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To

Professor Laycock.

Observations

on

Certain forms of disease

met with in

General Practice.

George Hunter.

Linlithgow

The following pages were written while busily engaged in general practice. Employed all day in making distant visits to patients, one could not be expected to be in that mental (or bodily) condition best fitted for writing anything original or learned, on returning home in the evening.

From the circumstances in which I was placed; without access to Medical or Scientific libraries, at a distance from Hospital wards and post mortem theatres, and anything like experimenting on animals being impossible for various reasons; I was compelled to offer these observations on some of my cases which were the subject of daily study and reflection. In addition to Delirium tremens Essential paralysis of children and these forms of Bronchitis, I had intended making some remarks on "Some forms of Herpes

with the development of peculiar melancholic symptoms during the Continuation of the Eruption "

"Cardiac disease affecting six members of the same family "

"The doubtful value of Santonine as a vermifuge, and some of its peculiar physiological effect actions"

But after treating of delirium tremens I found it impossible to undertake more than the other two subjects —

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Three cases of Delirium Tremens.

I. Delirium tremens with occular Spectra; attempted suicide; recovery.

Mr. A. for many years has been addicted to intemperate habits, but never had an attack of delirium tremens before. His general health has always been very good; and his constitution vigorous, Ten weeks ago he sustained a severe railway injury which produced a very extensive lacerated wound over the fifth and sixth ribs of his left side. After a certain amount of suppuration it healed kindly and there was no more drinking for several weeks.

During the last fortnight, he has resumed his old habits with as much severity and perhaps more regularity; his favourite liquor being whisky. On the evening of the 16th Sept. 1868. Slept badly; having frightful dreams of men threatening his destruction & requiring to start up into the sitting posture to see if there is really no

no one there, In the morning however, after getting up these things annoyed him a little, tho his manner was described as being more hurried and agitated than usual, & on this, as on the previous two or three mornings there was no appetite for breakfast

On visiting him on the morning of the 17 I found his condition as follows:—

His Countenance wore a pale & anxious expression; Skin cool and moist; eyes of a peculiar dull appearance, & rather pinky but not congested; Conjunctivae of a yellowish ~~tint~~ tint & his pulse 98 Soft & weak. His tongue was put out in a tremulous manner, a little red at the tip and covered with a creamy fur — On pressing over the epigastric & hepatic regions a certain amount of tenderness was complained of; but no enlargement of the liver could be discovered.

The pulmonary & cardiac organs were carefully examined and found normal; the urine did not contain albumen.

The bowels being constipated the following powder was prescribed -

℞

Hydrarg c̄ Cret gr V
Bismuthi Subnit gr X
Pulv Rhei gr XII

fiat pulv j. Statim sumend.

He was ordered nutritious diet, Beef tea, Essence of meat, milk, and stimulants in every form to be carefully withdrawn. He says he sees no illusions now, but remembers distinctly what he saw during the night. On the morning of the 18th he says he has passed a restless night, scarcely closing an eye. There is now considerable tremor and agitation of manner, and he evidently has religious delusions; calls out frequently "I am saved" & "they want to keep me from my Saviour". At times he prays to be delivered from some dreadful forms that are pursuing him. He is anxious to relate to me his experiences of the previous night & declares that little girls came tickling the soles of his feet; if he drew up the

the one leg underneath the bedclothes, they tickled the other more diligently; then horrible creatures came close to his face and blew dis-agreeable smells on ~~his~~ ~~face~~ it & dogs licked ~~his face~~ it with a nasty cold tongue, Then sounds of music were heard underneath his window as if from a band playing tunes with which he was quite familiar. He then got out of bed & commenced reading, but curious creatures covered the leaves & chattered in his ears to such an extent that reading was impossible.

His pulse is now 100 small & soft, his eyes glittering and looking prominent, bowels have been opened twice. He was recommended to go to bed to be kept quiet & not crossed. And the following mixture was prescribed (from Dr Graves)

℞ Antim Tart gr IV
Tinct Opii ʒj
Aquae ℥viii

Sig. a tablespoonful every two hours & S. until nausea is produced.

On the 19th more restless than before, continuous tremor; will scarcely remain in bed praying and uttering all manner of pious ejaculations; Some devils trying to get hold of ~~him~~ him; but he will be delivered from them yet, The medicine has not produced nausea, ordered to be Continued & given every half hour, His Expression is now that of extreme terror, to Continue beef tea arrow-root &c.
At 9. p.m. it is with difficulty that he is kept in the room; attempts Coming down stairs to escape the "devils who are Coming down through the ceiling armed with red hot bars of iron & thrust him into hell"
A stout sober attendant is procured who is to remain with him all night & who is ~~badly~~ duly acquainted with the responsibility of his duties, To have 1/3 of a grain of Tartar Emetic every hour; the windows to be fastened down and nothing dangerous left in his way or within his reach,
I was called at 2. a.m. on the morning of

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the 20th of Mr A. who, the messenger informed me had cut his throat, He had quickly passed his attendant & armed with a poker rushed downstairs to a room in which he knew there were razors & with one of them cut his throat. I found him lying in bed, his face bloodless; but his face arms, & the floor of the room smeared. There was a deep gash in the neck immediately above the pomum adami & under the floor of the mouth; but & most fortunately the carotids undivided Hemorrhage was soon checked and the wound carefully stitched and dressed - after which he had no difficulty in swallowing a little whisky & cold water administered to revive him from the fainting condition into which he had fallen.

All medicines to be omitted and nothing but Essence of meat, beef tea milk & soups given. Pulse very frequent 120, Surface of the body cold; warmth to be applied to the Extremities and still to

he carefully watched as his delusions still continue. He says "he has done it now because devils were taking him from his Saviour" & were still round him marking with skeleton hands how many minutes he had to live.
At 9 a.m. he has still delusions & fancies they (the devils) are waiting to see him laid out on the stretcher, that they may then remove him. Reaction has now set in, pulse of better strength 115. face not so pale; has swallowed a good deal of beef tea; skin is warm & moist. Still discontinue medicines.
At 9 p.m. has slept two hours or more pulse 98. full soft, still tremors and delusions but much less frequent. Bowels have been opened but not purged. he hawks up a good deal of mucus from the throat & swallows without difficulty. he looks very haggard worn; to continue beef tea & nutrients.
21st Has slept four or five hours pulse 96 manner much changed, tremors almost

entirely gone, but got out of bed this morning fancying bees were pursuing him, There is some difficulty in articulating from the constant hawking up of mucus. He says he wished himself dead rather than that the devils should get at him.

22d Sept. Has slept all night and awoke free from delusions; complaining of stiffness in the throat, but able to swallow well enough; bowels opened this morning and partaking liberally of milk beef tea & nourishing soups.

The wound granulated & healed well, without any further delusions.

I may just add here, that Mr A. has recently (March 8th 1869) recovered from a second attack of delirium tremens in which a purely eclectic mode of treatment was adopted & recovery was complete in four days from the commencement of the symptoms, In this last attack there was a slight tendency to a bronchitic complication.

II. Mr B— Publican of indolent habits and deficient energy; possessed of no aptitude for business, he has been "soaking" for a number of years & has been several times on the verge of delirium tremens. During the last fortnight he has been indulging more freely than usual of whisky, beer & porter. He came under my observation on the 23rd Sept 1868; is a stout, robust looking fellow of fair complexion, but his countenance wears a dull expression, looking as if he was melancholic. He is restless excited, & very tremulous; for the last two evenings has slept none. He is conversing with sundry imaginary persons & things at one time, & fleeing from bulls, mice, cats &c at another. His skin moist, tongue is coated, raw at tip and edges, the conjunctivae icterish, pulse 96 of moderate strength; and pain is elicited on pressure over the Epigastrium, one cannot depend however on his answers, as there is no wincing under the pressure

a strong desire to break furniture is manifested from which however he is easily dissuaded. As his bowels were confined he was ordered a gentle mercurial alterative, 6 grain doses of Bromide of Potassium every three or four hours & a good nurse to look after him, prevent his obtaining any stimulants and administer his soups &c regularly. He was allowed to walk about the room, ~~perfect freedom in his house to move from room to room~~ & go to bed when he wished.

On the 24th at 9 a.m. I found his skin bathed with perspiration which smelled of whisky; still illusions & delusions on various matters; on the whole has passed a more quiet night, but hasn't slept any. The bowels have been opened & the tongue is somewhat cleaner & there are ~~fewer~~ less frequent tremors. To continue the Bromide of Potassium & have a diaphoretic mixture containing the Liquor Ammoniae Acetatis to keep up

the diaphoresis, with warm applications to the feet.

25th In visiting him this morning he declares himself a different man; has slept three or four hours, during which he wavered a little has taken more food, less pain he says over Epigastrium and the tremors almost gone

27th Didn't sleep so well last night, he fancied he saw the devil winking at him and beckoning to him but with that exception was tolerably free from illusions; to continue the same treatment and ordered another dose of alterative medicine as the tongue was looking ragged at edges; the eyes bilious & the skin had a somewhat oily appearance,

27th Has slept almost whole night, the urine contains a deep sediment of lithates; has continued free from albumen tremors gone & seemingly comfortable. Potass: Bromid: to be given only at bedtime

30th In his usual health, and smile

recovered from his attack of delirium tremens. Has got such a fright that he is determined never to "taste" again

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III. The following case occurred in the practice of an English surgeon whom I was assisting during the summer of 1866.
Mrs C— a confirmed tippler was first seen on the 4th of August, with all the symptoms of delirium tremens. Horrible delusions existed, now fleeing from murdering enemies, at another time conversing with imaginary acquaintances, She persistently refuses to swallow "a drop of our nasty medicines" and wonders why we should be visiting her. From notes taken at that time her condition was as follows:- much tremor staring, clear eye, moist skin, furred tongue anorexia, & a continual restlessness of manner. It was impossible to persuade to take any medicines, a sedative draught was thrown repeatedly on the floor after promising to take it. As she hadn't slept for several nights &c Mr S— (the gentleman

whom I was assisting) believing fully in the efficacy of opiates in procuring sleep & consequent cure of the delirium, injected one grain of Acetate of Morphia in Solution under the Skin of the forearm with Woods Syringe. On the morning of the 6th there was no amelioration of the Symptoms — had not slept any — it was ~~resolved~~ to agreed to inject another grain of Morphia in the afternoon. This was done & the result was that she passed into a drowsy Condition, remaining quite motionless, the pulse became frequent and irregular, the Countenance assumed a livid earthy hue, the respiration became slower and gradually stertorous; loud râls heard all over the chest, & pupils became contracted to a mere point. The Skin was covered with cold perspiration, the extremities tip of the nose, &c gradually became cold & the patient died Comatose in spite of all attempts at resuscitation in eight hours after the administration of the narcotic —

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This form of disease has only been accurately described and recognized since the beginning of this century, & when I mention the various names that have been employed by different authors to express what is meant by delirium tremens, it will be allowed that much difference of opinion has existed as to its nature, causation & pathology. It has been designated by the following names "Mania a temulentia; mania a potu; omania potatorum; phrenesis potatorum; delirium ebrietatis potatorum; ebriositas seu hallucinatio ebriosorum; meningitis phantosmatophora; erethismus ebriositatis; delirium vigilans; delirium a febrile tremens; delirium cum tremore; brain fever following intoxication; methystic brain fever, delirium nervorum; alcoholismus nervorum chronicus; ecstasis nervosa; neuropathia potatorum; erethismus cerebri abdominalis; Encephalopathia crapulosa, encephalopathia nervosa encaphalitis temefaciens; dipsomania; polydipsia ebriosa." —

* Prof. Laycock

The term delirium tremens is, no doubt pathologically incorrect for incoherence & tremor may coexist in very dissimilar states of mind & body, & originate from a diversity of causes; but we understand by it an acute cerebral affection, caused by the indulgence in intoxicating liquors & having for its principal symptoms delirium tremors, but know however that there are other cerebral affections in the course of which these symptoms are manifested — in certain incipient forms of insanity, for example; but it has been so long assumed by the profession and known to the public as applicable to a disease originating solely from continued and excessive indulgence in alcoholic stimulii that a more general signification cannot be recognized without leading to confusion and error.

