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On
Calvinism
by

Andrew Spittell

Essay

on

Defensive Lemons

by

Andrew Spittal

Sec. of Man

— 1850 —

"The amber glass that shakes within
his hand,
Leaves a sad sediment of time's
worst sand."

Byron.

Delirium Tremens.

This affection holds a distinguished rank amongst the numerous diseases to which mankind is liable, and may be truly said to arise from the effect of habits and circumstances, rather than from original conformation, or accidental causes. If we trace this complaint to its source, we shall find that the spring of it is, an abuse of ardent spirits and other diffusible stimuli, which induce a lamentable state of debility both of body and mind, and materially abridge the term of existence, by entailing on us a malady that might be altogether prevented by a proper exercise of the faculties in moderating the propensities to which our frail nature directs us.

It has been described by different authors under various appellations, such as *Delirium Tremens*, by Pearson & Armstrong; *Momia à Potu*, by Snowden & Cortes; *Encephalitis Tremefaciens*, by Frank; *Momia à Potu intermissio*, by Jackson;

Delirium cum tremore, by Elliotson;
 Mania à Insensibilia, by Klapp; La Folie
 des ivrognes, Incephalopathie Crapuleuse,
 Délire tremblant, by French writers;
 Oromania, by Kayser; Delirium tremens,
 by Sutton; Delirium ebriositatis, by
 Blake; Delirium tremefaciens, by Eschsch.
 Phrenesia potatorum, Delirium ebrietatis
 potatorum, Delirium potatorum cum
 tremoribus, &c. and many other names,
 by German authors. Much controversy
 has taken place amongst the numerous
 writers on this disease respecting the
 proper term for its designation, and
 up to the present time, no truly appropriate
 name has been suggested by any one;
 that, first employed by Dr. Sutton,
 although not entirely free from objection,
 is best known to the profession, and
 on that account has been generally
 made use of since the publication of
 his valuable essay.

This kind of delirium is described
 as occurring in two distinct forms,
 the one evidently connected with excited
 vascular action in the membranes of

the Brain, and associated with great irritability; the other consisting chiefly of this last state, attended by exhausted nervous energy; yet, cases sometimes occur of a character so complex, as to make it difficult to determine whether they belong to the one or the other; Nevertheless, it is of importance with a view to treatment that a distinction should be made, inasmuch as the predominance of the characters of either form will indicate the propriety of employing more or less of that treatment which is appropriate to it. Thus when the disease arises as it most commonly does from the excessive use of alcoholic fluids, it may assume more or less of the features of either form, according as it is directly or indirectly produced by this cause; but if it be viewed as a consequence of inflammatory action only, or as proceeding from nervous exhaustion exclusively, the conclusion will in either case be only partially correct, and the practice founded upon it frequently injurious. The first

form of delirium constitutes the
 connecting link between that which
 is purely nervous, and that depending
 upon inflammatory action of the membrane
 of the brain, yet in some cases it may
 run into, or form a slight grade, or
 modification, of inflammation of these
 parts, but that it always is strictly
 inflammatory is opposed by the fact
 that it will often subside spontaneously,
 in a short time after its cause has
 ceased to act. The "Delirium ebriosum"
 of some writers, or the delirious affection
 which is immediately consequent upon
 intoxication, is an example of this, it
 sometimes subsiding in a few hours,
 or in a day or two, when not injudiciously
 interfered with; but as this is only an
 occasional occurrence it cannot be
 trusted to. This state of delirium, when
 directly produced, as it generally is,
 by intoxication, is not always characterised
 by tremors at the commencement; but,
 when thus accompanied, it is often
 mistaken for the true form of delirium
 tremens, into which, however, it not

infrequently passes, chiefly owing
 to the cause in which it had originated.
 The second form of delirium is that
 which is usually denominated the
 "true delirium tremens" by modern writers,
 and was at one time very generally
 confounded with Phrenitis until Dr.
 Ferrius, who first gave a good
 description of it at the commencement
 of the present century, 1790 Mr. Whiston
 and Armstrong in essays on the subject,
 and Dr. Colles & Saunders in their lectures
 treated of it as a distinct affection,
 requiring a peculiar treatment. Dr.
 Blake in his treatise on the subject,
 has observed, that traces of this affection
 may be discovered in the writings of
 ancient authors, even as far back as
 those of Hippocrates, under the heads
 of febrile, phrenitic, and maniacal
 disorders. It has also been thought to
 constitute a large proportion of the cases
 named "Damonomania" by the writers
 of the sixteenth and seventeenth centuries,
 and was described in 1778 by Stoll,
 under the name of "Phrenzy" as pointed

out by Professor Forget of Strasburg. In Dr. Colles lectures on Surgery, that manifestation of it observed after external injuries, is stated by Dr. Blake to have been noticed, with an accurate reference to its chief, although apparently, the predisposing cause, and to the means of cure, which repeated observation has shown to be most successful.

