1859
Good day
Conclusions right

gross division of disease
however - all alike

Delirium Tremens

W. Turnbull
Delirium Tremens

Delirium tremens is one of the many diseases which have been considered of recent origin, as according to Mr. Blake, had been noticed in the writings of Hippocrates. But Dr. Cuthbert has the merit of bringing the attention of the profession to it, in the present day. This disease is almost confined to the male sex, and the age at which it most commonly attacks is between 35 and 50. From statistics
Merchant Research on Politics in India Vol I p. 570
If certain hospitals, it would appear that
the woman becomes subject to the disease
for every 33 men, and the peaceful although
it be, the number of female domiciliants has
a much higher proportion to the male. The
nervous and daemonic temperaments are
the ones most peculiar to suffer from it,
especially when combined with a weak con-
stitution. It is a curious fact that the
natives of India are little liable to suffer
from this disease, and when they do take
it, they never pass beyond its first stage.
Although according to physicians they
drink spirits to a great extent.

The term Delirium tremens is often
to totally incorrect, yet its significations
has become so well known both professionally
and otherwise that all writers recognize
the ability of withering it in our women-
shrink. The various writers on this subject
are unanimous in considering the cause
of delirium tremens to be the preceding
cause of this disease. But there is great
diversity of opinion upon the point.
Whether the continuance or withdrawal of the stimulant is the immediate excitant - See Dr. Pedi's pamphlet on this disease. They arguments are adduced to prove that the continuance of the stimulant is not only the prevailing but also the exciting cause of delirium tremens, and that in all cases where the disease supervenes upon its withdrawal, it was in process before the animal. This conclusion is correct, but an important bearing upon the treatment. Systematic writers with few exceptions lay down as a rule that delirium tremens is the natural consequence of the removal of the alcoholic stimulant, neglecting, however, to give some proof of their assertions. Whereas many equally eminent men, five of the result of their experience that withdrawal of the stimulant has no share in inducing the disease, but quite an opposite tendency. The evidence adduced by the Latter Class bears the greater weight, inasmuch as it is supported by numerical Statistics. Dr. Craige, Mace, Pedre, and
A vast number of continental authors affirm that they never witnessed a case in which they could attribute the disease to the abstraction of the predisposing cause — and Dr. Gaffield states that he knows of no veracious facts which prove that the affection is consequent actually, or virtually, upon the withdrawal of alcoholic beverages. Dr. Sandeman in his 'Researches on Disease in India' says that "there are two well-marked forms of melancholia: 1st. that which succeeds the arrest of hard drinking without any interval, and 2nd. that which supervenes after the accustomed freedom has been withheld."

A much longer passage is cut off: "of the greatest importance, and of the most frequent occurrence. This strange phenomenon that all the cases which he gathers should belong to the former class, although it is "comparatively rare." This fallacy may have crept into the etiology of the disease, in one of the following ways. There are many rare who think that such an extent that a very much smaller..."
quantity of liquor had latter the same effect upon them, that a large amount previously had, and these were then attacked with delirium tremens. Attributing the disease to diminution or suspension of the intoxicating agent; the fact of the poison being a convulsant one, and a much smaller dose now effecting the fully charged brain, being quite overthrown. Then again, some were able to abstain from the preceding habit, from the urgency of the premonitory symptoms, produced by the quantity of poison already accumulated in the system. Also, the intoxicating fluids have been indulged in to excess for some length of time, the brain becomes so infiltrated with it, that without a delirium tremens will follow. Whether the stimulating process to continue or give up, it is peculiar statistics from various prisons, so far to settle the question for ever, and to establish as a fact that delirium tremens is the result not of the abstraction, but of the continuance of alcoholic stimulants.
Delirium tremens is not produced by alcohol alone; it may be caused by opium, tobacco, lead, coffee, and lavender. Continued mental labour, fever, poisons in the food, excessive application, starvation, fat in most of these cases the delirium has peculiar character.