The question arises, in treating of the pathology, how alcohol operates in inducing delirium tremens;

We must endeavour to discover if there are any anatomical changes observed which

may lead us to account for the Symptoms
It is seldom now that one has an opportun
of examining an uncomplicated case of
delirium tremens; for it is rarely that
it terminates fatally unless complicated
with organic visceral disease or unless th
old routine plan of enormous doses of
opium or morphia are being administered
Dr Abercrombie considered it as "a danger
form of meningitis"; Dr Bright classed
amongst his cases of "arachnitis" &
Craigie Frank and others seem to have
held similar opinions regarding its nat
In these infrequent opportunities which h
occurred of inspecting the head, in cas
dying of uncomplicated delirium tremens,
nothing has been discovered which un-
questionably proved the disease to be
symptomatic of meningitis or any mo
-dification of it. A slight amount of
opacity of the arachnoid membrane &
slight fulness of the vessels of the pia
mater, with a small amount of serum
in the cerebral ventricles, have undoubted

been seen at times, but never so pronounced as to indicate previous inflammation, and besides we must remember that these same changes are often found in those who have been intemperate, but who have never suffered from an attack of delirium tremens. The most careful examination of the brain and nervous system has detected no change which could with any degree of propriety be considered an efficient cause of the peculiar train of symptoms which characterize the disorder. In most cases however, there is found old standing disease such as serious organic changes in the heart liver lungs kidneys; but as these visceral diseases are very common and are not associated with the peculiar symptoms of delirium tremens, they cannot be considered as the cause of the singular nervous disturbance constituting that disease. The most careful inspection of the brain or its membranes, gives us no real light on the nature of the disease but it teaches us, that when delirium

trements is fatal, it is generally in consequen
of textural changes in important organs
It also proves to us that the mere inspect
of the brain by our unaided senses is, if
exclusively adopted, an insufficient metho
of arriving at the true nature of the disord
Analytical chemistry and experimental ph
- ology have given valuable additions to
our knowledge of the actions of alcohol o
the tissues, of its degrees of affinity for
different textures and organs and of the
manner in which it affects the blood,
It is an undeniable fact, proved by numero
most conclusive experiments, that alcohol
like most other poisons, manifests an un
- doubted preference for one class of tissues,
and a tendency to attack one organ in
the body above others. It has been dis-
covered in notable quantities in the vent
- ricles of the brain or its substance by
the experiments of Dr. Percy clearly show
that nervous tissue has a special attracti
for alcohol and a great power of con-
- densing it into its substance; and that th

brain above all other organs is most rapidly and most frequently attacked by the poison. Dr Percy injected into the stomach of a dog a quantity of alcohol sufficient to cause almost immediate death. He removed the brain as quickly as possible and proceeded to distil it and in doing so extracted a considerable quantity of alcohol, more than he could obtain from any other part of the body of equal weight, & more than could be distilled from an equal weight of blood. Dr Percy's opinion therefore was, that a peculiar affinity existed between brain matter and alcohol. Dr Carpenter in his work "On the use and abuse of alcoholic liquors in health and disease" Concerning this says "The alcohol being thus specially drawn out of the circulating current by the nervous matter is incorporated with its substance in such a manner as even to change (when in sufficient amount) its physical as well as its chemical properties. It is important also to observe that this affinity is obviously such as will occasion the

Continual presence of alcohol in the blood, even in very minute proportion, to modify the nutrition of the nervous substance more than that of any other tissue, for the alcohol will seek out (as it were) the nervous matter and will fasten upon it, just as we see that other poisons whose results become more obvious to our senses (although the poisons exist in such minute quantities as not to be able to be detected detected by the most refined analysis) will localize themselves in particular organs or even in particular spots of the same organ".
Dr Peddie remarks with reference to the Special action of alcohol "If there is one disease more than another arising from the habitual & excessive use of alcoholic drinks in which a peculiar toxological effect is manifested, it is delirium tremens like plumbism, mercurialism, ergotism, or narcotism, alcoholism is manifestly specific in its nature. Every one allows that alcohol reaches the brain with extreme rapidity, this is manifestly

shown by the rapidity of its effects on the minds of some people, it is now necessary to inquire through what channels, in what mode, it reaches & how it operates on the nervous centres,

Since the theories of Bright and Abercrombie have become unpopular, the thory of the pathology which has been most generally accepted is that of Sir Thomas Watson, who says the disease "consists in nervous irritation — nervous exhaustion goes along with and augments the nervous irritability" Although it is undoubtedly true that the nervous system is in an irritated and exhausted state, still this is no more than the expression of a truth and contains no answer to the question how alcohol induces this state and occasions the peculiar and characteristic signs of the disease. Numerous experiments have been performed with the view of showing how alcohol acts on the nervous centres. The performance of these experiments has led to the following opinions —

1st Some believe that the influence is Con
veyed to the brain thrugh the nerves only
Serrin, Duroy & Lallemand have Come to
the Conclusion that alcohol acts primarily
and directly thrugh the nervous System,
2d others maintain that it acts primarily on
the blood, that it is just absorbed and
that it does not manifest its effects on
the brain until it has Come in Contact
with that organ by the circulation
3d others believe that it produces its effects
on the nervous centres thrugh both these chann
that its influence at times reaches them
thrugh the nerves only & that at others it
just passes into the current of the circula
and by it is brought into Contact with the
Dr Marcet in a series of papers entitled, "
experimental inquiry into the action of
alcohol on the nervous System" records
numerous experiments on frogs & dogs wh
led him to believe that the influence of
alcohol on the nervous centres is transmitte
thrugh both channels already mentioned -
Dr Marcet performed three different se

of Experiments; he first observed the effects of alcohol on the dog and frog in health; in a second series of Experiments in frogs he allowed the circulation to remain undisturbed but cut through the nervous centres distributed to the parts which he placed in contact with alcohol, whilst in a third set of Experiments on both these animals, he arrested the circulation but carefully avoided injuring the nerves of the part to which he applied the alcohol. The conclusions arrived at were that alcohol acts on the nervous centres chiefly by absorption, but that it also exerts a slight but decided influence on the nervous centres through the nerves without the aid of the circulation, what the exact nature of the influence is which is transmitted along the nerves to the nervous centres we do not know, whether it is as has been suggested, of the nature of shock or whether it consists in peculiar molecular change chemical decompositions or chemico-vital changes we cannot decide, but it is strange to observe how the influence

transmitted through the nerves varies at different times and in different persons from causes of which we are utterly ignorant whether owing to the natural constitution or to accidental causes operating at the same time, the fact indisputable, that different portions of the nervous system possess various degrees of susceptibility to the influence of alcohol, Two men take same equal quantities of the same intoxicating liquor & one of them is affected with marked sensorial disturbance with little or no impairment of the powers of locomotion, whilst in the other, the mental powers remain so intact that you never suspect intoxication until on attempting to walking, the staggering gait reveals that the alcohol has taken effect.
Are these different manifestations owing to an influence transmitted through the nerves independently of the circulation, or are they the consequence of changes induced in the blood by the continued presence of alcohol causing various degrees

of disturbance in different portions of the nervous mass, and dependent on variations in the rapidity with which the nutritive changes are going on.'

Those who deny that alcohol possesses a specific action of a poisonous character and consider delirium tremens to be the result of irritation and exhaustion of the nervous centres & system from excessive stimulation do not require to prosecute more minute investigations as to the mode of the action of alcohol in the induction of that disease, because they consider the continued use of alcoholic stimulants to be the predisposing cause & the sudden withdrawal of them the immediate exciting cause of the disorder.

It does not appear to me that the paroxysm is owing to the sudden withdrawal of the accustomed stimulus & it is found to be the direct result of a violent fit of drinking or of long continued steady tippling and not any refrainment from intoxicating drink.

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Two separate and distinct forms of delirium tremens are usually described (1) Delirium à potu or delirium ebrietatis an acute alcoholism the immediate effect of alcohol in the system and (2) Delirium Ebriosorum or the delirium of drunkards who habitually indulge to a large extent, but not to such a degree as to unfit them for the duties of their particular calling. This second form is usually observed to occur after or changes of regimen and is said to be the immediate consequence of the suspension of the accustomed stimulus. These cases may be accounted for without attributing them to deprivation of the accustomed stimulus and are explained in the same way as cases of traumatic delirium following bodily injuries or surgical operations. I consider the theory of privation or suspension of the stimulus being the exciting cause of the paroxysm is confuted by actual facts. If it is true that delirium tremens occurs in persons who have been drinking for some short time, it is

also true that numerous drunkards cease from evil habits become sober, without suffering in any degree from the disorder. If the suspension of the ordinary stimulus were the exciting cause, it ought to operate equally powerfully in both instances.

This theory is also confuted by the experience of many who have had opportunities of watching the effect of suddenly withdrawing alcoholic liquors from those long accustomed to excessive indulgence in them; this is forcibly seen in prisons & on board ship. Dr. Peddie expresses his opinion thus, "it is apparent that habitual excess in the use of stimulants is alike the exciting and the predisposing cause of delirium tremens, and that if a suspension or diminution of habitual supplies, be at any time attended by symptoms of the disease, these are not to be regarded as resulting from change in the quantity consumed, but as occurring in spite of such change. The error is a popular one and has arisen from imperfect

inquiry into the history of individual cases and incorrect observation regarding the circumstances connected with the supposed reduction or abstraction: when called to see a case of delirium tremens, on inquiring as to the habits of the patient we are frequently informed by his friends that for a long time ~~[illegible]~~ large quantities of spirits or wine or malt or all of them, and perhaps in addition, morphia or opium had been systematically consumed but that for some time, (a few weeks perhaps) much less had been taken, and within the last few days little or none and then the inference is drawn for us that the unfortunate patient has actually brought on the attack by meritorious efforts to free himself of a habit of which he had begun to be ashamed. Now all this is very plausible but not in accordance with the strict facts of the case as the individual himself if put on his word of honour will probably confess. The statement ought to be, that he was

formerly in the habit of consuming large quantities of his favourite stimulant, until he found that a much less dose began to affect the system, that then he reduced the amount still further, but experienced an equal if not greater constitutional effect therefrom, & thus from day to day, reduction was forced on him from his own sensations of gastric irritation, nervous excitement & muscular debility — these feelings having been in fact neither more nor less than the premonitory symptoms of the attack of delirium tremens, and just what might have been expected, if, as I have ventured to assert, the alcoholic principle is to be viewed as a cumulative poison".

Those who reject the opinion that delirium tremens is a specific toxaemia from alcoholism and consider it as a mere nervous irritation and exhaustion consequent on the sudden want of a favourite stimulus, look upon the "delirium cum tremore", (or as it is

also called the "symptomatic" or "traumatic" delirium) which often follows serious accidents or severe surgical operations as identical both as regards its exciting cause and symptoms with the delirium è potu and adduce it as a powerful support to the theory they entertain. They attribute the occurrence of the disorder under these circumstances to the sudden abstinence enforced in the treatment, or to the want of the influence of the habitual stimulus either from the system being unable to receive ~~it~~ & retain it or being in some way so modified that it will not yield to its power. Many high authorities support this theory, Sir Thomas Watson writes "it is a very common result of bodily injuries and accidents, and surgical operations, or I should rather say, that it often follows such diseases and casualties; for it is even then, the consequence of the treatment & regimen to which the patients are subjected, rather than of the surgical or medical complaint. And it is certainly more apt to occur

under these circumstances in old people, & in those who being younger are known to have been intemperate."

Dr. Wood also writes, "The occurrence of an accidental injury or of a violent disease is apt to be the exciting cause of the delirium, by interrupting the use of the stimulus, causing its rejection by the stomach, or rendering the system for a time unsusceptible to its influence". Dr Peddie remarks "There is in the habitual drunkard drinker of a nervous temperament a tendency to delirium tremens, it is in this irritable state of the habitual drunkards constitution although he may not be on the verge of delirium tremens that alcohol from its presence in the blood — in whatever way combined — and its interference with the nutrition of the brain and nervous system, will supervenue on the receipt of an injury — say a gunshot wound or a fracture — a delirium presenting somewhat of the appearance of that disease but which in reality has more of a typhoid character. — "it is not identical

with delirium tremens although some writers have considered it as such."

Difference of opinion may exist as to the identity of delirium è potu and the "delirium traumaticum" of Dupuytren, among those who consider the former disease to be a specific toxaemia, still there is but one opinion as to the immediate cause of the seizure after accidents and serious diseases. All agree that it is the shock to the system which causes the immediate outbreak, & not the sudden refrainment from stimulants enjoined in the treatment to which the sufferers are subjected or rendered unavoidable from their particular condition at the time. The shock operating on a system already greatly disordered by the abuse of ardent spirits, causes a more speedy manifestation of the disorder than would have been the case had no injury been sustained. The system in the habitual drinker is always tending towards a paroxysm, which however requires a certain continuance in intemperate habits

for its due manifestation. The shock by the additional disturbance it causes to the nervous system, renders the system unable any longer to withstand the fit; matters are brought to a height and delirium tremens ensues. Now I think that a great many cases of the so called delirium ebriosorum admit of a similar explanation. A man has been shaky for years a confirmed drinker, although seldom or never so drunk as to unfit him for work, More or less alcohol is always in the system which in consequence has become very "shaky"; but so long as no additional disturbance of the nervous system occurs, the habitual drinker although perhaps for long on the brink of an attack, yet never suffers from a decided paroxysm of delirium tremens. By & by, however, he suffers from some disease it may be slight; or he is put under some restraint or suffers some disgrace, which from affecting his position and character causes him considerable anxiety & annoyance. For a little nothing un-

usual happens, but after a day or two the man becomes more shaky and disturbed in mind, and at last falls into an attack of delirium tremens which is hastily attributed to the sudden change from habitual intemperance to complete abstinence. To the mental agitation and nervous trepidation caused by bodily disorder or punishment, must be assigned the immediate cause of the outburst, just as the more decided shock consequent on accidents or severe operations. There is this difference, in the one the system is completely saturated with alcohol and requires a less additional disturbance to the nervous system to induce the paroxysm, than does the other.

Concerning the power of other agents than alcohol to induce a nervous condition exactly identical with delirium tremens some difference of opinion exists. On the one hand Prof. Laycock says "It is I think well established that the excessive use of opium or its salts, of tobacco

and even of certain bitters usually thought harmless, will excite, though more rarely the same class of affections, while in other countries, other drugs besides opium and tobacco are used abusively with similar consequences." Others say the delirium is very different, not of the same busy chattering nature, tremor more paroxysmal and greater heat and dryness of skin.

Dr. Macpherson in the "Indian Annals" writes "Authors talk of delirium tremens coming on from moral causes, from excessive or restrained secretions, from abuse of laudanum or tobacco, but of these causes producing delirium tremens I have no knowledge, although Excess in the use of tobacco among Europeans in India is common and abuse of opium by natives more so". Dr. Peddie writes "As regards the other causes independently of alcoholic liquors, said to produce delirium tremens, the kind of delirium differs in each case or partakes more of the character of insanity; and there is also a corresponding diversity in the nature of

the watchfulness, the muscular tremors and other symptoms, all of which circumstances could be explained on different grounds." We therefore conclude that delirium tremens does not consist simply in nervous irritation and exhaustion from want of a previous stimulation & that the sudden withdrawal of alcoholic liquors is not the exciting cause of a paroxysm — also that under certain degrees of alcoholism a sudden shock or agitation of the nervous system, tho' not the exciting cause of a paroxysm, will hurry it on sooner than would otherwise have been the case & that it is a disorder induced by alcohol alone. The proper nutrition of the brain is interfered with, which implies that the poison must operate through the circulation. It is necessary to inquire what the changes are that the continued use of alcoholic liquors produces in the blood & through it in the whole body.