Causes. The former state of delirium is not only occasioned by the use of intoxicating liquors, but also by the excitement of the cerebral organs by intense or prolonged study, particularly when prosecuted under the influence of depressing causes. Dr. Johnson states, that he has met with it in young ladies, whose mental powers had been exhausted by this cause; and as the treatment which he found successful in it is essentially the same as that which is most beneficial in this affection, he was led to conclude that it was most probably this form of the disease, that he had observed.

Excessive venereal indulgences, masturbation, different febrile affections, and other circumstances which tend to diminish the general strength, act also in some rare instances as predisposing causes. The latter state of delirium which has been called "Delirium Hammaticum" by British writers, and "Delirium Perossim" by Klaproth, makes its appearance chiefly in persons of intemperate habits, yet, this is not the only cause; it may be also occasioned by the immoderate and long continued use of narcotics, especially Opium, or the drugged beverages prepared in Eastern Countries, which when too freely indulged in may induce a state of the constitution favorable to the production of this malady. It has been seen to follow the use of Coffee & Tea in some persons, & one case has been recorded where the moderate use of Tobacco brought on the disease. It is stated by Dr. Bermet (lib. Prac. Med. vol. 2) that an over indulgence in Beer produces this disease & also that it has been seen

to follow the use of beer in which
 Cocculus Indicus had been infused
 by an unprincipled brewer; the presence
 of which not only in this, but in other
 cases, most probably tended to the
 production of the disease. A slight
 form of it, or merely tremors of the
 hands and limbs, with deficient nervous
 power, and occasional illusions, will
 sometimes appear after the habitual
 use of spirituous liquors in small
 quantities, without intoxication having
 been once produced, hence, all persons
 who from the nature of their occupation
 have facilities of obtaining wine or
 brandy spirits, are frequently affected.
 The principal exciting causes concerned
 in the production of this affection,
 are, the too sudden abstraction of the
 accustomed stimulus, after an habitual
 or continued indulgence in it, - a
 protracted debauch, followed by
 sudden privation, - or by depressing
 agents acting upon that state of the
 nervous system produced by previous
 intemperate habits and indulgencies,

notwithstanding their having been for
 a length of time relinquished. - Large
 or repeated depletions employed to remove
 the headache or stupor of drunkards or
 the first form of this delirium - great
 mental depression or despondency
 particularly in young men leading a
 life of debauchery - the debility caused
 by the diarrhoea or cholera sometimes
 consequent on intemperance - exposure
 to cold, a course of mercury, and the
 prostrated state. (Dr. Copland mentions
 having seen two cases arising from this
 last cause in females who were habitual
 drunkards; the disease appearing a
 few days after delivery.) - The use of
 intoxicating liquors and the neglect
 of sufficient food - the shock given
 to the system by wounds and operations.
 It has been repeatedly noticed that
 men who are in the habit of drinking
 freely, and at the same time eat
 largely of animal food, twice or even
 three times a day, rarely become the
 subjects of this disease; but if they
 fall off in their appetite for this kind

of food, and still continue to take their usual quantity of beverage, bilious diarrhoea perhaps supervenes; they become disordered, and the disease soon sets in with its usual fierceness of excitement. Numerous observations tend to show that delirium tremens is most common in individuals of a weak and depraved habit of body, but, on the other hand, it is not infrequent in the strong, robust, & plethoric, even in these latter however, as for instance among the brewer's draymen, and porters in London, it may be questioned whether the strength is not more apparent than real, and that before the disease appears, a state of debility has been induced by the quantity of beer and spirits they consume.

Practitioners have too generally concluded that the delirium of drunkards is always of the same kind; and have overlooked differences very generally subsisting between that immediately produced by intoxication (the first form of this affection) and that indirectly occasioned by it, (the second form, or true delirium

tremors) - an occasional, or even a single indulgence in intoxicating liquors to excess will sometimes give rise to the former; a repeated, habitual or protracted indulgence is requisite to the appearance of the latter -

This disease may also supervene on various acute disorders, such as, Acute rheumatism, Erysipelas of the scalp, Syphilis fever, Pneumonia, Scarlatina, &c. but, in all such cases its peculiar and immediate superintention may be attributed to the privation of the accustomed stimuli, which in conjunction with the usual antiphlogistic treatment employed, would, in patients predisposed to delirium tremens by previous habits of intemperance hasten its development.

