

Thesis 1852 P. C. Rae

Having had an opportunity of seeing & treating a considerable number of Cases of Bronchitis, whilst assisting my Father for Eighteen Months - I have taken the liberty of selecting it as the subject of my Thesis - Hoping that its many imperfections will be kindly overlooked, in as far as it is consistent with the honour of the University -

Bronchitis - When Catarrhal inflammation extends to the upper bronchial tubes, it constitutes what is called Mild Bronchitis - This mild form of the disease generally commences with Coryza, or sore throat & gains ground as the latter affections subside, however in those who are predisposed to colds it often is the first effect of exposure - Sometimes it commences with a feeling of coldness at the top of the Sternum - with roughness or dryness of the Throat, which causes frequent attempts to clear the Throat - These follow sensations of heat, tightness or pressure, or pain in the same part, with a cough which is at first short & dry - but speedily becomes more prolonged & more urgent, accompanied also by the expectoration of a glairy, saline tasted transparent Mucus - This secretion instead of relieving the Cough evidently aggravates it by irritating & tickling the Glottis - This acrimony is thought to be owing to an increased amount of Saline matter - When Inflammation has reached its acme in the upper air tubes we generally find towards Evening - a quick pulse hot

skin

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Men, voice scanty & high pitched, & some shortness of
breath - Physical signs - In the earliest stage we have
Rales dry Rales the sibilant & Sibilant - accompanied by a
diminution of the Respiratory murmur, indicating the narrow-
ing of some of the Air tubes - Sometimes through cough
we hear a total ^{suppression} of sound in a part of the Chest showing
that the obstruction is complete, while the unimpaired resonance
on percussion proves that the Respiration structure is free -
The swelling of the mucous & sub-mucous tissues no doubt gives rise
to these obstructions similar to what takes place in the nasal Canals
as in Coryza - It is supposed by some authors that a spasmodic
Constriction of the Circular fibres, rendered irritable by Inflamm-
ation contributes in no small degree to the narrowing of the
Tubes - The dry state of the Bronchial Tubes does not generally
continue long - The secretion commencing first gives a rough-
ness to the other sounds, then succeeds a sound of bubbling, the
latter constituting the Mucous Rale - When the disease is situated
in the deep seated tubes, this sound can scarcely be heard - The
usual seat of all these sounds in the more mild forms of Bronchitis
is in the central parts of the Chest, where the larger Bronchi lie
The lower tones imply an affection of the larger Tubes, however
the acute notes do not always indicate that the finer tubes alone
are diseased - for they may be produced in the larger ones whenever
the obstruction is great - The deep sibilant Rale is
similar

Similar to the note of a Violoncello is probably situated at
 the branching off of a large Bronchus, & frequently its Vi-
 brations are so powerful as to be easily felt by the hand when
 applied to the exterior. These several sounds may either
 accompany the Inspiration, or Expiration or both - Often
 the Cough becomes hoarse & the Expectoration becomes spaque
 & thick but less coherent which is most commonly first observed
 in the morning. The Constriction of the Chest is not
 removed or at least diminished - the Pulse loses its frequency
 perspiration breaking out over the skin, the Urine becomes more
 abundant & deposits an abundant sediment. The Expectoration
 seems now to have lost its irritating qualities is much easier
 coughed up & less salt to the taste generally when the Sputa
 assumes a consistent form without opacity - the expectoration
 & Cough become easier but there is not observable the same ge-
 neral improvement as when the Sputa is simply spaque -
 The mucus which causes the Sibilant & Sonorous Rales by
 stopping up the air tubes sometimes stops them up altogether
 stopping the sound of Respiration in the tubes leading to the
 affected part - A Cough or deep inspiration frequently serves
 to remove this stoppage by Mucus, when the air entering pro-
 duces a Whistling or Choking noise when there had been no
 sound heard before - The sound in general becomes Antinous good
 on percussion. which circumstance together with the variety of
 the