When alcohol is absorbed into the vascular system, it retards the motion

of the blood producing a temporary increase of the hearts action and a congestion of the whole system of pulmonary vessels. That the use of Spirituous liquors retard the motion of the blood in the vessels is matter of physiological experiment & proved by pathological observations; we have thus a most favourable condition for the accumulation of fat in the blood. It is proved from abundant evidence that in certain cases a milky character is imparted to the Serum, globules of fat being distinctly visible & It is computed that the blood becomes surcharged with unchanged & unused material & contains at least 30 p.c. more carbon than normal, The way this comes about is as follows:- alcohol is directly absorbed by the blood vessels without undergoing any change or decomposition. Part of it is eliminated very slowly as alcohol by the lungs liver Kidneys, but it appears to remain in greatest amount at the liver and brain. Another portion is decomposed; its H. enters into O. and forms

water, which with Acetic acid having been produced, carbonic acid and water are formed. Oxygen is thus diverted from its proper function, the exhalation of CO_2 at the lungs is diminished & less urea is excreted by the kidneys than normal, but the pulmonary aqueous vapour is not lessened. The water of the urine is diminished, the chlorine is greatly lessened as well as the acids and bases. All the evidence therefore points to the effect of alcohol as causing the retention of substances which ought to be eliminated; and this retention of the effete matter is still more intensified by the stimulant action of alcohol increasing for a limited time the frequency of functional acts followed as it is by a corresponding depression. In this way impaired health is soon brought about, tending to wasting of the tissues generally; and so long as any alcohol remains in the blood as alcohol a certain toxic or poisonous effect continues to be produced on the nervous system through which the poisoned blood

circulates. If a constant supply of alcohol is kept up the phenomena of alcoholism becomes chronic or persistent; and acute paroxysms, generally in the form of delirium tremens supervene which is (according to Dr Aitken) at once the most common and prominent symptom of alcoholism.

Different opinions have been expressed as to the exact element in the blood, which interferes with the healthy nutrition of the brain; but whether it be as suggested by Dr Morehead, alcohol as such incorporated with the nervous matter, or as hinted by Dr Todd "a compound formed of alcohol and perhaps some morbid matter generated in the System" it is sufficient for the framing of rational rules of practice to know that the blood is in a poisoned state, consisting very probably, in the presence of unchanged alcohol and of some matter generated or retained in the system by its influence. Alcoholic liquors may be taken to such an enormous extent, & with such brief intermissions of sobriety, that the blood becomes speedily

poisoned to a degree incompatible with a healthy discharge of the cerebro-spinal functions, and a paroxysm of delirium tremens during the debauch is the consequence; or the intoxicating drink may have been taken daily, but in smaller quantity at the time and with longer periods of abstinence. The result of this steady drinking is that the System from the constant presence of the poison in the blood, is kept on the verge of delirium tremens into which it falls on the occurrence of any accidental disturbance of the nervous force. The poison has not accumulated to an extent sufficient for the development of delirium tremens, but the deficiency is compensated for, by the additional disturbing influence of some disease or casualty. It is a very singular circumstance that the toxic properties of alcohol although constantly manifesting their effects by organic changes in many important organs & tho' frequently display in the peculiar functional derangement

of the cerebro-spinal system constituting delirium tremens, have very little influence in predisposing to disease of the nervous system. Dr Marcet found, on excluding every cause of alcoholism, that the predisposition from abuse of alcohol to nervous affections, was much less than to all other diseases taken collectively, & compared with the corresponding predisposition to all other diseases considered individually, least of all with the exception of one group — He further remarks "it is a well known fact that the nervous ~~system~~ substance has the power to a certain extent of condensing within its tissue the alcohol which has been absorbed into the blood, an consequently, it would appear but natural, that alcohol interfering with the healthy nutrition of the nervous centres, the nervous system would have become thereby more liable to (non-alcoholic) disease."

Before entering on the important subject of the diagnosis of delirium tremens, it will be necessary to consider

briefly the ordinary course of the disease, Prof. Laycock says "delirium tremens belongs to the class of self limiting disorders"; Prof. Bennett gives as his opinion that "in the vast majority of cases of delirium tremens the poison becomes eliminated from the system in a certain time." Dr Peddie writes "the paroxysm usually runs its course if uncomplicated and properly treated on the second or third day," tho sometimes earlier, & it seldom extends beyond the fifth day. It then terminates in a profound sleep which may continue for many hours, & from which if it even lasts for six hours the patient awakes weak and languid but quite coherent." "Simple uncomplicated delirium tremens" writes Dr Wood "is not a dangerous disease, it generally subsides spontaneously, & under proper treatment almost always ends favourably". According to Dr Ware "the natural tendency of the paroxysm is to terminate in a spontaneous and salutary sleep at the end of a certain period – in 60 to 70 hours, & even

in the reports of cases submitted to the public as evidences of the efficacy of various modes of treatment, sleep has not actually taken place sooner than it would have done in the natural course of the disease" Mr. Paget writes "I can well remember when twenty five or thirty years ago, delirium tremens was looked upon as a thing very likely to be fatal. It was treated with large quantities of stimulants and large quantities of opium; and this course of treatment was supposed to be necessary to cure it. Now we do not materially increase the quantity of stimulant when a man becomes the subject of delirium tremens & we give no excessive doses of laudanum. The thing that we specially look to in these cases, is that by any means the patients shall be fed — fed by the rectum if they cannot be fed by the stomach."

The delirium of fever might under certain circumstances be mistaken for that under consideration; but the former

is more incoherent than that of the latter and it does not possess the same fantastic forms, nor have the same peculiar variety of objects presented to the frenzied mind. The delirium of fever is free from the terrors and muscular tremors that are so characteristic of delirium tremens; in the one there is much greater prostration of the physical powers and functions; a tongue covered with a hard dry brown fur & a sunk febrile expression; in the other there is a tongue covered with a creamy moisture & a skin covered with a cool & moist perspiration. In fever the delirium doesn't have self & selfish fears so markedly present, nor can it be so easily controlled; the patient not getting excited or showing his tongue as he so readily does on being requested in delirium tremens. If one knows the previous history, the diagnosis is rendered much easier. In enteric fever the bowel complaint and the taches lenticulaires (when present) will guide us, and in

Typhus we will expect to find greater
fury of the delirium, the presence of
the mulberry rash in most cases, during
the course of the disease, delirium
coming on late in course of fever
and a temperature as indicated by
thermometer of 104° or 105° F (in
some very severe cases) altogether in
compatible with that of delirium tremens.
Meningitis has been mistaken for
this disease. Dr Abercrombie considered
delirium tremens as a dangerous form
of it. In acute meningitis we expect
much greater heat of head, flushing of
the face, persistent conjunctival suffusion
characteristic vomiting & and intolerance
of light than we find in delirium tre-
mens. The delirium is wild and furious
instead of being busy & chattering. In
delirium tremens we miss the more
violent muscular contractions & the full
hard and ~~slow~~ frequent pulse of the
meningeal affection. The age of the patient
will in some cases prove an aid

the diagnosis, It sometimes happens however that the two diseases are conjoined and cases of delirium tremens following immediately a prolonged debauch & presenting symptoms of cerebral congestion or inflammation have somewhat of this complicated character.

Dr Peddie writes "there is a form of Mania which is sometimes mistaken for delirium tremens but which must not be confounded with it, although characterised by severe muscular tremor. It is nothing more nor less than a severe & protracted form of intoxication — an affection of the brain and membranes in which there is great vascular excitement resulting from the direct or immediate action of the alcoholic liquors. A physician even so careful and discriminating as Sir Thomas Watson has noticed two cases as instances of Delirium tremens, the first of which partakes more and the last entirely of the characters of the affection I am now about to describe

It has been styled by Darwin the "Delirium Ebriosum". It originates from a single fit of intoxication or at least from a short course of intemperance (in vulgar parlance a "boose" or "spree") engaged in by persons of a peculiar mental constitution and temperament & which is most commonly induced by some depressing emotion. It is marked by an uncontrollable desire for more drink which when gratified excites to further imperious demands begetting indecorous conduct and engendering passions so wild & vicious, that when the hereditary mental constitution is imperfect & the previous moral habits loose or degraded, not unfrequently lead to the perpetration of violent & criminal acts. The other symptoms & circumstances characterizing the paroxysm, are dry heat of skin particularly of the scalp, general muscular tremors, flushed countenance, a sullen determined or fierce aspect, red ferrety eyes, dry tongue, strong quick pulse & loss of appetite for everything

but liquor – and that of the strongest kind although in some instances beastly ravenousness for anything or everything eatable that comes in the way. This state may be brought on once in a lifetime from some accidental circumstance leading to an act of intoxication, or it may be induced at particular periods distant perhaps months or years, as in the case of those unfortunate individuals to whom the name of "dipsomaniacs" or "oinomaniacs" has been applied. All who have witnessed the various forms of disease affecting the drunkard will readily distinguish genuine cases of delirium tremens from this and other affections attended with delirium, as its characters are so well marked."

Insanity is much more gradual in its approach, less apt to see phantoms or be haunted with terrors, absent, or not nearly so frequent tremors, duration long and course, in general, altogether different. Mania is more incoherent and

more furious. The group of melancholias very closely resemble delirium tremens; the cause however is certainly different, but the symptoms are scarcely distinguishable, except that in pure ordinary melancholia, the gastritis, hepatic derangement & other visceral affections are absent. In dementia with paralytic tremblings, there is something of resemblance but the whole course & progress of the disease is entirely different, (& the insomnia particularly is absent). In some cases however (to be afterwards referred to) the delirium tremens verges into insanity, then comes the value of a rational prognosis. The constant symptoms & progress of cases of delirium tremens are usually so characteristic that errors in diagnosis are infrequent.

The prognosis of this disease, is in most of our ordinary text books but imperfectly set forth, no mention being made of the means of distinguishing, what cases will go on well, what will end in insanity and what in death: hence how important

is a proper & accurate knowledge of the diagnosis and prognosis of this affection, According to Dr Aitken three persons out of every four do well; but in Dr Reddie's practice out of eighty cases treated the result was uniform success. Prof Laycock mentions that of 40 cases under treatment, varying in degrees of severity, only one, the subject of continuous epileptic fits, and exhausted by drunkenness & licentiousness proved fatal. There is every reason to expect that under a rational pathology & treatment (in the absence of complications) the mortality in delirium tremens should be that of Dr Reddie's cases. - nihil - Calmeil states the mortality at 5 p.c. Bougard at 19 p.c. The late Sir Alex Tulloch in his report for 1853, gives the following percentage of mortality from delirium tremens amongst British troops at different stations

Great Britain Infantry 17.6
" " Cavalry 13.8
Bermuda 15.0

Canada 7·94
Malta 8·8
Nova Scotia 9·1

In a report of cases admitted into the General Hospital in Calcutta during 1851 1852 & 1853 delirium tremens occurred in women and men in the proportion of 1 in 25, and in regard to age, the ratio is as follows

	cases	deaths	Per centage of deaths
ages from 20 to 25	34	4	9·1
25 to 30	60	16	24·2
30 to 35	48	11	22·9
35 to 40	76	7	9·2
40 to 45	62	6	9·6
45 to 50	23	4	17·3
50 to 60	7	—	—
60 to 70	5	1	—

The greatest mortality is between the ages of 25 & 40 – There is no evidence to show that the season of the year exerts a definite influence on the occurrence of the disease – whereas the mortality very probably varies with the temperature, it being more than double in the eight hot months, as

compared with the four cold months.
The apparent cause of death was as follows. 33 by exhaustion (often with Coma) eighteen by Coma 11 by fits (probably apoplectic sometimes called Epileptic) one died on the night stool and one was found dead in bed. Convulsions occurred in 20 of the cases and one distinct case of paroxysmal opisthotonos was observed. The cause of death to be noticed (as was attempted in case of Mr A—) is suicide, that however may be regarded as a complication as under proper surveillance such an accident should not occur.
Our prognosis must be influenced by the presence or otherwise of disease of such organs as lungs liver kidneys brain & large vessels, as serious concurrent disease of any of these, E.g. a double pneumonia would cause the greatest concern as to the result.
The following valuable prognostic rules I gain from Prof. Laycocks paper in the Edinburgh Medical Journal for 1862

1. When the patient is gay in manner, aggressive or furious & not timid and apprehensive; or when the illusions and hallucinations are from the first joyous and pleasing & not distressing gloomy or monstrous, it is not a case of delirium tremens and the prognosis is doubtful. When other causes of cerebral disorder can be assigned besides drunkenness or there is a history of insanity this diagnosis & prognosis is more certain.

2, When the hallucinations and delusions are characteristic in the beginning, the apprehensiveness & restlessness not strongly marked and the character of the mental disturbance gradually changes into the aggressive sullen or maniacal kind, the prognosis is unfavorable; the case is likely to end in chronic disease.

3. When the mental disorder is like that of acute mania, and the paroxysm has been excited by small doses of wine spirits or opium in a person of very excitable habit or with a predisposition to insanity, or who

has previously experienced an injury to the head followed by a change in character the prognosis is favourable, the case is likely to end in a few days under simple treatment. This kind of case is a species of recurrent maniacal delirium Excited by intoxicants. From other causes it is not uncommon in Asylums in cases of Chronic remittent mania.