The symptoms of delirium tremens are numerous, but well-marked, and if carefully attended to quite sufficient to distinguish it from all other affections. By Br. Blake the disease is divided into three stages, an arrangement which much facilitates its consideration. The first stage is ushered in by certain premonitory symptoms, the most unmistakable of which is a condition of general depressions, listlessness, with considerable anxiety. They follow in most cases, tremors of the hands, the tongue, the limbs, and the tongue, and it does not give them separateness from the upper. Then it is a certain indistinctness of articulation with tremulousness of the voice. The speech is short and jerky, and disturbed by.
unpleasant dreams, and the patient rises in the morning tired, weak and feverish. From this point it dates the commencement of a paroxysm of delirium tremens. The patient does not recover during this period what is the matter with him, but he first lost his appetite, fails, and in extreme cases delirium, but alcohol pure his lips to a feverish—A painful feeling of fulness of the head, buzzing in the ears, nausea, and even vomiting occur along with some confusion of ideas, the last hemiplegia, which is managed in the next stage. The pulse according to St. [Blate? it full and slow, an observation which is not coordinated by other writers, and it is mentioned that it is often frequent. The tumult has a tendency to perspiration, but these symptoms are not frequently experienced. The tongue is generally dry, and red at the edges and tip. The lips are purplish and festering. There is throughout this stage anemia, with a great amount of gastric irritability.
The second stage is that of delirium, and its onset is marked by an increase in the confusion of ideas, often with mental disturbances. The patient usually under some extreme trial or has received some fancied insult, as is pursued by some object generally of satanic character. He imagines there is a ball is following him, that cats are attempting to tear him, that his feeding insects are crawling over him. That the devil appears to him at intervals at a certain spot, or that some deed of horrible nature is being enacted before him. To escape from objects and scenes such as these is the constant endeavor of the patient, and if forced to employ his mind against his will, his efforts are exhausted, and sometimes several hours may pass he is unable to hold them. At times, he is quiet, and talks quite rationally, although rather hurriedly. Occasionally, he may be observed to pay great attention to something visible to him alone, and he will apply to some supposed question or threat in his imaginary persecutor.
London Medical Journal - July 1851 - p. 81
During this stage the circulatory system shows
some excitement: the pulse is small and
quick, and the heat of surface increases,
but only that of the trunk, the extremities
remaining the C & O always feel still. They
had during the first stage - The trunk's
of the hands and tongue increase, and the
latter is moist and red. The appetite
is either absent or very feeble. The stomach
is irritable, the bowels constipated, and the
stools when obtained, dark in colour. The
urine is scanty and pale in tint, and accor-
ding to Dr. Bruce Jones, the phosphatic
are diminished, the sulphuric and uric
increased - Dr. Piddie has found albumen.
The breathing is hurried, but otherwise normal.
The pupils are in a state of contraction,
that is done without difficulty. But
none of these symptoms are of such im-
potence as the continued usefulness
which may indeed be said to be fatal.
Eponine - This symptom is so constant
and of such a grave nature, that some
writers on this disease say that the
Patient must either sleep or die. In the case observed by Dr. Rice in which the disease was allowed to run its course, sleep supervened at about the end of three days, seeming to be its natural termination, and doubtless it is only when the disease is alleviated medicinally. Sleep in with its powerful drugs that this course is checked. If sleep does not occur either from the complicating of the disease, or the interference of the medical attendant, the symptoms above described increase in severity, and death may follow with all the accompaniments of the last stage of sleeping in. If patient may die convulsing, or lastly he may expire quietly during a short calm sleep which has succeeded his constant, weary fit of excitement.

The commencement of the third stage is marked by the recurrence of sleep, which sometimes continues for eighteen hours without intermission, and the patient awakes with a delightful sensation of freshness, and with all his senses about him.
Blake on Delusions turner p.5

Port's Practice of Physic p.157.
In some severe cases no sleep is obtained for a fortnight, and there is the mentioned fever it followed after a month's chance. During the first period part of the sleep which succeeds the delirium, the patient is sometimes very restless, and awakes every few hours, but the waking intervals become gradually shorter. The headache is slow and saccadic, and a profuse perspiration breaks out all over the body. After an attack the patient remains very weak for some time, but he is entirely free from the mental illusions which previously perplexed him.