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the variety of Respiration & Nales serves to distinguish Bronchitis in this stage - This as far as I have observed is the course of the milder forms of Bronchitis. the disease may continue from a few days to 2 or three weeks - however if not treated in time it may last a much longer period & become then Chronic Causes from which the disease most frequently arises - Exposure to cold or sudden transitions of temperature are the most frequent Causes of Catarrh, whether affecting the nasal passages or air tubes - A draught of air or damp clothing are very common exciting causes - Acute Catarrh frequently appears to prevail epidemically many persons think that Catarrh is infectious from it often affecting the different members of a family - Dr. Alison remarks that there is no doubt of the contagious property of Pertussis although the fever does not show in that disease any of the typhoid symptoms usually attending contagious febrile diseases nor does it appear that the contagium attaches itself to fomites - Bronchitis frequently accompanies Measles more rarely Small pox & Scarlatina - Acute mucous Catarrh is often accompanied by disorders of the gastro hepatic function - in which in addition to the Catarrhal symptoms there are headache, thirst, loss of appetite loaded tongue sometimes vomiting & sometimes tenderness at the pit of the stomach - Dr. Eschscholtz mentions Pleuritis as a disease with which Catarrh is sometimes complicated, to which he thinks it bears some affinity - Dr. Williams however

however remarks that although there are occasionally slight
 wandering pains, simulating Rheumatism. in the early stages of
 Catarrh, they rarely take the course of true Rheumatism -
 Treatment of acute Bronchitis. If the patient be robust
 early Bloodletting proves a very efficacious remedy - If the ge-
 neral Bloodletting be contra indicated local Bloodletting will
 often afford relief & where there is pain, stiffness, flushing
 or impaired action. both general & local Bloodletting may
 be had recourse to with benefit. After depletion Blisters are
 found to be very excellent remedies in Bronchitis. But care
 is required in applying them to children not to allow them
 to remain on too long. Moderate purging is beneficial. frequent
 watery stools tending to diminish the expectoration. the main-
 tenance of which is of importance in the latter stages -
 Emetics given repeatedly to young children, by causing a
 flow of attenuated mucus in the bronchial tubes renders expectoration
 much easier. however if there be any fulness of blood to the
 head Leeching ought to be had recourse to before administering
 the Emetics. Nauseating Expectorants are of benefit in the
 earlier stages as small & frequently repeated doses of the antimonial
 if these should depress the strength too much. small doses
 of *Spasmodica* Minc may be given with advantage. inhalation
 of the steam of warm water has been found of service. In the more
 advanced stages when there is little fever & pain present but

great

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great effusion into the Bronchiae Allunginto care of use such
as alum Zinc or Lead - the inhalation of Chlorine Gas
has been found efficacious when much diluted - Spices
alternated or Combined with these remedies are useful in small
doses taking care to avoid stopping the Expectoration -
Clothes or the fumes of Stramonium frequently affect the
Spires when the asthmatic tendency is present without any
acute febrile symptoms - When the pulse becomes weak & the
Expectoration is difficult small doses of Minc, ammonia or other
Stimuli may be administered - Warm comfortable clothing is
indispensably necessary, through the whole course of the disease
also a carefully regulated temperature as near to 60 of Fahrenheit
as possible also avoidance of all causes which tend to hurry
the Respiration is necessary - However when the inflammatory
tendency has subsided the healing not naturally difficult &
the appetite becoming better & more especially if the Complaint
be pretty Spasmodic exposure to the open air even at rather
a low temperature with exercise & change of scene are frequently
beneficial - Professor Alison remarks that even very young children
are seen to be much benefited by change of air & scene when
recovering from Whooping Cough - When Bronchitis is accompanied
by a tendency to Sleep - Blister to the Head proves useful -

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The second form of Bronchitis or the acute commonly divided ^{into} Sthemic & Asthenic. differs from the milder form already described in the Bronchial Inflammation being of much greater extent. Its local nature & signs are the same. In the Sthemic form there is generally observed spasm & constriction across the Sternum, hard severe cough, with glutinous expectoration; much fever, heat of skin, Headache & scanty urine - Tongue white with red edges; quick & often hard pulse; breathing hurried & often accompanied with a feeling of very great oppression - The pain complained of is more obtuse than that felt in Pleurisy - The Expectoration is usually scanty at first, but becomes more copious afterwards its expectation generally gives but little relief to the Cough & breathing - In the evening there is frequently observed an exacerbation of all the symptoms - The rales first heard are the Sibilant & sonorous - after a time the mucous & submucous reaching to the inferior portions of the Lungs - the respiratory mucous is considerably weakened & annuncy - the presence of the Inflammatory mucous even in the smallest air tubes - but the clear sound on percussion declares the vesicular structure still free. If relief be not now afforded by expectoration, perspiration, or prompt remedial means the disease soon changes its character from the greatly increased Dyspnoea - The pulse becomes very weak quick & irregular & the functions of the brain are impaired & disturbed

disturbed; the countenance becomes anxious & pallid sometimes partially blind the resonance on percussion of the preter inferior regions of the Chest, is found to be slightly diminished - owing to the pulmonary congestion. - In favorable cases the disease abates between the fourth & eighth days - The expectoration here becomes opaque & less glutinous & frothy - & on being expelled affords marked relief to the Cough & Dyspnoea - the disease either runs entirely subsides or passes into a Chronic form -