4. When furious delirium or maniacal excitement succeeds to a melancholic condition in a young patient, and it is ascertained that there has been an entire want of sleep and abstinence from food, the prognosis is favourable in the absence of cerebral predisposition & in proportion to the youth of the patient. In cases of this kind the cerebral excitement is like that which occurs in starvation, and the intensity of the symptoms indicates the degree of imperfect nutrition of the brain and the blood which want of food and sleep greatly induces. Since after the prime of life the nutri-

is imperfect, other things being equal, in proportion as age advances, the age becomes an important element in prognosis; for the older the patient the greater the probable danger to the brain, & the less vigorous the restorative power of nature, such may end in chronic mania or dementia.

5. When in a melancholic or typical case with no serious complications, the illusions and hallucinations are as to ~~bare~~ perceptions of touch or of common sensation, especially of the skin of the trunk, the prognosis is favourable and sleep may be expected to come on without a hypnotic: of this class are all the illusions which point to the skin, as of lice beetles or of cockroaches crawling over it. When also they refer to the limbs and deeper parts, and are such as show that they are due to neuralgiae the prognosis is favourable.

If however the tactile & sensational illusions are referred to the head as of persons boring into the skull, or

pouring fluids, or putting things into the Ears, the prognosis is more doubtful & there is danger that the case may end in insanity
6. when the illusions and hallucinations are of a gloomy and monstrous character, yet the patient has neither terror apprehension nor tremors, and the drinking bout has been preceded by symptoms of insanity the prognosis is unfavourable. the case is likely to become chronic as developed, insanity ending in dementia. This absence of fear or tremor when the hallucinations are such as ought to Excite Emotion is very characteristic of this class of cases.
7. when after a drinking bout or habitual intemperance, melancholia ~~unaccompanied by tremors~~ is developed with auditory and ocular illusions, but unaccompanied by tremors, and when at the same time, the feelings are involved, so that the delusions are informed suspicions jealousies and the like & the patient is sullen, the prognosis is not favourable; the case is likely to terminate sooner or later in

homicidal mania of a serious or incurable kind according to the age & other conditions of the patient.

8. When in the last mentioned kind of case there is a history of sexual excesses as well as of intemperance & the corporeal illusions are of an indescribable kind, referred in a vague way to the joints limbs and viscera, & when auditory illusions of abusive voices are prominent the prognosis is unfavourable, the case is likely to end in insanity with the delusions fixed.

9. When the patient is melancholic, has been a hard drinker and has experienced much gastric disorder or loss of appetite vomiting and intense epigastric sinking - if there be no important cerebral or visceral complication, the case will end favourably in a week although the delirium and hallucinations may be of the most striking character.

10. When the patient has been a hard drinker & there is a complication, yet not important in itself, as a slight

gouty attack, hepatic congestion gastritis bronchitis & influenza, a limited pneumonia a diarrhoea and the like, the case will terminate favourably within fourteen days, even although the delirium may be more aggressive than melancholic, there however a marked tendency to insanity or previous attacks of mental disorder will indicate caution.

10. The kind of intoxicant used may help the prognosis, when the type is profoundly melancholic after the use of distilled drinks or "bitters" the prognosis is favourable. Cider seems to predispose to rheumatic complications. This and all the preceeding statements have reference it must be remembered to the cessation of the patient not less than twenty four hours after he has ceased to take the intoxicant when therefore it does not directly modify the symptoms.

Concerning the Treatment of delirium tremens there are certain general points to be attended to. In the first

place in all cases of any suspected severity (and our prognosis will assist us in determining this) indeed in almost every case it is highly advisable & precautionary to have all means of self destruction placed beyond the reach of the patient. A trustworthy attendant should be procured in cases where this is practicable, the windows ought to be properly fastened down, & razors and all dangerous instruments locked fast in a place of security. The case of Mr A. furnishes an example of taking such precautions.

Then the patient should be undressed & put to bed; this may be objected to but a little firmness generally succeeds. The apartment ought to be well ventilated and if during the winter a certain amount of fire allowed but too high temperature must be avoided. If there is much heat of head, scalp, or hands, they may be sponged with vinegar and water. All friends must be dismissed, they often, especially amongst the lower orders,

have stimulants concealed about their person which by way of sympathy they administer to the patient in a clandestine manner. A firm but gentle and calm manner usually succeeds in making the patient yield to your requests & unless in very severe cases where there is a tendency to a rather bold & restless form of delirium which tends to exhaust mechanical restraint is unnecessary.

But when any symptoms of a forcible design on his own person appear a straight jacket or a small administration of chloroform would require to be had recourse to. Nourishing soups & gruels are to be offered. The Essence of meat or the Extract of meat made into Soup answer very well. Everything noisy or sensational must be forbidden in or near his room.

In most cases it will be found necessary to administer some gentle aperient which will correct the state of the secretions. Should there be intoxication as well

as delirium tremens it will be necessary to wait until some of the alcohol is eliminated to make out his true condition. Then the state of the other organs should be looked to; in by far the greater number of cases there is gastritis ~~and~~ evidenced by the pain on pressure over the epigastrium, & the constant gnawing there. In such cases a pill composed of gr 1/4 of Nitrate of Silver is administered in bread crumb combined or not with a little calomel or Ipecacuanha. The icterish conjunctival and bilious vomiting indicate a disturbed condition of the hepatic system, to relieve which a gentle aperient of Hydrarg c Cret combined with some rhubarb & Soda answers very well. Attention must likewise be directed to the lungs with reference to pneumonia, bronchial affections & to ascertain if such affections are present. It is absolutely necessary to make a physical exploration of the chest as we cannot trust to the statements of the patient regarding Cough &c being present.

An examination of the cardiac organ, the nature of the impulse, whether fatty degeneration may be dreaded — of the renal organs & their secretion, whether previously the seat of disease, whether any symptoms of retention suppression &c — the previous mode of living — any depressing or reducing causes — the amount of whisky or other stimulant daily had recourse to — whether a first or recurrent attack, if the latter the treatment adopted — to determine these points is very desirable with reference to our prognosis and treatment.

It seems to be so strongly laid down in most of our standard works on the Principles & Practice of Medicine that opium in some form is the indispensable remedy in the treatment of delirium tremens that one might almost be accused of hardihood in recommending anything but that so called "sheet anchor." Almost every tyro in medicine has heard the aphorism "the man must sleep or he will die" and opium has been

diligently administered as a matter of course to procure sleep, and considered a specific just as other specifics have been given e.g. in gout alchemin &c.
The very limited experience I have had in the treatment of such cases & the information I have derived from the perusal of various papers & statistics of hospitals lead me to affirm that the opium treatment as usually recommended & followed out is not only inefficacious but positively dangerous & injurious, the case of C. powerfully impresses that on my memory.

Opium is given by those who have such confidence in it to fulfil two indications: 1st To obtain sleep, believing that is the grand point to be attained in the treatment of the disease. Sir Thomas Watson says "The great remedy in delirium tremens is sleep and our most powerful means of inducing sleep are to be found in opium. The opium must be given in full doses and it must be fearlessly repeated if its desired effects do not soon follow.

after clearing out the bowels by a moderate purgative you may give three grains of solid opium; and if the patient show no indication to sleep after two or three hours have elapsed you may begin to give one grain every hour until he sleeps."
Dr Copland in his Dictionary of Practical Medicine gives it as his opinion that opium is "as necessary to the cure of this disease as bark and analogous medicines are to the cure of ague," & Dr Dickson in his "Elements of Medicine" recommends "a teaspoonfull of laudanum every hour in ordinary cases until sleep is induced." 2dly In the belief of its acting as a simple stimulus to the nervous system & in the hope of its preventing the failure of the nervous power, of its relieving the brain and soothing the System until the ordinary course of the disease is run & sleep returns in the natural way. Dr Wood of Philadelphia writes "It is highly desirable to find some other stimulus (than alcohol)

which may be sufficient to support the nervous system during the continuance of the disease — happily such a stimulus we have in opium. It affords a gentle support to the brain, quiets nervous disturbance, favours the return of sleep" He further he says "the object is not to force sleep at all events. It is not to pour in the narcotic in such quantities as completely to overwhelm the brain, & if sound sleep cannot be induced at last to bring on a state of coma. It is sufficient for the object to keep the patient moderately under the influence of the narcotic, so as to prevent his nervous powers from failing and patiently to wait till the disease ceases in its ordinary course and sound sleep returns". In his treatment he says "Two grains of opium half a grain of sulphate of morphia or an equivalent quantity of one of the liquid preparations of this drug are given every two hours, and steadily persevered in until sleep takes place

or a decided narcotic impression is produced. This quantity is seldom exceeded. When after one or two doses the patient is found very susceptible to the influence of the narcotic, the intervals should be lengthened to three or four hours or more, or the quantity diminished. Upon his awaking from the first sleep, shewed the least tendency to hallucinations remain or return, the medicine is to be given in quantities sufficient to control the tendency, & to be gradually diminished or omitted, as the occasion for its use lessens or ceases" It is a most difficult matter, one would think to give opium in this complaint in that proper quantity which will support the system & yet stop short of inducing a more or less decidedly narcotic effect. In the case of A. opium seemed only to increase the agitation and hallucinations and in my opinion the seeming quiet resulting from its use is as often (perhaps oftener) due to symptoms of coma

more or less marked, To a want of ~~the~~
a due knowledge of the course pathology
and prognosis of delirium tremens is
chiefly to be ascribed the repute which the
opium plan of treatment so generally
enjoys. The notion that no amelioration
in the patients condition can result until
sleep occurs; that "he must sleep or he
will die" and that this sleep is the
entire cause of the favourable change in
the patients condition is a very prevalent
one & certainly carries with it much truth.
I am inclined to believe that this want
of sleep is not so dangerous as we are
taught to believe from statements like
the above. In mild forms of the com-
plaint with little physical restlessness,
the delirium is nothing more than a
sort of day dream, which may be
allowed without very much risk. & If
sleep is so desirable I would venture to
question its being produced by the opium
& whether or not symptoms of improvement
did not manifest themselves quite

independent of the period at which that drug was administered, or in other words which was the first of the two, in the order of occurrence. To arrive at any just conclusions on this point we must endeavour to find out how long the medicine required to be given, at what period of the Complaint it was first prescribed, and at what period in each particular case sleep occurred. It will be found that in all cases in which any salutary changes are produced, these dont occur until after repeated doses, each of which greatly exceeded what we would venture to give under any other circumstances. In these cases a very powerful dose is usually commenced with, a second as soon as found necessary, another & another are given, and at last sleep comes on, but really not before the period at which it would have occurred in the natural course of the disease. From the few opportunities I have had of watching the effects of opium I am convinced that

given in ordinary doses, it produces an effect directly contrary to what we desire & prevents sleep; and in my opinion the System withstands the Soothing Effects of the medicine, though given in doses sufficient under any circumstances to produce the most profound sleep, until the paroxysm terminates in the usual way. It is not sufficiently proved that opium hurries the occurrence of sleep, or that it in any degree shortens the duration of the paroxysm, or that it in any way quiets the sufferer, until it is given to an extent really sufficient to occasion more or less coma. I would also question its power of enabling the System to bear up until the malady has run its course. Repeated doses are given and no abatement of muscular tremors or of the hallucinations takes place, until a quantity is given, sufficient to produce more or less decidedly toxic effects. A case recorded by Prof. Laycock well exemplifies this (in Edin Journal 1862)

where a believer in powerful doses of opium
he had treated a case as follows
"On the morning of the 3d I found him
very excited. He had no sleep (on the pre-
ceeding day 40 grains of opium had been
taken at intervals of four hours from
8 a.m. to 4 p.m. or ℥ij in 8 hours).
The bowels were well relieved the urine
free; at 5 p.m. he took a scruple of
powdered opium with an ounce of
laudanum ℥ss at 9 p.m. & 12 p.m. This
dose was repeated. At 3 a.m. on the 4th
he took a drachm (60 grains) of opium
which was repeated at 6 a.m. & 10 p.m.
At this date seeing a report of some case
strongly urging the claims of digitalis I
gave him half an ounce of the tincture
and the repeated the dose in four hours,
the only result being the second dose
lowered the pulse from 130 to 80. He
passed a very excited night and at 8 a.m.
on the 5th I gave him a cold shower bath
with a dose of half a drachm of opium
combined with one grain of Tartar Emet

At 12 a.m. he had two Scruples of opium with a grain of Tartar Emetic, At 8 p.m. a drachm of opium with two grains of Tartar Emetic, The shower bath was repeated for two minutes; he was also dry-cupped at the nape of the neck and at 11 p.m. he took two drachms of opium & two grains of Tartar Emetic. He slept after this dose (!) for thirteen hours, awoke, took a cup of beef tea with brandy in it, had the bowels well relieved and went to sleep again. From this date he slept more or less for the next twenty four hours and at the end of that time was well."

The pathology & past experience of delirium tremens forbid the use of opium, because it tends to diminish the various secretions (perhaps excepting the perspiration), because it exerts a dangerous influence in large quantities over the intellectual faculties; from its inability in moderate doses to control the disorder, from its favouring congestion and coma, from its disordering the stomach and blunting the appetite

& so preventing the taking of food so soon as might have been the case had it not been prescribed.