Although much has been written upon the pathology of this disease, we are still in a state of great ignorance. Consequently there is much discrepancy in the opinions regarding it. According to Blake, there is "a marked increase of action in the brain and nervous system," and on the other hand, Wood maintains that "the brain is in a state at once of inability and depression." These apparently
contradictory statements may be reconciled by applying the pathological law which states in Central disorders, that opposite conditions produce similar effects. J. Percy in his graduation thesis in 1809 at the University proved that alcohol has a strong affinity for central material and that much more of the liquid could be obtained from the brain, than could be accounted for by the vessels alone. If alcohol has a topological effect upon the cerebellum, which it certainly has, this fact would account for many of the symptoms of deteriorating tremors. Whatever may be the primary cause of this disease, it cannot be of a purely physical, but simply functional. Medical anatomy throws little light upon the cause of this disease, the appearances presented by the brain on post mortem examination being quite unfit to explain the various phenomena; a fact which would lead us to believe that the alcoholic particles must have some specific effect upon the intimate structure.
Secr.ius Practice of Physic.

Blake on Delavine, James, 1705.
of the cerebrum, an effect which as yet can
not be demonstrated by any means in our
power—All observers agree in stating that
a certain amount of serous effusion is
present in the central ventricles—in the
cavity between the medullary and pia mater
and in the central substance. Injury of
the central membranes is sometimes seen.
The pia mater presents great vascularity, and
according to Dr. Charpy 'the meningeal
vessels are filled with an unusual amount
of venous blood, and the arteries with im-
perfectly detached arterial blood, with
Charpy with spirituous particles.' This
blood he goes on to say 'induces central
inflammation which is the great cause of the
malignant nature of subacute hemorrage.'
According to Dr. Blake the cause of death
in this disease is serous effusion within
the cranium—in almost all cases there
is formed a congested state of the cardiac
orta of the stomach, which accounts for
the gastric irritability so seldom absent
in this disease. The opportunity of
fully investigating the motive anatomy of Alniun tumens in its pure form, it is not
now supplied on account of the numerous complications arising in its course, and
pre-existing, and of the small number of cases which the thin properly treated,
that the absence of more lengthy details
is not surprising.

Of all the complications of Alniun tumens with which we are ac-
guainted, that of Acute Gastritis is the
most common, and the explanation of
this fact may be that the alkaloidal
principle has a direct effect upon the lining
membrane of the stomach. We are lead to
this conclusion by the fact so often noticed
in this disease, of the Conjectured condition
of the Cardia end of the stomach. If the
excitation is long kept up, as in cases that
Once think for months together, without
using a corresponding amount of solid food,
it is easy to suppose that the Conjectures
will pass into inflammation, and that
Gastritis be produced. Next in frequency
comes central inflammation, and here again the enlarge observed in milder cases, might easily be kindled into flame. If this acute disorder may be mentioned variety, Pneumonia, Pneumonia, and Tuberculosis. Of chronic complications we have a long list, amongst which affection of the liver takes the lead, such as Cirrhosis, fatty degeneration, and Chronic Hepatitis. Depletion is a common complication in India according to Dr. Meares. There is a form of Tuberculosis which impinges upon some severe bodily injury, such as fracture of the leg, in persons addicted to drinking and called by M. Dupreau as Tuberculosis, but it does not seem the identical with the disease which we are now considering.

The arrival at a good diagnosis is much assisted by the history of the case, and it is not at all difficult to detect Tuberculosis, if it is thoroughly practiced. However, cases do occur in which there is some uncertainty on account of complication.
Peddie on Delirium Tremens/ps.
The diseases which are apt to be confounded with it, are the various forms of insanity, inflammation of the brain, delirium tremens, and the delirium accompanying fever. Mania is known by its longer premonitory stage and more insidious approach. The peculiar sense of fear is absent, and there are few no muscular tremors. The prodromes of delirium tremens increase in severity towards night, like febrile diseases, whereas the converse holds good in mania. In dementia the tremors with paralysis may be mistaken for the tremors of delirium tremens, but there is sufficient difference in their respective histories to distinguish them. Monomania resembles it in taking some fixed Delusion, but the other symptoms are wanting. Delirium tremens is much resembles delirium tremens, but it raises informing as that is justly celebrated a physician as it esters his mistaken cases of it. If cases to it, it responds according to it.
Some disturbing emotions. It is known by the
sullen, determined aspect of the patient,
by his desire for additional supplies of
items of the thickest kind, and by the ab-
sence of peculiar hallucinations. Inflam-
mation of the brain, or Phrenitis, is recognized
by the absence of muscular tremors, by
the greater tendency to Coma and Convulsions
by the Thorough Abolishment of Febrile Symptoms
and by the freedom from imaginary terror.
Delirium tremens and inflammation of the
brain, are often conjoined, and in such
cases the thieving effects of the adminis-
tration of Opium would be well seen.