The catarrhic or humid form of Bronchitis (formerly called the Pleuropneumonia Notha) commences soon to show signs of depression with considerable gastric derangement ^{fever is} the quick & very great heat of skin towards evening - on auscultation we find a unusual Mucous Rale indicating the presence of a puriform secretion in all the tubes - When the dyspnoea is very urgent we hear sometimes dulness on percussion & occasionally Bronchophony in the posterior region of one side - The expectoration may be scanty at the commencement of the disease, but afterwards becomes very copious & frothy - These individuals most commonly seem to labour under this form of Bronchitis are elderly persons of a long phlegmatic habit - having habitually a Cough with copious thin expectoration - In this form of Bronchitis the Cough is frequently absent, & as children do not expectorate sometimes the disorder in the Chest may escape notice until urgent dyspnoea sets in - The state of the Childs health however generally indicates something more

than

than a common cold - The exciting causes of this form of Bronchitis are very much the same as those which were seen to induce the milder form of the disease such as cold particularly combined with moisture, applied locally or generally - Dr. Williams remarks that particular conditions of the atmosphere may excite Chronic Bronchitis in those of an inflammatory habit; & the humid form of the disease in those of a more relaxed constitution. A severe form of Bronchitis frequently accompanies some of the eruptive fevers such as Dysentery, Measles & Small pox - also scalded feet it forms one of the most dangerous symptoms that accompany these diseases - It is a very frequent complication of the continued Fevers of Edinburgh - If the fever should happen to recede in any of the above named eruptive Fevers the Bronchitis becomes greatly increased - giving rise to sudden & oppressive dyspnoea - upon auscultation the Rales, sonorous & submucous Rales are heard in all parts of the Chest - Ematic Gout sometimes manifests itself in the form of Bronchitis - however as soon as Gout appears in an extremity it disappears rapidly - Diagnosis - The Sputa of Bronchitis although they varied wants the rusty tinge of the Sputa in Pneumonia - In Bronchitis the air is not expelled from the vascular structure, as in the effusions of Pneumonia & Pleurisy - in Bronchitis there is neither Bronchial respiration nor Bronchophony -

according to Professor Allen Bronchitis & Asthma are not
 unfrequently complicated with Tubercular deposition &
 pass into regular Phthisis. The same author further re-
 marks, that after long continued Bronchitis with asthmatic
 paroxysms, & especially after Emphysema of the lungs has
 resulted, there is necessarily an habitual slow movement of the
 blood through the lungs, from the impediments to that mu-
 tual action of the air & blood, which is known to be, in one
 way or other, an auxiliary cause of motion of the blood
 there - From this naturally result two consequences, both fre-
 quently very obvious, & of great importance in the advanced
 stages of these Complaints - 1st Enlargement & hypertrophy
 of the right side of the heart, known by Pulsation at the
 Epigastrium, & sometimes in the jugular Veins; & Engor-
 tion, enlargement, & gradual change of the texture of the
 Liver, or in some unhealthy subjects other forms of organic
 disease. And in this state of the venous circulation, we can
 easily perceive that Dropsical effusion may be readily pro-
 duced, & especially as often happens, it may be repeatedly
 caused by fresh attacks of Bronchitis, hurrying the circula-
 tion, & further impeding the calculation & transmission
 of the blood in the Lungs - He further adds that while
 habitual Bronchitis gives this natural predisposition to various
 organic Lesions, it is easy to perceive that a predisposition
 to

to the Bronchitis itself must naturally result from primarily existing organic disease. particularly from such as impedes the transmission of blood through the left side of the heart; & therefore that it should be a nearly constant attendant on the most common organic diseases of the heart, & that the concomitant paroxysms of asthma should be very readily excited in such persons.