The popularity of opium in the treatment of this disease is undoubtedly waning. No doubt many great authorities strongly advocate its employment, but there are many whose opinions demand the highest respect and who strongly argue against it. Prof. Laycock in referring to a case of Sir Thomas Watson's treated by large doses of opium says "I humbly think that all the facts are in favour of the conclusion that in a case like that detailed by Dr. Watson the drug is lethal." Dr. Aitken remarks "the two most fatal errors that can be committed in the treatment of delirium tremens are either to bleed the patient or give him opiates". Dr. Morehead in referring to the opium plan of treatment says "a greater number thus treated terminate by convulsions and coma". Prof. Bennett in his "Principles" remarks "Generally speaking if a good deep ca

be obtained it is ~~as~~ critical and the patient at once recovers. Opium has been largely given to obtain this result, but its supposed beneficial action is generally coincident with the muscular fatigue, exhaustion and tendency to repose which accompany the elimination of the alcoholic poison." "I have no hesitation" writes Dr Peddie "in saying that in a large proportion of instances sleep would take place spontaneously at an earlier period and the subsequent condition of the patient be much more sound and safe by doing nothing at all, than by the use of opiates. It is evident that if opium be used at all in delirium tremens it must be given in a large dose (in from two to three or more grains and repeated at intervals of a few hours); and it is thus generally given, the object being to overstep the stage of excitement and force on the desired sleep. Now the acknowledged effect of a large opiate on the encephalon is to occasion engorgement of its vessels.

more especially of the veins, and consequently the larger the dose the greater will be the amount of sanguineous compression of the brain. What then must be the probable result in a disease in which there is already, if not an approach to arachnitis at least a very excited action of the meninges and a preternatural loading of the vessels generally. The practice is one of the utmost hazard. These remarks apply to opium ~~in opium~~ in whatever form administered, whether in the form of enema as advocated by Dupuytren, when any contraindication existed to giving it by the mouth, or of injection into the subcutaneous cellular tissue as was resorted to in Mr C— case, Drs Macpherson, Law, Cahill & others also testify to the use of opium being either unnecessary or injurious in the treatment of delirium tremens; it is clearly manifest therefore that the high ~~Dr~~ value attached to it by some in the treatment of this complaint

is far from warranted by the experience of many other high authorities.

A Combination of opium and alcoholic stimulants was perhaps one of the most common and popular methods of treating the disease in this country. Mr Phillips in "Rankings Abstract" says "if a man has been accustomed to drink largely of a malt liquor a drachm of laudanum will act much more beneficially if taken in a pint or pot of beer, than if taken alone; a similar remark may be applied to other spirituous liquors; & in other cases its effects would be most certainly enhanced if it were as soon as possible taken associated with animal food." According to Dr Billing "the only mode of remedy is by narcotics and stimulants; by which in addition to the counteraction of the sedative state, a greater tendency to sleep is produced." Dr Cullen in speaking of the value of opium in inducing sleep, says that it frequently fails to produce this effect,

in "habitual and Enervated drunkards & when the disease has followed the disuse of the usual quantity of Stimulus via the form of wine brandy or malt liquor as circumstances may point out unless Combined with some of the diffusible Stimuli, In most cases a moderate allowance of the accustomed stimulus in the form of wine brandy or malt liquor as circumstances may point out, is sometimes attended with marked good effects in diminishing the restlessness tremors & other urgent symptoms." Dr Armstrong says "opium is the main remedy and good mutton broth or beef-tea is the best diet; with a tolerable quantity of good malt liquor as common drink." Dr Sir Thomas Watson advises to "put their opiate dose into a glass of gin or pint of porter"

The employment of two substances at one and the same time, producing directly opposite effects, the one soothing & calming the system (it is intended to act

the other to stimulate and exhalt it seems a doubtful practice — From what I have previously mentioned regarding the dangerous mode of employing opium in the treatment of this disease & from what we know of the effects of alcohol in the system, a treatment consisting in the combination of these two agents at one time must be unwarranted and injurious; and it is not without its opponents. Dr Peddie says regarding it "The frequent sudden fatalities which I witnessed from arachnitis convulsions & coma, when stimulants and opiates were freely administered, & the length of time before recovery took place even in the most favourable instances of the malady when these agents were given more sparingly & more cautiously, long since convinced me that their tendency is highly dangerous". Dr Morehead says I can say nothing of the treatment of delirium tremens & free opiates and stimulants, in temperate climates

but I feel convinced that in the delirium tremens of Europeans in Bombay it is a course of treatment attended with much hazard, & which when systematically followed is certain of leading to unfortunate results"

A passing notice may be taken of the old venerable plan of treating this disease by copious bleedings, a plan which is now being revived by Dr Ward Richardson. The case of Ser A— Exhibits the effects of a very copious bleeding tho certainly not in the usual way and the result was not in any degree beneficial or satisfactory. The supposed inflammatory nature of the disease led to this mode of treatment, warmis of the older authors considering it as Meningitis Arachnitis &c

Few now have recourse to blood-letting and the belief in the inflammatory nature of delirium tremens is a thing of the past, Still some are inclined to believe that tho' there is not intra cranial

inflammation there is a condition bordering on Arachnitis or meningitis and consequently resort to remedies which will have the power of reducing this, whilst at the same time they are much less depressing than blood-letting. Amongst those who hold such opinions pre-eminent by may be mentioned Dr Graves and Dr Beddie. The former finding the combination of Tartar Emetic and opium of such singular service in the treatment of the delirium of fever, was led to try it in delirium tremens also. Although he considered it (D.T.) to be independent of inflammation, he believed it to be accompanied by a certain amount of vascular excitement for which venesection would be dangerous owing to its depressing power, & opium alone would be equally dangerous from its causing cerebral congestion. A combination of the two was thought the most judicious line of treatment & to be commenced by giving Tartar Emetic first because a sedative

action. Then he began to add a little opium after a time, & gradually increased it until the Tartar Emetic was dispensed with.

Dr Peddie after trying this plan for some time, came to the conclusion that the really useful agent was the Tartar Emetic, before he was aware that Dr Graves combined it with opium or that Stoll Klapp and others had also recommended it. His doses of antimony were from a quarter to half a grain in simple solution every two hours, sometimes at shorter intervals according to the degree of excitement and irritability. This plan of treatment in Dr Peddies hands shows a great amount of success "I have treated" he writes "upwards of eighty cases of genuine disease many of them severe ones with uniform success not only in regard to the speediness of the immediate recovery, but the comparatively thorough restoration to a healthy condition of body & mind —

as much ~~as~~ so at least as could possibly be expected in individuals, many of whom had been and were likely soon again to become habitual drunkards" — he further writes "The action of antimony appears to be chiefly sedative. Its direct influence is to reduce the vascular Excitement of the brain, soothe the nervous system and diminish muscular power; and its more indirect action is Exerted on the functions of the Skin Kidneys & intestinal canal. In two or three instances only have I found it necessary to suspend its employment in Consequence of diarrhoea and hemorrhagic discharge from the bowels, and in these cases substituted ipecacuanha and digitalis with marked benefit; and I do not recollect ever seeing it produce continued vomiting although occasionally I have found the first or second dose Eject from the stomach a quantity of bile. An antimonial course of treatment in moderation with the design I have

indicated, gently diminishes Excited action induces weariness of muscle, general nervous Exhaustion and mental langour. It thus removes all hindrances to the occurrence of the salutary sleep. It prepares the way for it not by forcing but by favouring it; and when the individual Exhausted seeks his couch and finds repose, that goes on not as a drugged sleep but as a purely natural and profound repose, from which he awakes with restored reason and muscular Control."

All this treatment by Tartar Emetic is supported on the ground that if there is not a real meningitis, there is a condition of the meninges closely resembling it & bordering with it. That I think is assumed and requires proof. The changes described as having been seen on the few opportunities which have occurred of examining the head in tramised cases, are insufficient to warrant us ascribing the symptoms

vascular Excitement; and it ought to be remembered that conditions very similar have been found in the cerebral membranes of confirmed drunkards who never suffered from delirium tremens; and also in cases of undoubted cerebral depression a certain amount of serum is often found in the cavities of the brain.

There are no symptoms which we might mistake for those of delirium tremens ~~meningitis~~ meningitis, (as I have already described under the diagnosis.)

Opposite states of the brain are sometimes attended by a striking similarity of symptoms; thus in children enfeebled by diarrhoea and nervous prostration or long continued exhausting illness, symptoms very much resembling those of inflammation of the meninges are produced, & the one might be mistaken for the other unless careful observation is had recourse to. The action of the heart instead of being strong causing a firm bounding pulse, in delirium tremens is feeble &

the pulse frequent and small. Thus numerous recoveries have resulted from this plan of treatment & tho' it is decidedly much superior, safer and more judicious than opium plan, yet cases get on very well without it or anything but dietetic treatment. Dr Bennett in his Principles and Practice of Medicine writes, "In the vast majority of cases of delirium tremens the poison becomes eliminated from the system in a certain time; whether Antimony in half or quarter grain doses assists this process as was at one time supposed is very doubtful." Then follows a record of twenty cases treated without any medicine and every one of them successful.

Another very powerful depressing remedy named Digitalis has been advocated by some on similar grounds. Mr J M. Jones of Jersey recommended the use of Tincture of Digitalis in doses of half an ounce to commence with. This is repeated in the same quantity

or in smaller amount at intervals according to ~~the~~ circumstances." This gentleman holds that small doses are of no service, often causing intermission of the pulse; but in large doses the pulse gains strength and regularity, the perspirations pass off, the skin becomes warmer and sleep is induced. Dr. A. L. Pearson, after bleeding, gave sixty drops every three hours & the patient got well. In the hands of some this remedy may have seemed to do well; others record their disappointment & it is difficult to understand how it can act beneficially.

Dr Klapp treated delirium tremens ~~by~~ with large doses of Tartar Emetic for the sake of its emetic action, & supposed that copious vomiting relieved the mental affection and the cerebral disturbance; there being in most cases gastric derangement. There is often a tolerance of this drug in such cases, requiring enormous doses to be given, in order to produce any effect, Since recommending

four or five grains every hour to cause free evacuation. Such treatment must tend greatly to reduce the patients strength favour cerebral congestion & increase the chances of death by asthenia (not an unfrequent mode of death in delirium tremens.) In asthenic cases, in young robust men in their first attack of delirium tremens & where there is some chest complication especially pneumonia smaller doses might be administered. So also in cases where the delirium was very violent almost approaching mania in its character

Camphor has been given in cases where the action was found unsuitable from giving rise restlessness & weakness. Bromide of Potassium might be of some service, my experience of it is too limited even to recommend its use, but I think it merits trial.

Then there are the Expectant and eclectic methods of treatment. These have been recommended & followed

by the same physicians, their choice on
Each occasion being determined by the
Circumstances of the case. They have
been followed out alike by those
who Consider delirium tremens to result
from abstinence from the usual stim-
ulus to the cerebral matter & by those
who Consider it in no way connected
with such abstinence. Dr Dunglison of
Philadelphia holding the former opinions
but Considering that the powers of nature
are usually sufficient to restore the
healthy balance, treated his cases without
either Excitants proper or opiates. In
some instances his treatment was
purely eclectic in others purely Ex-
pectant, If the patient was suffering from
the immediate Effects of a debauch &
no counter indication existed an Emetic
was given, gentle laxatives were administered
from time to time, nutritious and
Easily digested food prescribed & too
much light or noise prohibited. In
his Practice of Medicine he reports,

of 32 cases eighteen of which were classed as intoxication not one died; although the treatment was Expectant or Eclektic & did not include a drop of spirits.

Prof. Laycock holding the latter opinion advocates the Expectant or Eclectic plan as the really rational treatment, and his success was that only one was fatal out of 28 cases and this one had been previously treated with opium. Dr. Wood states that the treatment pursued by Dr. Kuhn of Philadelphia consisted, "in confining the patient in a dark cell & leaving the disease spontaneously to work itself off." Dr. Ware states that he is satisfied "that in cases of Delirium tremens the patient so far as the paroxysm alone is concerned should be left to the resources of his own system, particularly that no attempt to force sleep by any of the remedies which are usually supposed to have that tendency."

The same plan has also been followed by Calmeil and others, but a brief

- ficient number has been mentioned that this mode of practice has also great authorities as supporters.

From a review of the former pages, we see what difference there is of opinion as to what is the most rational pathology & treatment of the disease in question. No doubt each or any of the modes of treatment previously noticed could be favourably illustrated by the experience of its respective supporters. The truth of this will be best shown by referring to the subjoined statistics.

By purely stimulant plan in the Philadelphia Hospital	Proportion of deaths re- from 1 in 8. to 1 in 33

Treatment by opium & alcoholic drinks in the Edinr Royal Infirmary during 3¼ years	cases admitted,	deaths,	proportion
	403	101	25 p.c.

Tartar Emetic in sedative doses by Dr Peddie	cases treated, result upwards of 80, uniform success

Large doses of Digitalis by Mr Innes	cases in which alone it was used 67.	Results 1 died.
Eclectic or Expectant plan of Prof. Laycock	cases 28	Result 1 died from opium + stimulants

When we consider the utterly conflicting nature of the opinions expressed on every point connected with the disease, the many plans of treatment proposed & the discrepitant results attributed to Each by different authorities; it is very desirable that all who have any opportunity of familiarizing themselves with the disorder should state their views as to its nature and proper management in order that from a large experience & varied opinion some rules might be be deduced which would be generally applicable — Reasoning in such a way has induced me to speak of these two or three cases (selected from several) as Exhibiting the results of various plans of treatment &

tending to shew that the Eliminative mode, is, from our knowledge of the Etiology & pathology of the disease, the only rational one. In the case of A— hemorrhage resulting from the Suicidal wound of the throat was Equal in amount to what would have been abstracted in a copious venesection & yet the delusions and insomnia continued as before. The same want of success attended the Exhibition of the Tartar Emetic and opium treatment— It is not easy to discover why such antiphlogistic treatment should be had recourse to, as no signs approaching vascular Excitement or inflammation are appreciable. Theory & Experience alike go against the use of opium and alcoholic stimulants; the former failing to procure the result for which it is administered & the latter only increasing the toxaemia.