In Pneumonia especially, so many cases have been recorded, that doubts have arisen as to the propriety of calling them cases of delirium tremens. The delirium in such instances may resemble in its character that which accompanied by tremor, is observed in drunkards, and it is to the disease occurring under those

circumstances, that this designation
 should refer. It is manifestly wrong,
 therefore, to include in the same class
 cases of delirium occurring in Pneumonia,
 the individuals being of temperate habits,
 and such cases do constantly present
 themselves. It appears that drunkards
 are proportionately most prone to
 Pneumonia, Berg of Stockholm has
 furnished us with some minute data
 concerning this and other complications
 (Schmidt's Jahrbücher vol. 26. fasc. 3) and,
 what is remarkable, it scarcely manifests
 itself in them by the usual vital symptoms,
 although spreading and advancing to
 the last stages with astonishing rapidity.
 In this respect an excellent criterion
 may be derived from the researches of
 Lessing, who found that in delirium
 tremens without chest affection, the
 proportion of the inspirations to the
 strokes of pulsation in a minute was
 as 1 to 6, whilst in healthy persons
 it is as 1 to 4, and on the other hand
 in certain febrile diseases as 1 to 2
 and upwards (Lessing. Diss. de

inspirationum et pulsuum frequentia
comparatione praecipue in febribus hiepi.
1838)

Symptoms. The phenomena of delirium
tremens vary remarkably, from the
slightest forms of nervous tremor with
spectral illusions, and accelerated
pulse, to the most alarming state of
vital depression, muscular agitation,
and mental alienation.

The first form is especially characterised
by a hard & resisting pulse in the
earlier stages, a parched & rough
tongue red at the point and edges,
a hot dry skin & flushed countenance,
there is often also, but not always,
trembling of the hands and sometimes
of the whole body, with great irritability
& constant wakefulness, or short restless
slumbers which afford no relief.

The second form has been divided
into three stages by Dr. Blake & other
writers, it should however, be recollected
that they are not always obvious
or clearly defined; that they exist
only in those cases which supervene

on the abstraction of the intoxicating stimulus; that the first stage is wanting in those that more immediately follow intoxication, and consequently, in most, if not all, the first form here described, and that, in the form now being considered, it is but seldom brought under the cognizance of the physician, medical aid being seldom required until the second stage is developed.

The first stage frequently appears from two to eight or nine days after a protracted debauch, or a prolonged fit of intoxication, and is commonly attended by slight febrile action, and gastric derangement, often aggravated by some accidental cause, external injury, or contingent ailment generally, the immediate effect of excesses, but, the length of time which elapses between the abstraction of the accustomed stimulus, and the commencement of the symptoms, is often uncertain. According to Dr Blake, the first indications of the disease are, a peculiar slowness of the pulse, coldness and clamminess

of the hands and feet, general debility,
 diminution of the animal temperature,
 nausea and occasional vomiting,
 particularly in the morning; great loss
 of appetite, and aversion from animal
 food; excessive perspiration from trivial
 exertion, frightful dreams; vertigo, and
 sometimes cramps of the extremities are
 complained of; the bowels are often
 constipated, but sometimes open, or
 even relaxed, and the tongue is tremulous,
 furred, and moist. The peculiar tremor
 of the hands, is in most cases present
 in this stage; but in a few it is not
 remarked until the next. The spirits
 at the same time are much depressed,
 the patient sighs frequently; his
 countenance is anxious and dejected;
 he complains of oppression of the *præcordia*;
 is anxious about his affairs, and is
 either restless and watchful, or has
 short and broken slumbers. This state
 seldom continues longer than a few
 days, and in the old and worn out
 drunkard, is generally of longer duration
 than in the younger and more robust,

in whom it may be followed by increased vascular action in one or two days.

The second stage commences with restlessness, a peculiar wildness of the countenance, and a hurried impulsive manner; marked susceptibility of the nervous system; great excitability of temper, acceleration and smallness of the pulse, and various mental illusions and delusions. The heat of the surface of the trunk increases, but the hands and feet retain the same coldness and clamminess already noticed. The mental delusion becomes more constant as this stage is developed, and is generally of a low or melancholic kind, with continued reference to the patient's ruling passions and occupations, and anxiety respecting them. He sees objects where their presence is physically impossible; is continually haunted by frightful creatures, or occupied with most extravagant ideas, and is constantly endeavoring to avoid them. He now becomes altogether deprived of

sleep; the restlessness and quickness
 of manner increase; the countenance
 is more anxious; the tongue is more
 deeply furred; the tremor of the hands
 and tongue continue without remission,
 the bowels are either constipated, or, if
 relaxed, the evacuations are very dark
 and offensive; the urine is scanty; the
 pulse soft and compressible, or small,
 and ranges between 100 and 120; the
 pupils are contracted, but the eyes are
 not intolerant of light; and the patient
 is talkative, constantly occupied with
 the objects of his delusions; he cannot
 be kept in one place, and when opposed
 is violent and noisy. This stage usually
 continues from one to three or four days,
 when it terminates, either in a general
 mitigation of the symptoms, or in more
 profound collapse of the vital powers,
 thereby constituting the third stage.