The delirium accompanying fever can
clearly be mistaken for Delirium tremens
if these be any doubt, the absence of an-
tichotic notions, of muscular tremors, and
of the officious talkativeness of the latter
disease, will remove it.

In Sweden's system of Practical Practical
Medicine, it is mentioned that ten per cent
of those attacked with this disease die.
This proportion is much too high, and
probably the estimate would have been considerably lower. Had the treatment been different, simple uncomplicated delirium tremens is by no means a dangerous disease if allowed to run its own course. But when inflammation of the brain and other severe complications intervene, its prognosis is very much altered for the worse. First cases are less dangerous than succeeding ones, and the more frequent the attacks, the more fatal do they become. The patient rarely inflicts himself a attempts to aid himself of the implevant companions which haunt him. The chief source of danger is the activity resulting from severe muscular exertions, and when it presents itself, accompanied by low tipples symptoms, the prognosis is entender very unfavorable.

At one period in the history of this disease, the single opinion which prevailed regarding its treatment was, that in opium vials the only means of cure,
Letterly however, doubts have been thrown upon
the supposed specific power of this drug, and
the day is probably not far distant, when
its real effect upon the disease will be
understood by all. Before referring at length
to this subject, it will perhaps be better to
speak of some of the other remedial means
which have been employed, and first of
Blood-letting. This remedy was at
one time used extensively in Albinism, tending
to in every other disease, but it has now
found its proper level, and is employed
only in cases complicated by inflammation
of the veins and its branches, and even
then its utility is frequently doubtful.
In simple cases it is positively hurtful,
and is seldom, if ever, adopted in the parent
Case.

Sometimes this plan of treatment
was adopted by Dr. Bell of Philadelphia,
on account of his observing great relief to
follow the spontaneous recurrence of con-
mittence during the Albinism paroxysm.
Some success is said to have resulted
from this mode of treatment, but if I could
not have been very great, as the plan has
been by no means generally adopted. Medical
authority teaches us that there is a con-
siderable amount of central congestion
in this disease, and surely he should
avoid using every means which would tend
to increase it. Its emetics would certainly
not remove the first attendant disability
would be kept up, if not aggravated by
such a course of treatment.

Perpetuities — These are very useful. Perpetuities
and should always be administered in
constipative effects. They aid in the ex-
cretion of the poison, and also have a
derivative effect upon the brain. A grain
of perpetuity like the black thought will
generally suffice, but if needed, a ton.

Stimulants — Alcoholic and opium stimulants
came long into their places as the best
stimulants in this disease, and they have
been extensively used on the theory that
the brain requires to be stimulated after
the point essential to its correct action. But if it hold true that the brain had been already stimulated up to a point at which it resisted further stimulation, such a mode of treatment would be absolutely hurtful, and the only way in which we can arrive at a correct conclusion on this lead is by examining the statistics of the different modes of treatment. I proceed in the European general hospital at Bombay, applying in the first stage ice, ammonium, hardy, and less occasional fluids at bed-time, and in the second cold affusion, stimulants—Hartís extract (gr.) + Tincture of Opium (100 X X X every one, two, or three hours) and the mortality during the year was 9.4% per cent. In the same establishment, from 1838 to 41 the treatment was exclusively stimulant, and the mortality 24.5% per cent. As a contrast to this, i.e. Pedro's treating eighty cases by the same stimulant principle, and he saved not one death. I shall place in a tabular form these results along with
Svedi's System of Practical Medicine
Some additional ones which have thumbs from various sources, giving the percentage of mortality:

<table>
<thead>
<tr>
<th>Institution</th>
<th>Stimulant</th>
<th>Non-Stimulant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bombay Hospital</td>
<td>9.4%</td>
<td>1%</td>
</tr>
<tr>
<td>Philadelphia Hospital</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>St. George's Hospital</td>
<td>14.6%</td>
<td></td>
</tr>
<tr>
<td>Calcutta Hospital</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>British Army</td>
<td>17.6%</td>
<td></td>
</tr>
<tr>
<td>Bombay Hospital</td>
<td>24.5%</td>
<td></td>
</tr>
<tr>
<td>Edinburgh Infirmary</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>Dr. Peddie</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dr. Lambeth</td>
<td></td>
<td>0%</td>
</tr>
<tr>
<td>Mr. Hawe</td>
<td></td>
<td>3.4%</td>
</tr>
<tr>
<td>M. Calmell</td>
<td></td>
<td>5%</td>
</tr>
</tbody>
</table>

From this table it is clear that the non-stimulating method is infinitely superior to the stimulating. A purely stimulating treatment has been employed by Dr. Gathard, in which he gave one to two pints of brandy every day at one hour, and he is said to have lost only one patient out of thirty times
Rudd's Practice of Physic p. 154

Peterson on the Principles & Practice of Physic p. 410

Blake on Delirium Tremens p. 184
It is difficult to understand how such a result could have been obtained, and all that can be said is, that it does not coincide with the experience of others. Although alcohol had been much employed in the treatment of delirium tremens, it does not have such a useful character as Opium. According to Dr. Portman, this drug "affords a gentle support to the brain, quietness removes the restlessness, and promotes the return of sleep." Dr. Portman states that our most powerful means of inducing sleep is to be found in Opium. It may be given in full doses and perfectly safely, as its chronic effect does not soon follow. Dr. Blaker's opinion is that "the stimulo-narcotic treatment is the one which promises to be the most successful." He has already seen the treatment adopted by Sir Rutherford in India, and the result of it. It is later in the Cyclopaedia of Practical Medicine, especially the official Medical Society, but rests just reliance upon Opium. From the quotations it will be seen that the Opium treatment is the one which has found most favour.
British Trujm Medical Review Vol. XXIII p. 605.
in all quarters of the globe, and he would certainly expect to find strong reasons for the adoption of a remedy as generally, if not more, of public advantageous properties. The avowed object of its administration is to procure sleep, for the patient must either "sleep or die." Now opium is certainly a powerful narcotic, they said in large doses, but it remains to be seen whether it can beneficially produce sleep in this disease. Take the testimony of a prince who has so frequently walked the natural course of melancholy. He states, "That of the only cases which I have been so familiar with the disease was terminated in this way (viz. in fatal sleep) have been treated by these doses of opium." The sleep produced by opium is not of that quiet, quiet, refreshing nature which is the normal termination of the disease, but is restless and unquiet, amounting even to death, in all cases except those in which the natural powers of the constitution are not much impaired. In those cases which recover in spite of opium.
With Sphen, the possibility is that Sphen should have supervened without the aid of practice, and we are thereby led to this conclusion, by the facts elucidated by Pasteur, Bunsen, and others with reference to the natural termination of delirium tremens. In two cases detailed by Dr. Banting in his lectures on Practice of Medicine, cases resulted from the administration of Sphen, after the patient had been taking under the influence of feverish excitement. There is every likelihood that the disease had been running, its usual course, for several weeks, and would have disappeared spontaneously, without the aid of any drug. If it held out that the administration of drugs against time, for its separation from the patient, it is obviously useless, if not hurtful to last in the occurrence of that Sphen which is the chief symptom of its disappearance, and which cannot be produced without arresting the process of excitation. It is equally certain that Sphen by increasing the pre-existing congestion of the brain will have the opposite tendency to following excitation.
A certain amount of the venous blood is observed in all persons, whilst performing their functions, witnesses the constitution of the facial venous membrane. Taking injection, and may feel that slight amount of the slighter pulses in the face, male in post mortem examination of cases of delirium tremens, point to the performance of the function of secretion, probably possible by that membrane. The active blood is forced to the organs, whilst performing its function will arrest the process of absorption, and induce evolutions of the various constituents of that liquid, and here we may have some clue to the cause of the insensate appearance of deaths ensuing in the cranial cavity, after death from delirium tremens. The tendency, thus of Opium is to produce congestion of the central contents, thereby arresting the process of absorption, which be suppose to be in progress and producing and tending up an opposite process of effusion, the results which are evidently attributed to
The cure of this disease—how comes it in
clinical terrors, there there is usually a
certain amount of cerebral depression, but
pain should be a much greater tolerance
of opium than in health; cases that indi-
certainly poison a healthy man, being su-
quently prescribed. It is perhaps true
that no such tolerance exists, and that
the great mortality following the acute
administration is the result not of the disease
but of the remedy.