In pursuing this Expectant eliminative plan of treatment no inconsiderable difficulties stand in the way of the

general practitioner. The very simplicity of it, is its greatest obstacle. The nature of the disease determines this; for we generally find our patient, restless excited. passing sleepless nights, alarmed and terrifying the inmates of his house. His groundless fears and unearthly terrors are presented to them with all the aspect of reality; & we can readily imagine how wearied & exhausted with watching him they should expect of us some prompt interference. This will be the more apparent if signs of mania, or attempts at suicide or homicide have been tried or partially carried out. In opium morphia or some such sedative his friends have somehow or other been taught to believe exists the power to correct correct his mental derangement, soothe and calm his fears & at the same time allay their own apprehensions. But the expectant eliminative method demands that the practitioner & those about the patient should regard all his disturbed fancies and fears with

equable composure and repose under careful nursing and watching without knowing when to await with firm confidence, "the result of a treatment which promises no immediate results". Such is the difficulty and it is all the more so, because in the minds of the public generally it is believed that delirium tremens is a dangerous & fatal malady requiring most urgent interference.

I am of opinion that in this disease the blood is poisoned by alcohol either unchanged or combined with some material generated in the system, as is therefore rendered perfectly unfitted for the proper nutrition of the brain by long want of proper food and by accumulated effete matter. The first indication is therefore to cut off the further supply of that substance which has vitiated and poisoned the blood, (In old broken down infirm men with typhoid symptoms, however it might be advisable to let them have a glass of sherry every

night)

Having prevented the supply of the morbific agent to the system, there is still something more to be attempted.

I believe it is in our power to go further and assist in the elimination of the morbific agent. We are not acquainted with any agent which will immediately neutralize the effects of alcohol in the system & restore the sufferer from his delirious condition to a state of soundness of mind, and this is the less to be expected when we consider that, whether alcohol itself exists in the blood free or combined, yet that fluid has been rendered highly poisonous and quite unfitted for healthy nutrition, from the accumulation of effete matters therein. This accumulation is the result of the presence of alcohol in it (the blood) & we cannot therefore look for much improvement until the blood has been freed to a certain extent of these noxious ingredients, and enriched in

quality by the persevering exhibition of proper food and so rendered more suitable for purposes of nutrition. It seems therefore our duty to assist the depuration of the blood and supply the system with nourishing food. In every blood disorder we can see more or less decided marks of natural Eliminative efforts, or attempts to cast out of the system that by which its healthy nutrition has been prevented. In rheumatic fever, gout & the skin and kidneys, are the usual emunctories applied to for the Elimination of the poison; and in delirium tremens we see that nature in her own way, depurate the blood by copious cutaneous secretion, which smells strongly of alcohol. This odour is generally so strongly marked that Dr Aitken says in his definition of the disease "the patient gives forth a peculiar odour of a saccharo-alcoholic description more or less strong". The skin therefore should be kept moderately warm by an equable temperature and the

perspirations by no means checked. We often observe in cases with a favourable termination, that after sound sleep has been established for some time, a remarkably profuse perspiration breaks out, and the patient for a considerable time lies literally bathed in it. In cases therefore where the temperature is low, and there is arrest of the cutaneous Exhalation Stimulant diaphoretics are to be had recourse to, ~~Camphor~~ Ammonia alone or in Combination is generally very useful, either as Liq: Ammon: Acetatis, or Combined with Camphorated water, both acting on the Skin and gently Stimulating the nervous System without injurious results. In almost every case there is gastritis; this requires our attention before any nourishing food can be relished, It is best combated by the administration of Argenti Nitratis gr ¼ to ½, Combined with a few grains of Calomel or Ipecacuanha as occasion requires. This generally relieves the Epigastric

craving as well. As I have previously mentioned, the hepatic system usually requires the administration of some gentle alterative medicine such as a Combination of Hydrargyri c̄ Cret and Rhubarb ~~ware~~ with a few grains of bismuth added. The renal organs form another important channel, through which we can further depurate the system. They are easily called into action in most cases, and any saline diuretic which is not irritating may be had recourse to. Strong nourishing soups, Essence of meat beef tea and broths should be regularly administered; these will be the best means of counteracting exhaustion & preventing recourse to alcoholic stimulants.

This plan of treatment seems most naturally to result from a correct pathology of the disease, and commends itself as that best calculated to prevent convulsions Coma and other dangerous Complications.

25

Essential Paralysis of Childhood.

Not unfrequently do we meet with cases of paralysis in the adult concerning the history origin and progress of which nothing further is known beyond the fact that the symptoms had their commencement in childhood. In such cases there is perfect general health, but when we come to examine the part affected we find it atrophied, deformed, & (if one of the extremities) shortened and almost powerless. It is with something of regret that we witness a stout healthy adult, with a left arm of great muscular development, while his right is shortened wasted and flabby to such a degree as almost to be hanging out of the glenoid cavity. Or it may be the extensors of the leg that are paralysed rendering progression difficult and the pursuit of ordinary avocations impracticable.

The subjects of such deformity, will

inform you, in answer to your inquiries as to past history, that the arm or leg as the case may be, had been in that condition so long as they could remember, while their parents will put it down to some supposed blow or, or injury to the part, which must have been received ~~when~~ when very young.

Paralysis in childhood is, in a great many instances due to the same causes which operate in producing it in after life; but every now and then we meet with cases that cannot be so accounted for; where there is no history of any Syphilitic taint, no tubercular cachexia; nothing pointing to any cerebral or Spinal Softening, or other organic cerebral change. In such cases the paralysis is called "Essential" or "myogenic paralysis" from the fact, that nothing except this paralysis or wasting of the muscles has been observed.

The following case having come under my observation I have considered it worthy of some remarks -

J. H. a healthy girl of four years, who had never required either a doctor or dose of medicine from her birth, came under my care on Oct 17th '68. Her parents are both remarkably healthy people there was never any Consumption in either of their families, nor can the slightest trace of Syphilis or any diathetic disease be ascertained. On the afternoon of the 16th Sept. had been playing as usual out of doors on the banks of a little "burn" near her residence. Her feet got wet & that Evening she complained of being tired and was put to bed Earlier than usual previously have taken Some Supper however, she got up in the morning as usual, very little difference being observed in her condition, until the following afternoon, when feeling unwell and restless, she requested to be put to bed, after which she became thirsty and feverish, remaining so for the remainder of the Evening She talked a good deal during her sleep, & on being taken up to her

mother to pass water (as was her custome)
it was found she couldn't stand; her legs
doubling up under her, This was ascribed
to her being not being thoroughly awakened
and little attention was paid to it at
that time. On getting up in the morning
it was found she could move neither
her upper nor lower extremities, nor
had she the power of keeping her head
erect. Later in the day she lost power
over both Sphincters, & on the head being
raised from the pillow, either fell heavily
forwards with the chin against the Sternum,
or rolled over backwards with the occiput
against the Spine. All this time however
she was quite conscious, cried when
attempted to be moved, answered questions
in a peevish way & had some milk
to drink, There had been no vomiting
nor sickness from the commencement of
her ailment — no difficulty in articulating
& respiration was quiet and easy. The
Circulation & other Symptoms were
normal. The power of motion was

more or less lost, but sensation did not seem at all impaired. The limbs were said to have been cold & continued so although warm flannels &c had been constantly applied. About a week after signs of improvement began to be observed; she commenced to know when the bowels were about to move, and gradually command over the sphincters of bladder and rectum returned, It was more than a fortnight after that any improvement in the motor power of the limbs was appreciable. This was first observed in the flexor muscles of the lower extremities, gradually spreading to the other muscles, until the legs could be drawn up and kicked about a little.

The treatment that had been adopted consisted of purgatives, cold to the head, counter-irritation along the spine, frictions and cold douches combined with Iodide of Potassium given internally.

When she came under my care on the 17th Oct: her condition was as follows:-
The face was chubby and of a healthy florid complexion, the eye bright & the expression intelligent, She answered my questions without hesitation or difficulty The head was flexed a little forward on the chest, and on looking at you she seemed as if looking from under her eyebrows. The trunk appeared well nourished, but the muscles of the shoulder arm & forearm were very much atrophied, both on the extensor and flexor surfaces & felt cold soft and flabby on being handled. The biceps was almost completely atrophied the measurement round that part of the arm being less than round the forearm over the supinator longus.
The head of the humerus was almost luxated from the glenoid cavity, from wasting of the deltoid & scapular muscles surrounding the joint.
The fingers of both hands could be

flexed and extended considerably, but more those of the left than right. There was distinct coolness of both upper extremities, the temperature as ascertained by the pocket thermometer varying from 93°.7 to 96°.2 at various parts of the arm. The whole arm presented an appearance as if covered by ~~nothing~~ the tissues were covered with nothing more than integument, ~~and~~ and a similar wasting was observed in post-cervical and Sterno mastoid muscles.

The lower extremities were not so much affected and could be flexed and extended with comparative freedom; yet there was a vast diminution in size and form, from what we expect to find in a vigorous healthy child of the same age. The gluteal muscles were flattened the quadriceps extensor cruris notably, flabby soft and reduced in size, as were the muscles of the calf. The child was unable to stand, but could move its legs forward

tenable as in progression in a dragging sort of way when supported. Reflex movements were performed rather imperfectly. The temperature here was not so markedly reduced; in the ham the thermometer recorded 96.5° F. and in the groin under the clothing 97° F. The anterior and outer surface of the leg felt very soft and cool, and the outlines of the tibia and fibula were very distinctly traceable. The limbs, upper and lower, were of the same length. The digestive functions were performed in a healthy manner & the bowels were opened every day; this having been the case since the first day of her illness. There was nothing more observed that seemed abnormal no strabismus, no headache, & no facial paralysis or twisting of the features in any way.

The mode of appearance of this form of paralysis is generally pretty much as I have described in the foregoing case. Feelings of malaise

heaviness &c and general indisposition are succeeded by feverish symptoms which however dont continue very long. The general health and constitution are good (in the case related never had required a dose of medicine) There was nothing to account for the symptoms, no injury, & no manifest internal or external disturbance. The period of dentition had passed. There was a little exposure to cold and the feet had got a little wet, but that was a most usual occurrence, being always previously experienced with impunity.

The age at which this disease is most likely to occur, varies from 6 months to four years. Mr. Brodhurst states that "this form of paralysis usually occurs before two years of age".

The feverish symptoms are usually present, though from their short duration and the anxious tedious nature of the malady, they may, after a lapse of time, have been forgotten. In cases

where no febrile symptoms were observed the child has been suddenly found without power of one or any of its limbs. Laborde in his work on the "Paralysis of Infancy termed Essential" mentions that out of five cases he had observed fever was present in four; So that in almost all cases we may say that fever is present. It may be transient, only continuing for a day or so and not well marked, still, present. Vomiting or nervous disturbances do not accompany this form of paralysis. Laborde mentions that convulsions were present in one out of five cases at the commencement of the paralysis. These convulsions did not differ in any appreciable degree, from what might be expected to occur, during teething, organic disease of the brain or from worms. That is absence of those symptoms pointing to organic disease of the brain; absence of vomiting, of headache, of squinting

and of that peculiar wailing cry which frequently arouses our suspicions of head cerebral disease, when fever is present there are no convulsions & vice versâ. In the case of S.H. the febrile symptoms were present for 24 hours

As to the extent and intensity of the paralysis in most instances these are at their maximum when first observed; in the history recorded however such was not the case. The course of the paralysis was, first of inferior extremities, then of the upper & muscles of the neck & finally of the sphincters.

The lower extremities are more frequently affected than the upper and remain longer paralysed; the reverse was the case in the instance that came under my observation, for not only were the lower limbs of a higher temperature from the first, but also in them motor power was earlier observed. Russell Reynolds mentions "that it is rare to find paralysis of the sphincters," the

Contributed another peculiarity to the case referred to.

Perhaps the most common form is paralysis of the lower extremities, which may become permanent, more frequently it passes away and leaves one extremity affected. A lower extremity is more frequently paralysed than an upper. The skin retains its sensibility and the organs of special sense remain unchanged. When the paralysis is neglected and left to follow its own course, the parts affected stop growing, become powerless, soft and shortened. This wasting comes on very shortly after the commencement of the attack; in the course of three or four weeks it is unmistakable and can be detected by measurement as well as by the feeling of change of temperature. Sometimes particular muscles or groups of muscles are affected, thus in the upper limb the muscles about the shoulder and in the lower those extensors lying on

the outer surface of the fibula.
Mr Brodhurst refers to a case in which in addition to the extensors of both legs & the flexors of both feet the deltoidei and rhomboidei were paralysed.
The degree of paralysis varies from slight weakness and dragging of the part affected to complete powerlessness & immobility. I.H. when first examined could only move her fingers to a small extent and her parents informed me that when at her worst she could neither move nor lift her limbs.
The electric contractility of the muscles which are paralysed is peculiar. An induced current which causes violent contraction of the healthy muscles awakens no movement in the muscles of the wasted limbs, and an interrupted battery current which is too weak to cause any contraction of the healthy muscles is sufficient to produce distinct action of the wasted muscles.
The sensibility of the skin over

the paralysed limbs seems to be in no way affected, as is ascertained by testing with the Compasses, pinching pricking heat cold &c.

The Reflex mobility of the paralysed limbs is usually much impaired, & in instances where the wasting is great and the paralysis nearly complete, it may be almost entirely abolished. In this case it was present to a certain extent, on tickling the soles of the feet she involuntarily drew them up. The temperature of the affected limbs is always lowered, more distinctly so as the paralysis is complete. This is most accurately observed by the use of the clinical thermometer. The state of mind & general bodily health are unaffected in all the cases I have been referred to.

Concerning the pathological changes in this form of paralysis, the following have been observed and recorded:-

The muscles and bones are small,

and the former lose their characteristic structure. Until recently it has been affirmed that nothing except these changes was found abnormal. But M. Laborde has shown there is a distinct change in certain portions of the spinal cord, that the anterior columns are more translucent than natural, and present a very appreciable greyish rose tint to the naked eye, & that a similar change may be observed, tho in a less degree in the lateral columns. The consistence of these tracts of nerve tissue is diminished; and in microscopic examination there may be observed a marked proliferation of the elements of the connective tissue, cells and nuclei being dispersed in the middle of a finely granular substance in which there are fibrils of extreme tenuity. In the parts which are most affected nervous tubules are either lost.

altogether or they present a varicose appearance, while the other portions of the spinal column preserve a perfect integrity.