The third stage in the slighter or more
 favorable cases is ushered in with
 mitigation of the foregoing symptoms;
 yawning, drowsiness, and profound sleep,
 which generally terminate the disease;

but in the more dangerous cases, the preceding phenomena become more severe, and accompanied by more complete depression of vital power, and increased irritability of mind. The patient makes violent and excessive struggles which are attended by very copious perspiration. As the malady advances, and the energies sink, the coldness and clamminess of the hands and feet, which had been extending upwards during the second stage, spreads over the whole surface; and the pulse becomes still more frequent, small, weak, or thready, and sometimes can hardly be counted: the tremor increases in the hands, and often invades the whole frame, resembling more nearly that occasioned by severe cold, than the nervous rigors of some other affections. The perspiration becomes more and more cold, and exhales a peculiar smell, which is, as Dr. Hodgeton has remarked, between a vinous and alliaceous odour. The countenance is commonly pale and anxious; the pupils very much contracted, the tongue loaded, furred, and often

Brownish at the centre and root, and occasionally red at the point and edges; the patient talks incessantly, and with great rapidity; the delirium increases in violence; and the mind is excessively irritable, continuing so until shortly before death, when either a calm takes place, or the patient is carried off in a convulsion.

Such is the more common form of true delirium tremens, yet, it must be recollected, that the three stages into which it has been divided, are not always separated by any obvious limits, or even so distinctly defined as generally observed and stated, the phenomena often supervening in so gradual and continuous a manner, as to render it difficult to determine the end or commencement of each, without much attention to all the symptoms and to the history of the case. Sometimes it presents more severe forms, in which the phenomena approach those characterising the former species, or the "delirium ebriatum", in which the

vascular excitement generally, and that of the brain in particular, is greater and relatively of a more sthenic kind. The second form is, however, sometimes consequent upon the first, particularly when treated by too copious depletion; the vascular excitement of the one passing insensibly, but often rapidly, into the profound collapse marking the latter stages of the other; and this may even occur, although the delirium at the commencement was not attended by tremors.

Diagnosis— This disease may be mistaken for the first form, for phrenitis or inflammation of the membranes and periphery of the brain, for the delirium of fever, and for confirmed mania or insanity. It is to be distinguished from the first form of this kind of delirium, by its coming on a short time after a protracted fit of intoxication, instead of immediately upon it; by its being caused indirectly instead of directly, by the same abuse of intoxicating liquors; and by the pulse being hard and resisting,

the face more flushed, the surface of
 the trunk hot and dry, the delirium
 more violent, and the patient more
 irritable, the tongue parched & rough,
 and the vascular excitement comparatively
 greater and more sthenic, in the first
 form, than in the second; although
 occasionally a few cases of the latter
 approach these characters of the former.
 The same differences, but in greater
 degree, exist between delirium tremens
 and phrenitis, in which one wanting
 the cold, copious, clammy & peculiar
 perspiration, the soft pulse, and the
 moist tremulous tongue and hands.
 The impatience of light, and fulness
 of the vessels of the eyes, which accompany
 the latter, are not present in the former.
 The illusions also of delirium tremens
 are peculiar, and are accompanied
 with an anxious, fearful, and constant
 reference to concerns which had previously
 interested the patient in a particular
 manner. He can recognise his friends,
 and return a rational answer to
 some questions; and when not irritated

or opposed, is more tractable and manageable, than in phrenitis. Dr. Watson in his lectures mentions another mode of distinction, and probably a more sure one than any, to have been brought to light by Dr. Bence Jones in some highly interesting researches.

Dr. Jones has shown a contrast to exist between the two forms in respect to the amount of earthy and alkaline phosphates excreted with the urine.

In the worst forms of delirium tremens there is a marked diminution of these phosphates, & in acute inflammation of the brain a considerable increase.