If this view regarding the use
of opium and alcohol to correct the ben-
eful effects of such a method of treatment
will be obvious, and since this view must
evidently be sought for. It proves now the
just in modifying the wild eliminative and
irrational employment of opium in this
disease: his plan was to begin with
Tartar emetic to combat vascular excite-
ment, and then to give locally sympathet-
ically increasing doses of opium. Without
any knowledge of Dr. Jarvis's method,1
Perry came to the conclusion that

1. Tartar emetic
India on the Pathology of Delirium tremens p.52.
Opium was useful, and he also employed Tartar emetic and Opium, but Love adhered to the latter, and used the Antimony alone as a method which the result of his cases proved to be a correct one. Antimony had been previously employed in America by Ellisp, but only for the purpose of acting as an emetic, an effect which Pember his father disapproved of. The object of the latter in giving this drug is to induce percutaneous excitement in the blood vessels, diminish muscular action, and consequently to increase the action of the liver, kidneys, and intestinal canal. He gives a gruel of a pain to half a grain every two hours, and in such cases the exciting action should certainly be exhibited. In some cases where the employment of Antimony is for some reason contraindicated, Opium can be used instead of it, a fact which would lead us to infer that the diaphoretic effect of the Antimony is the one upon which its utility in this disease principally depends.
Digitalis has been employed with some success in Wasselbury, and Dr. Piddick has used it occasionally. Very tonic anemic has failed to relieve. But if all that has been said regarding the natural tendency to terminate in health, hold fast, then the employment of more autonomic, digitalis, is the reason it useless, and we are inclined to take that view of the subject from a survey of the treatment which has occasionally been put in practice in America. Dr. Wine states that he has witnessed a considerable number of cases in which the patient after the establishment of the paroxysm had been left to contend with it without the administration of any remedy whose tendency was to cut it short, in no way to modify its symptoms. The result had successfully been that the disease had gone through a regular course, and terminated in sleep and health. S. Stoeckel of Philadelphia employed a treatment which consisted in "confining the patient in a dark cell, and having the disease..."
Spontaneously to break itself off. After an extensive trial he found no measure to that area at all as this. During the summer session of 1858 I had the opportunity of witnessing upwards of twenty cases of delirium tremens treated without operia by Mr. Inceck in the Edinburgh infirmary. Many of these were complicated by the follicul treatment consisting in a "mild soporific," and a basin of soap and water with the image of wine in it. The recovery under this expectant method was so satisfactory, and rapid that the contrast between it, and the opiate that treatment is remarkable, and tends to dispel any belief that opium is quite as poisonous as delirium tremens, if not more so than in a state of health. I was removed in the Edinburgh hospital last year when a man had been drinking continuously for a length of time, and was treated by tincture emetic and opium. He slept well, he awoke up till the ninth day from the Commencement of the disease, so the
Spinne was discontinued, and a mixture of mixed
bitter juice introduced, the resultant being a long
rumber followed by perfect recovery.
In many cases it will be found that the patient
cannot endure this food on account of irrita-
tability of the gastric mucous membrane. In
such cases Dr. Laprae has found great relief
followed the administration of small doses
of chlorides, with nitrate of silver chloride.

The moral management of patients suffering
under delirium tremens is of much impor-
tance. The necessity of soothing, and
tranquilizing the patient, rather than
of using force in controlling him,
has been recognized by all. During
convalescence the strength should be sup-
pported by tonics, and the weak stomach
should not at first be hurried with
articles requiring much digestion. At
this time the dreadful consequences
perseverance in his harmful habit that
is said finally to ensue is not seldom
as to frequently throw away, for the power
of the soul-enduring vice, is of such a
character that a declining health is an object
very rarely witnesses.

In conclusion, delirium tremens
is but a simple instance of the many diseases
which become the subjects of improved treat-
ment. Wherever their natural course has
been clearly recognized, diseases which
previously were surrounded by a perfect
s suspended by drugs, but which, now are enti-
tirely left to nature, no interferred with, in
the simplest manner.

P. Ferrar.