Brünniche" On the so-called Essential paralysis of children" in the journal f. Kind. May & June 861. writes, he does not believe in the existence of an idiopathic disease of this kind, & says it is the result of a cerebral or more rarely of a peripheric disturbance of the nervous system". In this opinion however, he is not supported by more eminent observers.

As to the diagnosis of this form of paralysis from those symptomatic of organic cerebral disease, Berbaum Journ. f. Kind. 1859 thus writes; — The symptomatic paralyses always depend on organic disturbance of the brain and cord. In the idiopathic form, the nervous centres are free & unaltered. The intelligence, consciousness & functions of the senses are dis-

by

disturbed in the Symptomatic but not in the idiopathic form. Muscular atrophy in the case of idiopathic paralysis, and this is combined with deformity which is not the case in Symptomatic paralysis, nor is limitation of the affection to one muscle or one group of muscles seen observed in the Symptomatic form.

There is no vomiting in this form of paralysis, no squinting, lassitude, nor the wailing cry of organic cerebral disease especially of a tubercular nature.

The treatment I found most effectual was local measures and specially amongst these electricity. At the outset the febrile symptoms must be treated much in the same way as if arising ~~during~~ at the commencement of any ordinary illness, some mild saline diaphoretic does very well. The main object is to treat the muscles and to treat them at once. The importance of early treatment & having recourse to the judicious use of electricity cannot be overestimated.

Dr West in his work on the Diseases of Children forcibly remarks, "There is very great danger of the paralysis continuing in such a degree as to cause much disfigurement or to interfere greatly with the usefulness of the limbs. Out of 18 cases treated a cure was effected in six. In four treatment was commenced within two or three days after the occurrence of the paralysis and continued uninterruptedly until the patients recovery. In 1 the treatment after three weeks. In four partial improvement - In 8 of the cases in which no treatment was adopted, or not until after the lapse of a period of six months no improvement took place. It would be difficult to find an argument to enforce the necessity for the early adoption of appropriate treatment, more cogent than is furnished by these facts. The evil results of neglecting it, too, are in some respects more serious in the child than in the adult. The muscles of a paralysed limb are almost

always observed to waste, but in childhood the growth of the part becomes arrested and in the course of a year or two, it will be half or three quarters of an inch shorter than the corresponding member of the opposite side."

I was gratified to find that in the case of H. the paralysed muscles of both extremities contracted well on an electric current being passed through them. The contractions were most distinct and marked in the muscles of the lower extremity, but those of the upper limb also responded sufficiently to the action of galvanism to give one the most hopeful anticipation of improvement if not ultimate cure.

After a weeks Exhibition of the Galvanic current, the little patient was able to stand when resting against a chair & could firmly place her feet down, as in natural progression. the limbs were fuller. not so flabby and the mother says she

has noticed much improvement. This is not so well marked in the upper extremity, but she can hold various objects in her hands securely now, and raise them in the direction of the mouth (Sweetmeats for example). Electric irritability still getting intensified galvanism was uninterruptedly continued, and at the end of two months from the commencement of treatment she could walk round a chair without assistance, the lower limbs then commenced to improve very much, the muscles of the calf increased in size and firmness, and a similar improvement (tho to a smaller extent) was observable in the condition of the arms. Passive movement and frictions with salt and water were diligently had recourse to as adjuncts, and by the end of December (ten weeks from commencing treatment) the power of raising the lower extremities had almost entirely returned. The limbs (lower) became firm, full &

and of normal temperature; the arms had also improved very much especially the muscles about the shoulder joint - the deltoid & scapular muscles - and the hand could be brought to the mouth. By the middle of January '69 tho there still remained a certain amount of weakness, from the improvement that takes place up to this date the best results were anticipated, Galvanism was also diligently applied to the cervical muscles maintaining the head erect and the improvement was equally marked. When I last saw her, instead of the helpless deformed creature she formerly was, all that remained visible of her former paralysis was a slight weakness of her upper limbs.

Tonics were administered from time to time in the shape of steel wine and Quinine, but the childs general health had always been so good that they might have

been dispensed with. In the treatment of such cases galvanism requires to be persevered with most patiently when signs of contraction of the affected muscles are observed.

The prognosis is unfavourable when after six or eight applications of both faradic and battery electricity, there has been no appearance of electric irritability, and no good results may be expected from its continued use. In such cases the muscles have undergone such molecular and structural changes as have completely altered or destroyed their natural texture.

The grand point is that the nature of the disease should be early recognized and appropriate treatment be speedily had recourse to.

On some forms of Bronchitis

There is no form of disease the general practitioner is more frequently called upon to treat than Bronchitis. In the winter and spring months we may say that more than half his patients are suffering from it in different forms and different degrees. Such a disease, therefore forms no inappropriate subject on which to make a few observations.

It is not my intention to discuss all the forms of bronchitis one sees treated of in the various works of systematic writers — if it was possible-nor to go into anything like the literature of these forms I may take up, as this would require more time than is at present at my disposal, but to offer some ~~observations~~ remarks on certain of the forms occurring in the adult, and specially on some of those cases which are

modified by childhood and some of the diseases of children.

I will begin by cursorily relating the usual course of an ordinary case of bronchitis of average severity as we meet with it in the adult. There is tolerably smart fever, much cough Substernal pain, ronchus & sibilus, and succeeding to this stage of dryness, expectoration first of mucus then muco purulent matter; the symptoms and physical signs abating after a few days care and nothing but a tendency to the disease being left behind. In such a case the disease has affected the larger bronchi, extending perhaps to those of the third and fourth rank and the change in them has consisted of engorgement & swelling of the mucous membrane, with a large amount of altered secretion.

When the tumefaction and engorgement have their seat higher up in the pulmonary passages, either in the

lower part of the trachea itself or some where near its bifurcation, a modification of the nature of the disease is observed.

The symptoms usually come on gradually & there is an absence of ~~A~~ febrile onset. The cough is particularly characteristic, coming on towards bedtime, there is kept up an incessant tickling, which induces a succession of short paroxysmal coughs. or little expirations of it very much resembling hooping-cough.

The patient (who in the cases I have met with is generally at, or past middle life) cannot get "to the bottom of it" and passes the greater part of his nights sitting up in bed. Pain is not usually complained of, unless it be over the insertions of the oblique and other muscles which have been called so violently into action in endeavouring to cough up what feels like a foreign body. The breathing is not much affected & the expectoration usually scanty.

On examining the chest we are surprised to find auscultation affording so little evidence of the cause of so much irritation. Over the more peripheral parts of the chest little beyond the normal vesicular breathing is heard; there may be slight transient sibilus heard at some one point, but it is so limited and so trifling, that we look elsewhere for the origo mali.

On placing the stethoscope over the superior sternal region, on a level with with the second rib, there is heard during a fit of coughing, snoring ronchus with intensified tracheal breathing.

The whole area over which such auscultatory signs are recognized may not much exceed the size of a florin, but I am persuaded that from the absence of other pulmonary and vascular affections, as tubercle aneurism &c irritation of the ramifications of the bronchi &c; a small inflammatory patch, causing much irritation, at or about the

bifurcation gives rise to the trouble-
some symptoms above mentioned.
Under proper treatment such cases
soon get well, but if neglected there
is engendered a condition of ill
health, the result of sleepless nights
and continual worry and anxiety,
which ~~may~~ may require months to get the better
of, and which may induce a subacute
affection of the smaller bronchial
ramifications.

Of all the forms of bronchitis, none
excites more just alarm than that
affecting the peripheral parts of the
chest and termed Capillary bronchitis,
its dangerous nature and serious
symptoms are sufficiently well known
and much dreaded. In some people
there seems a predisposition but which
cannot be accounted for, a greater number
extent of their bronchial ramifications being
suddenly affected and choked up
with mucous accumulation & yet
commencing like ordinary bronchitis.

In this form on examining the chest the dry sounds of ronchus and sibilus are not much heard and dont last long when present. Subcrepitant râls are discovered first over the back & lower part of the chest gradually extending over the upper clavicular subclavicular, supraspinial, upper lateral and axillary regions. As the disease progresses the face becomes pale, the lips assume a violet tinge, becoming livid the eyes are prominent as if starting from the head, the expression is that of extreme anxiety, alae nasi dilate & fall quickly, there is great restlessness, and change of posture is frequent; he cant lie down but starts up for breath, the chest moves violently, and loud sounds of respiration are heard.

Expectoration is exceedingly difficult yellowish and contains no froth. This is almost the only form of bronchitis in which blood is mixed & with the sputum, which may either be streaked

with it, or of a rusty colour. The voice is not much affected but dyspnoea makes speech short and peculiar, the words "dropping" from the lips. The pain is substernal & and the pulse from 120 to 160 frequent and weak. In some cases where the symptoms have been in evidence for some time and about to terminate fatally, there is gradual prostration of strength, the cough becomes less vigorous, expectoration more and more difficult, and ultimately ceases; then the respiration becomes stertorous, the countenance & conjunctival become injected — orthopnoea now impossible and the body lies sunk low in bed. The pulse may have risen in frequency but it has fallen in strength and cant be counted — skin becomes cold and clammy, then drowsiness and delirium — the hands moving to & fro, & picking at the bedclothes. Such are the symptoms heralding death by asphyxia — the

usual mode of death in cases of Capillary bronchitis.

I have thus thought it necessary to describe the course and symptoms of Capillary bronchitis, as it closely resembles a form in children, in order to the production of which, it is not necessary that the ultimate ramifications should affected. When the bronchi of the third or fourth rank only are affected in adults, we anticipate neither difficulty nor danger, and can predict that in a short time the disease will have resolved itself; but when the corresponding tubes in a child are affected, the case assumes a graver aspect. For the f much greater severity of bronchitis in the child than in the adult there are obvious mechanical reasons. To reduce the calibre of an adult tube of a quarter of an inch, or more in diameter, by the thickening of its lining membrane is not necessarily to interfere seriously with its function as an air passage; but the same

absolute reduction of calibre, affecting the infantile tube of half or less than half that diameter is nearly to occlude it altogether. In this & other not difficult mechanical considerations we have the key to most that at first sight appears difficult in the bronchial affections of childhood.

When slight degrees of children's bronchitis are apt to be accompanied by acute febrile symptoms, hacking cough, and sometimes even by convulsions. But when the smaller bronchial tubes are affected we have in fact all the symptoms of capillary bronchitis, as I have described it when occurring in the adult. In children it is not necessary that the ultimate ramifications should be affected to produce this same general disease. With them scarcely below the middle rank will suffice to give this kind of symptoms and accordingly bronchitis of more or less suffocative type is a much

more common disease in young children than at higher ages. What in adult is uncommon is with children a very frequent course: a child who only yesterday was in perfect health is found with great dyspnoea, breathing sixty or even more times in the minute, with pale anxious countenance, flapping nares and a restlessness that comes of the attempt to force a new set of muscles into the service of inspiration. The cough is at first dry but afterwards gets looser, with more copious secretion. What of it is expectorated however we cannot inspect as it is usually swallowed. On listening over the chest we hear various rattling and wheezing sounds and on percussion we either get negative results or a diffused increase of resonance. As the disease goes on unfavourably, the child becomes of a livid blueness and perspires profusely; along with or instead of convulsions comes on a drowsy condition & the little patient dies

asphyxiated. Then we find the bronchi choked, their swollen mucous membrane and purulent contents giving yellowish spots on section of the lung; and they may if the course of the disease has not been the most rapid, be found much dilated, forming little cavities filled with mucus, pus cells, and ciliated Epithelium. Habitually the air cells of the apex and edges of the upper lobes have an increased volume and almost certainly also, we have a beginning of the stage of collapse, to which I shall, anon, refer.

Bronchitis with collapse is most markedly seen in children who are rickety, & when the lung disease occurs in the course of whooping cough. The collapsed lobules looking like particles of foetal lung, sharply marked off from others that contain air, or are seen emphysematous, are principally found at the extreme base and at the lower margin of the upper lobes, lie in a lower

level than the general surface of the lung and can usually be readily recognized for what they are by the effect of inflation in restoring them wholly to the normal aspect. The symptoms to which this form of bronchitis gives rise & the post mortem appearances may be illustrated by the following case of a child of two years old, in whom the disease supervened on whooping cough of three weeks duration. In addition to prostration and loss of flesh, the most prominent symptoms were the extreme lividity of the child and the hurried respiration. Marked dulness of the base of the right lung up to the scapula was soon detected & the râls that had existed elsewhere in the chest were accompanied at this spot by bronchial breathing; round the left side there was a similar dulness giving the resemblance of an increase of dulness in the hearts area. The child refused food, had a good deal of fever, pulse 160 &

respirations 60. An Emetic gave relief for a time to certain of these Symptoms; it brought away much muco-purulent matter & the blueness & crepitating sounds were somewhat reduced. The restlessness was also less, but the Quietude that succeeded it was that of brain oppression while the pulse & respirations remained much as before.

Two days later the severer Symptoms having returned, the Emetic was re-peated with little effect & the patient died after a severe paroxysm of cough.