Taking the average from three examples of each disease, the difference was in proportion of 1 to 12, the extremes presented the extraordinary ratio of 1 to 23. Dr. Jones concludes that the "excess of phosphates may be regarded as resulting from inflammatory action going on in the brain, while the diminution of the same phosphates in delirium tremens must be considered as caused by the positive hindrance of that process

of formation of phosphoric acid, which in the healthy state is continually taking place." By the history of the case, this affection may be readily distinguished from the delirium of fever or typhus, it being the primary and the most prominent ailment; delirium generally supervening late in fever; in this disease there is a marked tremor of the hands from the beginning, and the patient in the last stage seems to search after objects, which he imagines he sees creeping over his bed, or floating before him: in the delirium of fever, the peculiar tremors are wanting; but there are subsultus tendinum and floccitation. From maniacal insanity it may be distinguished chiefly, as before stated, by the great frequency and softness of the pulse; by the copious cold, and peculiar perspiration; the tremulousness, by the history of the case, thus being an acute, the other a chronic malady.

Dr. Blake considers that we should perhaps arise nearer a pathognomonic distinction in stating, that in cases

of mania, the mental derangement increases at the appearance of day-light, while the contrary is invariably the case in the disease in question; all the symptoms become more violent at night, and undergo a sort of remission as the day begins to break; by which it would appear that confirmed madness is beyond the precincts of febrile revolution, while this disease is still within its control. The stimulus of light, or indeed of any excitant, seems of advantage in delirium tremens; but not so in the commencement of mania: its symptoms are invariably exacerbated by such influence. Dr. Parratt states (lib. Prac. Med. Vol. 2.) that the expression of the countenance in these two diseases is very different, and may be readily distinguished by an experienced eye, but the same time acknowledges, that the diagnosis is often very difficult, especially when there is no trembling. When it occurs in the paralytic state, the difficulty of distinguishing it from the mania sometimes supervening

at that period may be considerable; the tremors, the greater frequency of the pulse, and more copious and colder perspirations, will point out the nature of the affection, and will lead the physician to treat it according as the symptoms indicate a greater or less predominance of nervous exhaustion over vascular excitement.

Prognosis— In a constitution not as yet much injured by the cause of the disease, a first attack or even a second or third generally terminates favourably, but its more frequent recurrence, particularly if it be attended by signs of vascular irritation, or erythema of the Incephalon, or by dryness of the tongue, and its complication with some other disease, are circumstances indicating great danger. A want of correspondence in the pupils, and the superintention of subsultus tremorism or convulsions, or of low and muttering delirium, the pulse becoming quicker and smaller are generally unfavourable signs.

When caused by opium, it is also more

dangerous than when proceeding from intoxication.

On the other hand, a general mitigation of the symptoms, less frequency of pulse, with quiet or sound sleep, are indications of a favorable termination being at hand. In all cases however, our prognosis should be guided in a great degree by the apparent strength, age, and previous habits of the patient, whatever be the treatment pursued.

Pathology - Post mortem appearances have furnished only negative information as to the nature of the disease. In the true delirium tremens, the membranes of the brain receive but little change, the chief lesion consisting of slight opacity of the arachnoid, especially at the base of the brain and vicinity. The pia mater is somewhat injected, and sometimes effusion of serum is observed in the cavity of the arachnoid, and in the ventricles, and in many cases no morbid appearances whatever can be detected. In those cases which have accompanied or directly followed

intoxication, these appearances are more marked, and more manifestly inflammatory, the vessels are often much congested, particularly those of the *falx interpositum*, the arachnoid thickened, and the serum more abundant, and occasionally even sanguineous.

Gulberg found a deposit of lymph between the membranes of the brain a common appearance, and an injected state of the arachnoid is not infrequent.

The internal surface of the stomach generally presents appearances of chronic gastritis, the mucous membrane being either thickened or softened, or both, and the villi effaced. The liver is variously diseased, often enlarged, granulated, of a yellow or fawn colour, more or less altered by the fatty degeneration. The lesions, however, of the stomach and liver, are coincidences only, or changes contingent on the habits of the patient, and not necessarily connected with the pathology of this disease.

Much discussion has taken place amongst modern writers, as to the

nature of this disease, in consequence
 of no clear distinction having been made
 between that form of delirium with tremor,
 which is the result of vital, and particularly
 nervous exhaustion, and that which
 depends chiefly upon increased vascular
 excitement, or inflammation of the membrane
 of the brain. Although numerous instances
 will present themselves in which the
 former as well as the latter pathological
 state exists, the one, however, predominating
 over the other; yet the fact of either
 being present, almost solely, if not
 altogether so, perhaps, in a still
 greater number of cases, should not
 be overlooked, as it has been fully
 demonstrated by post mortem appearances.
 It is most probably in consequence of
 having noted the changes observed
 principally in the first form, or in
 such instances of the second as approach
 it the nearest, that Dr Clutterbuck
 and Dr Bright have viewed this latter
 as the consequence of inflammatory
 action in the arachnoid and pia mater.
 Dr Copland is of opinion, that the