Prognosis When the inflammation is limited affecting a few bronchi only, as is observed in mild cases, without much dyspnoea & fever, it may terminate in a period from six days to three weeks, its disposition to pass off is indicated by the expectoration becoming opaque & more clotted, & gradually diminishing in quantity. This change is generally first observed in the morning. the thin glairy character of the Sputa returning in the evening. A relapse is marked by the expectoration again becoming thin & glairy, accompanied by increased hardness of the cough & fever. In the more extensive attacks of inflammation, where the dyspnoea is constant & oppressive, & the fever high from the beginning, the prognosis becomes very doubtful. If the acute symptoms have already yielded to the state of collapse, it may be feared that the power of the system will be insufficient to restore a function on which the disease has made such a serious invasion. The extreme pallor of the countenance with

with more or less lividity of the lips & the face & hands
 announce the asphyxiating effects of this stage of the disease
 & the universal mucous rale being ceased & more gurgling as
 expectoration fails, with almost no respiratory murmur,
 give direct proof of fast approaching dissolution.

When auscultation discovers in Childhood from a largely dif-
 fused Mucous rale, that the inflammation is extensive
 & occupies unfortunately both lungs great danger may be appreh-
 ended, whatever be the amount of dyspnoea at the time
 for this frequently occurs, in paroxysms, which are often not re-
 marked in the sleep state in which the child lies during
 the remissions. In catarrhic Bronchitis the chief danger
 to be apprehended is from the age & weakness of the patient
 In as long as expectoration continues free, & the strength keeps
 up, the lungs may be cleared of their secretion fast enough
 to maintain their functions, but the aged & the weak
 frequently fall a sacrifice to the disease - their lungs being
 generally more or less Emphysematous - consequently ill af-
 fording any impingement on their function - Professor
 Albin remarks that it is always to be borne in mind that
 there is a danger attending the Bronchitis, from the obstruc-
 tion of the blood descending from the head, during the
 fits of coughing, particularly when these are violent -
 Hence arise the Convulsion fits often complicating the
 Coughing

Whooping Cough; & the severe headaches & attacks of
 Apoplexy or palsy, often seen as effects of this disease
 in old persons - Treatment of acute Bronchitis -
 As long as the Bronchitis continues of a sthenic character
 there can be no doubt of the propriety of bleeding either
 by Venesection, Cupping or Leeching according to the strength
 of the patient & intensity of the symptoms - occasional
 moderate bleedings are found to give relief from removing
 the state of the Lungs. in this respect Bronchitis differs from
 Pneumonia. But according to Dr Williams. inflammation
 of a mucous membrane is rarely removed by bleeding alone
 it makes a certain structural change probably he thinks in-
 creased effusion - that can be relieved only by a free secretion
 from the inflamed membrane - Therefore Expectoration is a ne-
 cessary process during the remainder of the disease &
 the strength should be saved for this purpose Local
 & general Bloodletting may be employed frequently with
 advantage - The local should be performed on that
 side, in which auscultation discovers the passage of the air
 to be most impeded - after the bleed; a brisk purgative con-
 taining Calomel is beneficial. at a more advanced period of
 the disease violent purgatives are contra indicated from their
 liability to check the expectoration - Tincture emetic - Induce
 of from one eighth to one half of a grain evry 4 or six
 hours

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hours, with twenty drops of Colicium wine, in any agreeable vehicle, contribute greatly to reduce the intensity of the mucous inflammation - If the nervous sensibility be great, & the cough very hard the addition of a little Hyocyanus, Coriander, or Belladonna will prove of advantage, in allaying these symptoms - In giving Opium it is best to combine it with Calmel - however Opium is only to be resorted to when from great irritability of the Stomach or great debility - Continuity is either indicated Form one to three grains of Calmel, with from one fourth to one half of a grain of Opium, along with a grain or two of Ipecacuan, every three, four, or six hours, according to the symptoms may be substituted in such cases for the liquid Remedy - using in addition, merely a little mucilaginous mixture, for the cough in which if there be fever, a few grains of Nitro may be dissolved - Blisters - They are not eligible for the early stage of Bronchitis - from their great tendency to excite the vascular system - Dr Williams remarks this effect is less likely to be produced by the tartar emetic applied externally, the operation of which, by particular management, may be so treated as to be made consistent in acute Diseases - For this purpose, the vessels of the surface should be excited by friction with a coarse flannel or flesh brush or by the application of cloths dipped out of hot water, or by a short application of a mustard sinapism - The Tartar Emetic