At the post mortem Examination, the larger bronchi were found almost natural: the smaller, particularly in the right lung had their mucous membrane red and swollen. Over the parts where dulness had been established during life, there was found considerable collapse of lobules, the right lower lobe being almost solid; and in the bluish depressed spots of collapse, there was observed numerous small yellow

points evidently resulting from the passage of the bronchial contents into the pulmonary alveoli; other lobules particularly about the apices were emphysematous.
There was a little fibrinous exudation on the pleura.
The mechanism by which this collapse is brought about is as follows:—
A small bronchus gets its calibre reduced by the swelling of the mucous membrane and the exudation of secretion into it. The act of inspiration allows of no air passing through the obstructed lobule, but drives the plug of mucus further and further towards the air cells. Expiratory efforts on the other hand, especially those of paroxysmal cough, partly because they are stronger, partly because they act upon the smaller end of the tapering tube, do allow the escape of some of the air included in the pulmonary vesicles behind the affected bronchus; & thus the lobule by degrees gets empty. Then instead of air muco-purulent matter may

be sucked into the empty alveoli in the way that appears in the case narrated. But even in this stage inflation of the lung may prove that the solidification is due simply to the removal of the contained air of the lobule and not to its infiltration with any inflammatory product. The disease may not have got beyond collapse and yet the amount of local and general symptoms may be, as in the case quoted, such as would readily suggest pneumonic consolidation. Collapse brought about in this manner by the thickening and plugging of the bronchii, may affect several lobules or a congeries of lobules according as several small tubes are separately affected or a single larger one gets impervious. In the diffused form of collapse the dulness on percussion is of course slighter than when many contiguous lobules get solidified and bronchial respiration and bronchophony are also less marked.

It is collapse due to plugging of

a bronchus of some size that comes to give the closest resemblance to pneumonia. A further difference in the collapse of different cases is in regard of its duration; too seldom does it clear up speedily altogether; in other cases it remains with almost unchanged characters for several days and the chronic state may end in death without further anatomical change. But more usually other processes are set up in the collapsed lobules giving rise to lobular pneumonia and its results.

Lobular pneumonia is so intimately connected with, & being to all intents a direct development of bronchitis, that in remarking on the former, we cannot naturally exclude the latter. However much it may resemble true lobular pneumonia in its symptoms & physical signs, it is essentially a distinct pathological condition, runs a different clinical course and has altogether a different significance. The lobular

pneumonia of which I have been writing is always a secondary disease either to those specific disorders which are accompanied by bronchitis almost as one of their elements (in which rank whooping cough & measles stand obviously first) or to bronchitis of a primary kind. So far as careful post mortem examination permits a generalization to be made, the course of the disease is invariably through collapse. I have mentioned in the case narrated how the transition began in the course case of whooping cough. After a lobule has become emptied of air and after more or less of the bronchial contents have been forced by inspiratory action into the alveoli, the lobule itself passes into a state of active congestion and then of hepatization and by degrees the test of inflation gives only a partial result, and eventually no air can be forced into the lobule. Then it is found

not depressed below the general level but of increased volume, not bluish red like foetal lung, but in the earlier stages brighter red and distinctly hyperaemic, and afterwards of a dull brownish red; not tough with scanty fluid on section, but softened and yielding bloody serum, and in the same lung at a middle period of the disease intermediate stages between the two conditions are found. The microscope shows in the earlier periods of this consolidation, the parenchyma of the lung unchanged, but the alveoli stuffed with cells and their epithelium occasionally undergoing some fatty change. Then these collapsed and inflamed lobules coalesce into larger masses which give rise to consolidation of large portions of the lung especially of the posterior surface. Next a softening change goes on in these, & the centre of the lobule loses the dull brown colour of the rest and becomes grey & diffluent, the liquid part

having all the characters of pus. Or another process may set up in the occluded lobule and a cheesy matter be formed which under the microscope presents various fatty elements and nuclei.

This occurs at a later stage of the disease in unhealthy children in whom however miliary tubercle need not necessarily exist.

It is now necessary to consider the manifestations during life of these various pathological conditions. After collapse has taken place we cannot point out the exact spot where inflammation begins, and not unfrequently we cannot say with certainty that there is anything more than collapse of the lung present. Even though some of the symptoms I am about to mention as indicating its development into lobular pneumonia are present.

First, there is observed indications of increased volume of the lung instead of diminution. In extensive collapse in spite of some compensating emp-

physema, the thorax sinks considerably inwards, the sides get flattened, and a constriction is observed round the chest above the liver. When lobular pneumonia has supervened these evidences of lessened volume of the thoracic cavity get less marked. Then there is extension of dulness, of the bronchial respiration, extended area over which crepitation is heard, increased intensity of vocal fremitus and along with these increase of fever towards night. There is a probability of lobular pneumonia when collapse has been established for two or three days. When large bronchi are affected fluctuations of the physical signs rather indicate collapse than inflammatory consolidation; these fluctuations consist chiefly in altered site and amount of dulness and changes in the bronchial respiration & crepitant râls.

The subsequent progress of lobular pneumonia may either result in softening of the affected lobules, or the

formation in them of a cheesy matter which may either disintegrate or get hardened and which may be readily mistaken for tubercle as Prof.r Trousseau has ably pointed out.

As to the prognosis of the bronchitis of children it is not to be lightly thought of. Even the ordinary catarrh which in in an adult would never come under the doctor's care, has a great tendency to pass into a passive state in which indeed hardly any symptoms are perceived, but in which the smallest cause suffices to induce a disease of severity. In an unhealthy child under 18 months affected with bronchitis with evidence of collapsed lobules, we require to be very careful in our prognosis. Convulsions always indicate a serious form of disease; so do coldness of the surface intense feebleness of the pulse, lividity or blueness about the eyes, fainting & other evidences of great general prostration. When there is superadded

lobular pneumonia or an amount of collapse simulating it a further degree of gravity is impressed in the prognosis; and if a child has evidence of a softening process taking place in the course of lobular pneumonia a very unfavourable opinion must be given.

Regarding the mortality in childrens bronchitis it is difficult to get information that does not mislead. Trousseau speaks of 40 cases of bronchopneumonia being fatal out of 42 that came under his care in the Hotel-Dieu; but we must remember that only the most serious cases would be sent to him there & those in an advanced stage of the disease. Rilliet and Barthez state that they lost all their cases of capillary bronchitis and the greater number of those attacked by bronchopneumonia in the Hôpital Ste Eugénie; but also state that in their other practice, they have saved nearly half of those who had capillary bronchitis and 2/3rds of

those attacked by broncho pneumonia
Of 8 cases that have come under
my observation two were fatal
and in these were present marked
signs of lobular collapse, on which
it was suspected, had supervened
lobular pneumonia. The two fatal
cases occurred during a concurrent
whooping cough. After measles
there is a greater probability of
recovery, but here especially the general
health may remain broken, & there
we have to forebode either the deposit
of true miliary tubercle in the lung
or else the persistence of a lobular
exudation which may run the course
of phthisis.

Concerning the therapeutics of
Bronchitic affections, a routine
treatment of Squill Ipecacuanha &
Camphorated Tincture of opium is
much too frequently resorted to,
without a due regard to the existing
constitution, seat of the bronchial

affection and other circumstances equally important. A mere name is treated "the cough" and not a disease

In that form of bronchitis, in which there is a small patch of irritation at or in the neighbourhood of the bifurcation, where the cough is incessant and the Expectoration only trifling, nothing produces better Effects than the judicious administration of opiates such as the Tinct Camph c opio or Tinct opii ammoniat. A sedative action is brought about, the irritation is soothed down & the patient obtains relief without the aëration of the blood being at all interfered with. In all the other forms, where the smaller bronchi are affected the Exhibition of opium is not only unnecessary & uncalled for, but in most cases positively injurious, more especially is it so in that form called Capillary.

In ordinary cases of bronchitis

where average sized tubes are affected with Smart fever and tight wheezing sibilant sounds, no remedy has proved more beneficial in burrying on the moist sounds and loosening the Expectoration than Small and frequently repeated doses of Liquor Potassae, in conjunction with Specacuan Squill or Vinum Antimoniale as occasion demands. Its good effects in rendering the secretions from the bronchial ~~tubes~~ mucous membrane less viscid and glairy, seem to be owing to its property of increasing the alkalinity of the blood & rendering its fibrin more Soluble. In numerous cases I have had occasion to test its superiority over the routine treatment of paregoric. It must be borne in mind however that it is only in the acute Stage of the disease with tight wheezing sibilant sounds that we must Expect benefit from the administration of Liquor Potassae; Copious Expectoration

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membrane that loosens the tough mucus that covered it before, as some have held, I am not prepared to say; but there is no doubt of the fact that much improvement in the symptoms results. The crepitating & rattling sounds become less & seeming looser, even percussion dulness sometimes disappears, the child loses its pale bluish colour and soon after falls into a soothing sleep. To produce an emetic action 8 grains of powdered Puly: Ipecacuan: may be given to a child under six months, 10 grains when twelve months old, & a little less than an adult dose at 3 or 4 years old. With less doses we are not only apt to fail in producing vomiting, but often a cathartic action is induced which is most undesirable. The emetic may be given every night a little before the childs usual time for going to sleep. In the severer cases, where the patient is heavy and drowsy

its breathing superficial and its mucous membranes blue, Emetics often act with difficulty and require not only to be given in large doses but to be combined with some stimulant.

The carbonate of ammonia is another valuable remedy. Like the potassae it loosens the contents of the bronchial tubes and assists the Expectorant action & combined with Ipecacuan in one or two grain doses well diluted it produces the best results, In the earlier stages liquor Potassae may also be added the action of the mixture being on the muscular & secretory elements alike, when there is threatened asphyxia, Ammonia from its stimulant action is the best addition to be made to the Emetic. Regarding Squill I have not much to say, I believe it does not possess the Expectorant properties in such a degree as are usually

ascribed to it. Opium is inadmissible in the treatment of such cases; where accumulated secretion is present as the cause of the worst symptoms & where there is a tendency towards asphyxia, a remedy which allays cough and quiets respiratory acts must do positive harm.

Convalescene approaching with digestion pretty good & tongue clean, Tonics as Vinum Ferri, Ferri Iod. greatly improve the childs condition adding tone to the general System and preventing to some extent that passive exudation into the bronchial ramifications which often ensues. Concerning the food of the child, that which is most nutrient, and most digestible at the same time, is most appropriate. It requires to be given frequently & in small quantities; if under a year nothing is better than the mothers milk, and if from hurried respiration the child cannot both suck & breathe

some should be milked and given with a spoon. When above a year old Cows milk is given, alternately with the Essence of meat, a pint of beef soup which is obtained by Expressing the juice of meat, of which I cannot speak in too favourable terms as a nutrient in this, & many weak Conditions, It seems much superior to Liebigs Extract of meat, the soup of which is little better than hot water flavoured with burnt sugar, requiring to be given in very much larger quantities than are usually directed, in order to have any nutrient properties whatever, Dr Prof. Christison has Examined & analysis, the former and Spoken very favourably of it.

As to External remedies, we have in them a valuable aid to our Internal therapeutic agents. Counter irritation by Cantharides & Croton oil is seldom necessary with children.

having come on it is longer called for and its injudicious prolonged administration might be productive of more harm than good. We know there is a natural tendency in such cases to go on favourably but having carefully noted my experiences in cases ~~(Similar, so far as I could judge) of bronchitis~~ of ordinary bronchitis similar so far as I could judge, some of which were treated with Liquor Potassae combined with Syrup: Aurantii, some with Squill and Ipecacuan alone, or combined with Tinct Camph c̄ Opio & some without the administration of any medicines at all, I am bound to say that in those cases where Liquor Potassae was administered, expectoration was much earlier and easier than ~~those~~ by the other modes of treatment, In my opinion of liquor potassae Squill and Ipecacuan forms the best pectoral mixture for those acute cases of bronchitis, in which bronchi of the third or fourth rank

are affected with physical signs and symptoms as previously mentioned. The tincture of Squill if it serves no other purpose tends to improve the rather harsh alkaline taste of the liquor potassae and when conjoined with with Syrup of orange peel forms no unpalatable mixture. Syrup of Squill is inadmissible owing to its acetic acid forming with the alkali, acetate of potash. Every case of bronchitis however requires to be carefully examined, and treated according to its individual signs & symptoms; de novo and not according to any routine system.

The management of bronchial affections in children demands more detailed remarks. From what has been said as to the tendency of these affections to pass into more serious forms we should regard no degree of them as beneath treatment, & should even in particular cases use special measures for guarding

against their recurrence. For example if a child has lately begun a winter with catarrh, or had lately had whooping cough, or if bronchitic affections were known in it to be particularly severe on former occasions, then it would be our duty in its ordinary life to protect it by warm clothing & other available measures. Instead of endeavouring to make it hardy by starving its chest arms and legs, it should wear high flannel frocks, long stockings, drawers and silk or woolen sleeves for the arms. If it cannot be carried or cannot walk, it should not be wheeled about in a perambulator, where it soon gets cold, but should rather remain in doors. The temperature of the sick room in treating such cases should range from 60° to 70° F and the air should never be allowed to get vitiated, a little moisture in it being in many cases advisable. As to the medicinal treatment of bronchitis

in children the class of antiphlogistic remedies is seldom necessary. Blood letting either local or general has had its day & that day has passed & Antimonials are only required in very Exceptional cases. In the earlier stages ect. recommended for adults, liquor potassae combined with ipecacuanha and other adjuncts is most serviceable when the bronchial mucous membranes pour out their secretion copiously & much rattling is heard over the chest, Emetics form a most valuable means of treatment. They cause energetic action of the respiratory muscles and drive the contents of the larger tubes upwards; while at the same time they have certainly an effect that must be called Expectorant on the smaller tubes. whether this is brought about by their irritating effect on the muscular fibres of the bronchi, or whether by their causing a fresh secretion from the mucous

linseed meal combined with mustard as poultice, forms the most simple and perhaps the most efficacious that can be had recourse to. It may be applied three times a day at only morning and evening, should be hot, & remain on for three quarters of an hour and then be removed. On no account should it be allowed to remain applied all night, for getting cold & slipping down, it defeats the object for which it was intended.

No form of disease with which I am acquainted, demands more patient watching more careful and judicious treatment, and more acute observation, than that I have just been attempting to describe, not only from the frequency with which we meet it, but also from the severity it often rapidly assumes & the fact that it swells more than any other the mortality of the Registrar-General's reports.