inflammatory irritation, although
 sometimes an attendant on this
 affection, is not necessarily connected
 with it, and certainly is not the
 pathological state which produces
 it; and that, when present, it is
 not the only condition which is
 requisite to the development of its
 pathognomonic characters; exhaustion
 or depression of both the nervous and
 sensorial powers being equally necessary
 to its superintention. He considers it
 probable also, that the vital and
 nervous depression is increased by
 the morbid impression produced
 by accumulated secretions of a
 vitiated mind on the biliary system,
 and on the digestive mucous surface.
 This conclusion he deduced from a
 careful comparison instituted
 between the symptoms, the agents
 controlling them, and the morbid
 appearances observed upon dissection.
 From this it may be inferred that
 the pathological states in true delirium
 tremens, and in the delirium of typhus,

are not widely different; the state of the blood, the presence of congestion, and the greater affection of the substance of the brain, and of the organic functions, in the latter than in the former, may probably occasion all the differences of symptoms which exist between them; the vital exhaustion being nearly the same in both, or perhaps greater in typhus, and the nervous disturbance being more prominent in delirium tremens.

At present we are still unacquainted with the intimate nature of this disease, but we know sufficient to direct us as to practice; to enable us to state that in delirium tremens, uncomplicated with other serious disease, such as inflammation of some important organ, unless circumstances are peculiarly unfavorable, unless the patient's constitution is extremely shattered, or he is very injudiciously treated, he will recover from the immediate attack. All that is known on this subject is as yet very unsatisfactory and obscure,

a wide field for further investigation still remains open -

Treatments - Moderate depletion is requisite in the first form of this disease, by cupping, or leeches applied behind the ears, and below the occiput, cold washes or lotions, or the tepid or cold affusion to the head, whenever its temperature rises above the natural standard, the tepid bath, or the surface of the body, to be sponged with tepid water; purgatives in combination with cordials, if the nervous power be much depressed, or if the attack be occasioned by intoxication, aperient and antispasmodic enemata; and the liquor ammoniac acetatis with excess of ammonia, and camphor mixture. Emetics are very beneficial, and may be frequently repeated with safety, but they should always be associated with stimulants and their action promoted by enemata. When this affection is caused by spirituous liquors, great care should be taken not to carry the depletion, although local, too far, and upon the first indication of the subsidence

of vascular excitement about the head, moderate doses of opium ought to be administered in addition to the medicine before spoken of, with the view of preventing the consequent depression, quieting the perturbation of the frame and inducing sleep. Antimonials given in nauseating doses frequently repeated, will also powerfully conduce to diminish the vascular excitement.

Dr. Copland considers, that in cases of this form of the disease, in which the vascular excitement either is not so great as to require bleeding, or has been somewhat reduced by this practice, emetics may be judiciously exhibited, and Dr. Blake confirms the result of his experience, in recommending emetics of Sulphate of Zinc, assisted by the administration of antispasmodics and stimulants, with the application of cold to the head, while the surface of the body and extremities are sponged with tepid water. This treatment is, however, most appropriate when the affection is the direct result of

intoxication; but when it arises from other causes, vascular depletions, with purgatives &c. cold applications to the head, and a more sparing use of stimulants are most suitable.

I may here mention a case which came under my notice during the last summer; the patient was a man of temperate habits, strong, and robust, and by occupation a farmer, he had come some distance from the country into town to attend an annual fair, and having indulged too freely in spirituous liquors, (which is commonly the case on such occasions) was suddenly attacked with all the symptoms of the first form of this disease, an emetic of sulphate of zinc was administered as proposed by Dr. Blake, & subsequently purgatives with a decided beneficial effect.

During the first stage of the second form of delirium tremens, it is better if possible to cut short the disease by administering repeatedly, small doses of opium, with full doses of aromatic

spirits of ammonia and sulphuric
 ether in camphor mixture, or the
 accustomed stimulus in moderate quantity
 and at short intervals. Anodyne and
 stimulating liniment rubbed over the
 epigastrium are very efficacious and
 in some cases, a warm bath will precede
 the use of liniments with much benefit.
 Most writers consider the administration
 of purgatives, in conjunction with stimulants
 of great importance and at as early
 a period as possible. Dr. Alison states
 that the use of opium should be preceded
 and accompanied by purgatives. Dr.
 Copland also remarks that in all
 cases of the disease he has seen, there
 has not been one, that has not indicated
 the propriety of prescribing cathartics,
 in order to remove accumulated secretions
 from the quantity of very dark, offensive,
 bilious evacuations which they have
 procured, often not until after their
 repeated exhibition, and even in cases
 where the bowels had been open or
 relaxed. He has concluded that collections
 of vitiated bile in the gall bladder and

* Mr. Corse mentions three cases of delirium tremens (Med. Times June 16th 1849) in confirmation of an opinion previously expressed by him, that sleep may frequently be obtained by freely unloading the liver with large doses of Calomel, after opium has failed in accomplishing this object. The cases are well selected and pointedly establish the truth of his assertions.