Emetic should then be immediately rubbed in, either in the form of mucous saturated solution, or in that of an ointment composed of one part of Tartar emetic, & two or three of Lard; & the application may be repeated in an hour, if a strong effect is desired - We have often seen produced in two hours, an intense erythematous redness, which in another hour or two became a thick crop of pimples, speedily running into vesicles & pustules - Dr Williams thinks it is probable that a minute quantity of the emetic enters the circulation & a pruritus is sometimes felt, this result instead of being injurious may be highly salutary - Dr. Albin remarks that in the more advanced stages, when there is little fever, or pain, but much effusion into the Dermis, Astringents, which seem to diminish that effusion, appear sometimes the most effectual remedies - Sometimes the preparations of Lead Linc, or Alum - We have seen the latter very efficacious in five or ten Grain doses - & one Grain every four hours in the Chronic stage of Herpetic Eruption proved very efficacious - Should a state of collapse come on, it is necessary to resort to stimulents - Of these the Carbonate of ammonia is the most appropriate, as it rapidly enters the system, & seems peculiarly to assist excretion - It may be given in doses of from two to five grains in decoction of Senega. If the skin should become hot & the pulse hard, it must be at once stopped - The good effects of treatment will often be apparent

Dr

in the general symptoms though not aided by the Physical signs - The breathing becomes less laboured, the face more natural, & the pulse becomes steadier & fuller - On putting our ear to the chest, we may perhaps find that the air enters more freely into the lungs, but that the Mucus & other Matters are still there, & will continue for a considerable period - And it is only when the improvement is considerable that we perceive that they diminish, & that the Rattles become less general - the respiratory murmur is heard, still mixed with Clicking, Whistling & humming sounds - finally as Professor Alton remarks - Throughout almost the whole of the disease Warm Clothing, a regulated temperature, as near to 50° of Fahrenheit as possible, & Care to avoid all muscular exertion, & all causes that can hurry the Respiration, are of the utmost importance, and deviations from these rules often decidedly injurious; (as we have seen frequently) but in the latter stages, when the inflammatory tendency has subsided, when the breathing is not habitually difficult, & the appetite returning, & especially if the Complaint is partly spasmodic, exposure to the open air, even at a low temperature, with exercise & change of scene, seems often useful -

In the asthenic form of Bronchitis - Bloodletting is scarcely done or only by Leeches or Cupping - The best remedies are large Blisters - The Mercurial & Antimonial remedies, used in Moderation

Moderation. Where the depression is great, & the power of
 expectoration fails, small & frequent doses of Wine alcohol
 to ammonia, are not only admissible, but often signally be-
 neficial. We have seen but Coffee of emulsible perice. In
 these Cases likewise, a degree of abstinence from Liquors is
 expedient. Merely, not only diminishing the mass of blood, that has
 to pass through the obstructed Lungs, but also, as in acute Catarrh
 by reducing the amount of the Bronchial secretion. The asthma
 form of Bronchitis often leaves great debility, & twice appear
 then take of some use. If an untimely cough should happen
 to remain, small doses of Opium will relieve this. but as Professor
 also remarks Change of air will sometimes answer both
 purposes. In the Bronchitis of young Children, Vomits &
 Stomachal purges are peculiarly serviceable. If however there
 be any determination of blood to the head, Bleeding should
 precede the exhibition of Vomits. Vomits seem to be of
 benefit by causing a flow of attenuated Mucus in the
 Bronchiae & thus facilitating expectoration. Treatment
 must be particularly energetic in those Cases of Bronchitis,
 which supervene on suppressed discharges & eruptions. Counter
 irritation must be particularly extensive. Tartar emetic is
 a most eligible Counter irritant here. In Case of retrocedent
 Gout, means should be adopted to bring back the Inflammation
 to the extremities by hot Pediluvia, & counter sinapisms. &
 it

it may be necessary to give Colchicum internally at the same time - Bloodletting is generally contra indicated in the Bronchitis occurring in the course of continued fevers - In some cases Special Bloodletting may afford some relief to the urgent symptoms, however in these cases must be placed on dry cupping, Sinapisms, & large blisters - with small doses of Tartar emetic - Chronic Bronchitis -

