherto I submit that the Bronchocele has been too much considered as the Disease, and hence all the artillery

30

of the healing art, Medical and Surgical,
internal and external, has been directed
against the Tumour, - which occurring as
it does on the Neck has been looked
upon as, and no doubt when it reaches
any great extent is, a blemish on the
beauty of woman, though when only
slightly enlarged, I agree with Dr Pechin
in thinking, it sometimes adds to the
graceful roundness and contour of the
neck. - Excision of the entire Tumour,
(but which even in 1112 was deprecated
by Albucasis who speaks of "an ignorant
operator" who in attempting extirpation of a
Bronchocoele, "by wounding the Arteries of the
neck killed the patient on the spot"), partial
excision, ligature of the Thyroid Arteries,
cupping, setons, moxas, dry rubbing, friction
with different liniments, stimulant and
astringent lotions, Mercurial applications,
plasters, blisters, leeches, Electricity and
galvanism - internally, Mercurial preparations,
Digitatis Camphor, Sulphuret of Potash, Baryta,
Gum, Potash and Soda, Iron, Sponge,
Lucus Versiculosis, Iodine simply or as Solide

of Potassium, Hydrochlorate of Lime, and
Belladonna have all been used against
the Tumour, and all had their separate
advocates. - That one and all of these
have reduced the enlargement of the
Thyroid in cases in which they have been
applied, we can have no doubt; from
the innumerable instances which have
been quoted of the efficiency of them,
but I submit, that here the treatment
must be truly etiological, and that the
endeavour must be to improve the tone
and health of the system, by the means
necessary for each particular case. - A
Combination of calumatives and sedatives, with
attention to the dietetic regimen of the
patient, will generally be found the
most efficient mode of truly and
permanently, - (for I find that the external
application, and internal administration of
Iodine, Mercury & in the cases which
have come under my notice, have only
stayed the growth of the Tumour, or at
most reduced it for a time); - effecting a
relief, not from the goitrous Tumour alone,
but

but also from all the annoying and disturbing symptoms, which are seen so often to accompany it. - By thus striking at the stronghold of the Disease, we thus, as it were, reduce the outworks as a matter of course, and by keeping up the proper standard of health, they perform their respective functions usually without sweep or defect. -

We will, before finishing, take a hasty glance at the Pathological appearances found in Bronchocele, - and firstly as to the Tumour itself. - McElliott says, in India the full size is one foot ten inches in circumference including the neck, and two feet from the lower angle of one jaw to the other. - In the general enlargement of the gland it is found that the nerves which supply the gland and go into its structure, are not wholly increased in size, the neurilemma alone being thickened, but not the Medulla, just as is found in the enlargement of the Uterus during pregnancy. - Graves, in the cases which he records says, "there was

Begbie, Marsh, Bellingham, &c

32
was not the slightest appearance of,
anything like inflammation in the gland,"
and afterwards says, it deserves more
the name of hypertrophy, and Hope, Hunter,
&c. agree in thinking that there is not
an increase in the globular structure, but
merely an enlargement of the normal amount
with normal secretion, Hunter thinking
that the morbid anatomy all points to
an increased secretion; and this agrees
with the observations made on leucocythemia
in relation to the spleen by Professor
Brewer, who says, "it was in these cases
demonstrated, that the cell and nuclear
elements, were increased, while the fibrous
portion of the organ was apparently
normal". - The post mortem appearances are
chiefly permanent dilatation of the Heart's
Chambers, with more or less of hypertrophy. -
In Sir Henry Marsh's case the gland
was found to be regularly lobulated,
and the lobes or cysts contained a consider-
able quantity of clear fluid. - Dr Begbie
says the post mortem appearances consist
principally "in the very fluid state of the
blood

blood found in the heart and large
 Vessels, in the dilatation of the Cavities
 of the Heart and Venous Trunks, in the
 Enlargement of the Liver, and in serous
 effusions into different Cavities":- of
 the Calcareous degeneration that is sometimes
 seen in the Gland, we would but observe,
 that in all the cases I have seen or
 read of in which it has occurred, the
 persons were advanced in years, and
 had passed the normal period for
 menstruation, and that it agrees in all
 respects with the calcareous deposits found
 in other organs, this being seemingly nature's
 mode of acting, either with abnormal
 structures, as in the sacs of hydatid cysts,
 or those which she has no further need
 of.

The Comparative Morbid Anatomy
 of the Thyroid has not, as yet, as far
 as I can find, been well investigated,
 and the pressure of a fourth Winter
 Session would not have allowed of time
 to pursue it, even though I had been
 fortunate

fortunate - enough to have procured
cases of it in the Sheep of Severab to
whom I applied, but which I was not;
but the enlargement of the Thyroid in
them is believed generally to be associated
with Disease of the Lungs, and is as-
cribed by some to the eating of the
Pinguicula Vulgaris, or Butterwort, - but the
most generally received opinion is, that
it arises in those animals when fed
on a wet marshy pasture, where the
food is not of the most nourishing kind.
One thing may be noticed, viz: that in
them, it is exclusively as far as I
can learn, confined to the Ewes and
never found in the Stags; - this arising,
I think, from the fact, that the Stag
is much better cared for, being pro-
tected from all the vicissitudes of the
Climate, and receiving its food at
regular periods, and generally in abundance.

J
P

36

I submit then, that, from the causes, the symptoms and their sequence, the relations which it bears to other Diseases, the anatomy of the organ in its normal or morbid condition, or comparatively, it may be inferred; that the Hypertrophy of the Thyroid Gland is a beneficial physiological action, arising from a general deteriorated state of the system, but more particularly with Uterine functional derangement, its connection with which anatomically has not yet been discovered; and that the Treatment ought not to be directed against this one particular organ, but ought to be of that kind which will strengthen, renovate, and increase the tone of the general system, and that by these means, the Bronchocele, which is merely a physiological consequence of this general impairment, will wholly disappear.

William F. Purdy