Hepatic ducts have favoured the
suppression of this peculiar affection.

Under this conviction he has always
exhibited as early as circumstances
would permit, an active chologogue
purgative conjoined with stimulants
in order to prevent the depression which
might follow copious evacuations. He
has recommended a bolus consisting
of ten grains of calomel, with as much
camphor, and a grain of opium in
conserve of roses, followed by a warm
stomachic and a spiritus draught,
and in an hour or two by an enema.

Dr. Blake always adopted the same
mode of treatment, but he prefers a
drop or two of croton oil, as in addition
to its efficiency as a purgative, it appears
to act through the medium of the nervous
system, and therefore becomes a
desideratum in this stage of the disease.*

If the second stage supervenes after
the employment of the above measures,
or if the patient be not seen until
it has appeared, the treatment should
be commenced by the exhibition of the

remedies already mentioned in the preceding stage. As soon as stools are procured, opium either alone, or with stimulants should be administered in full doses and repeated according to its effect. Some practitioners are in the habit of combining calomel with their opium. Dr. Watson disapproves of this practice in cases of *Eme delirium tremens*, as he says it can ensure no possible good, and is itself a source of great irritation to the nervous system in many persons; its combination with antimony which has been much praised by physicians of great judgment and experience appears to be chiefly appropriate to certain modifications of the disease.

Dr. Knight, of Baltimore, strongly recommends the warm bath at a temperature of about 90° , as it assists materially in tranquillising the patient, and promoting the effects of opium.

Although opium should be administered in full and decided doses, combined as before stated, it should not be persisted in, unless sufficient time be

allowed to elapse after each dose;
 for, as Dr. Parrson has observed, if it
 does not succeed after its exhibition
 at first in a decided manner, it increases
 the intellectual confusion and danger.
 Enormous doses of this medicine have
 been recommended by some of the
 American physicians. Dr. Brown gives
 from a drachm to half an ounce, or
 even more, of the tincture of opium for
 a dose. Dr. Jackson prescribes from
 ten, to fifteen or even twenty grains of
 solid opium, every two hours, and states
 that four ounces of good tincture of opium
 having been given in twelve hours, partly
 by mistake, a sound sleep of twenty-four
 hours duration, and perfect recovery
 were the result. These are not solitary
 instances, of the extravagance of some
 American practitioners; nor, indeed,
 has the practice of giving excessive doses
 of opium been limited to them. I have
 seen ten grains of solid opium given
 every two hours successively until a
 drachm has been consumed, also,
 two drachms of Böttcher's sedative solution

of opium administered every two hours without intermission until no less than two points were taken, in both of these cases recovery took place. Dr. Ford, of Boston, gives us his experience of the effects of large doses of opium, in eight cases of this disease. He administered to each patient, from twenty four, to seventy two grains of opium, in forty eight hours; four of these cases proved fatal, one died after sleep had been procured, and expired in a state of coma. This is sufficient to prove that excessive doses of opium ought not to be indiscriminately relied upon, and above all, that this powerful medicine ought only to be given in full doses during the second stage, or that of high nervous irritability.

Dr. Copland and Dr. Wright are of opinion that large & frequently repeated doses of opium in this disease, favour the superoction of coma, convulsions, or paralysis, and that the effects of an inordinate quantity of this drug, very nearly resemble the

Phenomena of the last stage of this disease, particularly towards its fatal close. This fact should not be overlooked, and should lead us to distinguish between the consequences of an injudicious treatment, and the worst features of the malady.

Opium however, is generally considered as necessary to the cure of this disease, administered in a quantity which sound sense will dictate, and after accumulated and morbid secretions and excretions have been removed, the discharge of which might be impeded or interfered with by the immediate employment of this remedy. In this stage, particularly when the delirium is attended by much agitation or violence, it is necessary to obtain an influence over the patient's mind by moral means. All irritating contentions should be avoided, and the patient's wishes when not likely to prove injurious to him, be indulged. By thus granting what is less material, he will more readily submit to what is important, but he

ought not to be left at any time without an attendant, and if indulgent but firm treatment be adopted, coercive measures will generally be found unnecessary. In most cases after the employment of such means, a remission of the symptoms may be expected to follow, with a disposition to sleep - sometimes however, accompanied by nervous rigors. Opium should now be left off, or its dose much diminished; and the patient kept as quiet as possible. Afterwards it will only be necessary to support the strength by a light and nutritious diet, and gradually diminish the quantities of the restoratives that have been prescribed.