This affection most commonly seen in persons of advanced life - In its slightest form it may continue for many years, without producing any marked injury to the constitution - It may come on after an attack of acute Bronchitis, which not having been subdued by appropriate treatment - may have persisted long enough to injure permanently the vessels of the bronchial membrane - In such cases, when the expectoration is puriform & copious, there is generally much debility & loss of flesh - Some cases being accompanied by night sweats & other symptoms similar to those of pulmonary Consumption but then we do not find the indications of ulceration in the upper part of the Lungs as we do in Phthisis, nor the peculiar sound of Respiration, Resonance of Voice, & especially the peculiar quivering or clattering rale (Râle moussé ou râle caverné) heard especially on the expiration immediately succeeding a cough - according to Professor Alton - In simple Chronic Bronchitis the Chest expands equally, & sounds well

over percussion. the rales which are present are the mucous
 rales, Sibilant, & Clicking. these rales are continually shifting
 & changing. Hence it requires an experienced auscultator
 to pronounce confidently the diagnosis. - When you
 have dilatation of the Bronchiae from long continued
 Inflammation. physical sounds may be induced - imitating
 closely those of Phthisis - Needle quinders, Stone Cutters
 &c are particularly liable to suffer from this disease from
 the atmosphere in which they pursue their avocation being loaded
 with minute particles - In these circumstances the Chronic
 Bronchitis commences with dyspnoea, which may continue for
 a considerable time ere the disease declares itself. after a time
 say for two or three months - the cough is frequently accompanied
 with a profuse haemoptysis - Unless the disease be early relieved
 by medicines, & a total abandonment of the unhealthy occupation
 insisted on the patient becomes worse; the expectoration in-
 creases to a great extent, & becomes more frequent; hectic with
 night sweats now comes on. & the patient dies at last with
 most of the symptoms of Tubercular Phthisis. Chronic Bronchitis
 is always a serious complaint in young persons. & is probably
 always accompanied or followed by considerable changes of structure
 in the Bronchial tubes - Dr. Williams remarks, that the cases
 of Chronic Bronchitis that prove fatal, are those in which the
 mucous membrane & other structures of the tubes have become

So altered in texture & function, that the oxygenation of the blood is permanently impeded, whilst the excessive secretion, & the perpetual weary efforts to expectorate it, waste the body & reduce the strength - Such Cases generally occur in aged persons, & in those already reduced by fever or some other severe disease. The imperfect oxygenation of the blood, that follows from extensive Chronic Bronchitis, occasions Congestions in the Lungs & heart: hence organic disease of the heart, with effusions of serum & of blood, not unfrequently supervene on its long continuance. Treatment - A few Leeches may be applied under the Clavicles - to the top of the Sternum - or the cupping glasses between the Scapulae. However the most generally useful Class of remedies are the Counter Irritants - together with mild alterative tonics. Liniments rubbed on both Chest seems to afford relief. Some practitioners of late years have recommended the inhalation of the vapour of Iodine or of Chlorine - Dr. Williams remarks that in several Cases where he saw this kind of treatment followed, the results were unfavourable - the stimulating properties of the vapour exciting fever & cough, & the effort of inhaling fatiguing the patient. To diminish muscular sensibility, & allow that morbid mobility of the muscular system - on which the length & frequency of the fits of Coughing depend. Narcotics must often be combined with the preceding remedies - Opium should be generally

be continued with *Spicazuanha cichicum* or some other
 drugs which prevent its astringent effect on the secretions
 The extract or Tincture of *Conium* has been sometimes
 used by inhalation - When the cough has a *Crampy* cha-
 racter the Extract of *Belladonna* in grain doses has proved
 useful - When the Bronchitis is accompanied by phlegm
 the daily exhibition of a saline purgative is advisable - Dr.
 Williams remarks that Warm Sea Coast residence is the most
 beneficial, especially if the patient, use regular & moderate
 exercise in the open air - He further remarks. The careful
 regulation of the air in the apartments to which the patient
 is confined during the winter months, must be the recourse of
 many in this Country; & this can be effected with the greatest
 precision & economy by means of Dr. Arnott's Stove - There
 must however be additional means to insure the ventilation
 of the rooms, which may be safely effected by a small
 fan wheel in a window or door, so placed as to direct
 the current of fresh air to the ceiling, where it will mix with
 the warm air & produce no draft -

Persons predisposed to Bronchial Inflammation,
 should sponge the Chest every morning with Vinegar &
 water - & also be careful to wear flannel next the Chest -

Patrick Craigie Esq

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1851-52