That state of the disease occurring after external injuries, or operations, has been imputed chiefly to the previous intemperate habits of the patient: it requires the same treatment as employed in this stage and will be remarkably benefited by small clysters containing moderate doses of Laddanum, administered after the bowels have been sufficiently evacuated, and repeated according to

circumstances. This treatment was much relied upon by Mr. Dupuytren; but if it does not remove the disorder, after sufficient time has been allowed for its operation, a moderate quantity of the patient's favorite Beverage should be allowed him, as suggested by Dr. Colles. Of two cases recently reported in the Medical Gazette vol. 7. p. 287 which confirm the view taken by Dr. Copland of the origin of traumatic delirium in that state of the constitution which intemperance induces, opium failed in one, and music acid, which was tried in the other, was equally unsuccessful.

Notwithstanding the treatment before mentioned, the third stage should appear, little hope of recovery can be entertained, as most likely serious effusion has become superadded to exhausted vital and nervous influence. Nevertheless, medical aid should not be withheld, especially if the patient has not received it in the earlier stages, or has been injudiciously

treated. A blister should be applied to the head (the hair being previously removed) and a smartain over the epigastrium, administering at the same time large doses of stimulants & antispasmodics, such as, ammonia, ether, camphor, Musk, &c. Mercurial liniments containing camphor may likewise be rubbed upon the inside of the thighs, and the warm bath resorted to. Some other modes of treatment which have been employed may be briefly mentioned.

Since the introduction of Chloroform into medicine as an anæsthetic agent, it has been frequently employed in this stage, apparently as a last resource, when Opium and all other remedies have failed, but, owing to the extreme exhaustion and sinking of the vital powers at this period, its administration as far as I can ascertain, appears to have been in every instance productive of the most unpropitious results; nevertheless, I think it might be used with good effect in the earlier stages, in combination with

opium, as it would, by inducing a
 state of quietude, considerably augment
 the action of that important remedy,
 which, under other circumstances must
 be much retarded by the excessive restlessness
 and agitation accompanying this affection.
 M. Scham states that he has seen the
 most furious delirium overcome as by
 enchantment, and the disease removed
 in a few hours by the use of succinate
 of ammonia alone. Dr. Ferrus (of Paris
 / *Bullet des seign. med.*, Sept. 1830) directs
 leeches to the head and anus, applies
 ice to the scalp, and gives calomel
 and jalap, and subsequently music
 acid; this method is obviously only
 suited to the first form, and from the
 preference he has given to the operation
 adopted by Frank, it may be inferred
 that he has never prescribed it in the
 true delirium tremens. Dr. A. L. Pearson
 states, that he gave very large doses
 of digitalis (50 drops every three hours)
 after bleeding, and the patient recovered,
 but this was evidently a case of the
 first form of the disease. Dr. Pauli

informs us that he has prescribed from three drachms to six of fresh u-gall, in aromatic water, half a glass of brandy each morning, and two grains of the watery extract of opium at night, in forty three cases, and only last one (Med. Gazette vol. 9. p. 776).

Dr. Ryan, Dr. Blake & many others have insisted on the propriety of having recourse to moderate quantities of the stimulus to which the patient has habituated himself in the depressed periods of the disease, and especially in those cases which present the more marked signs of exhausted nervous and vital power.

During the course of the disease, little or no disposition is felt for nourishment, nevertheless it should occasionally be offered, and ought to consist of arrowroot, sago, or tapioca, &c. mixed with a little brandy or wine.

When convalescent, the diet should be light and nutritive, with a suitable allowance of brandy or wine, according to the previous habits of the patient.

The state of the digestive functions will

require attention, and if necessary, ought to be promoted by tonics; and by aperients when requisite.

Having thus far conducted the patient, the remaining part of the physicians duty will be exhortation, as the prophylaxis in this disease is sufficiently obvious. The complete abandonment of previous indulgencies, and the consequences that will naturally follow from a persistence in them must be inculcated, yet notwithstanding all counsel, rarely if ever has an instance been known or heard of wherein the danger from which he has escaped, or the remonstrances of the medical attendant or friends, has been productive of any good in effecting a reformation of the habits which brought on the disease; should all this advice however, be offered in vain, the physician will at least retire with the pleasing reflection that he has to the best of his ability fulfilled his part.

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