

A practical essay on the disease generally known under the denomination of delirium tremens : written principally with a view to elucidate its division into distinct stages, and hence to simplify its method of cure / by Andrew Blake.

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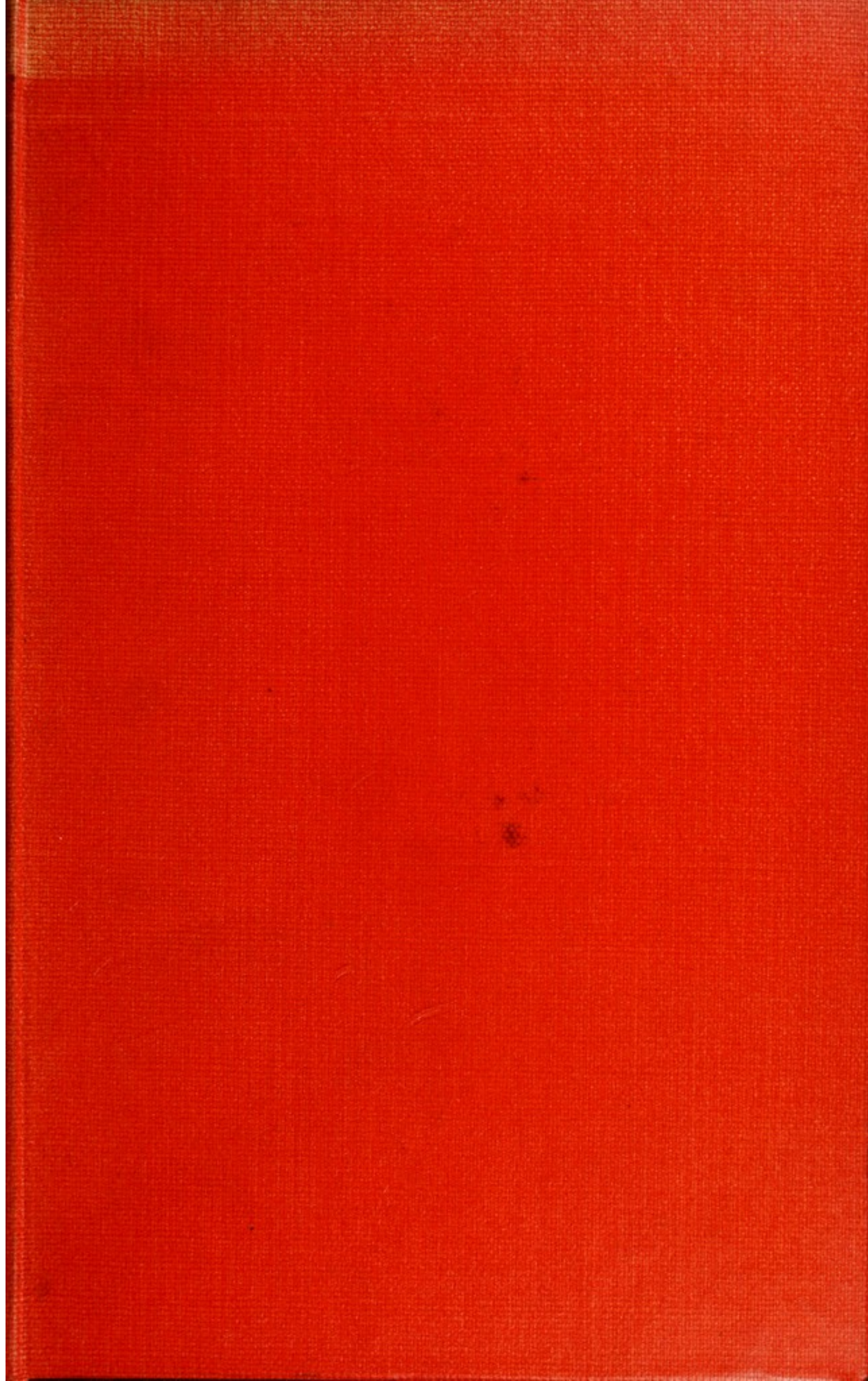
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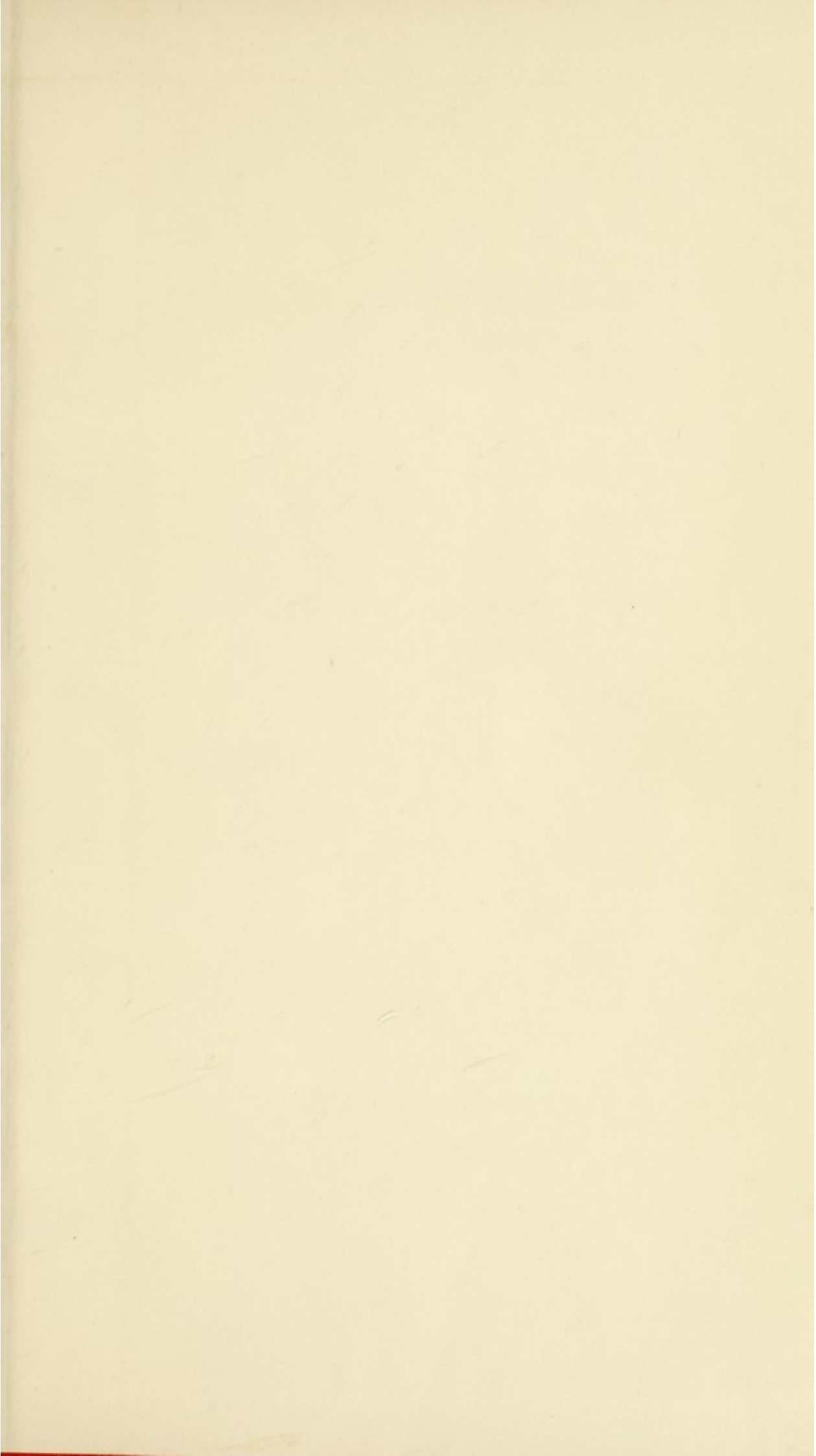


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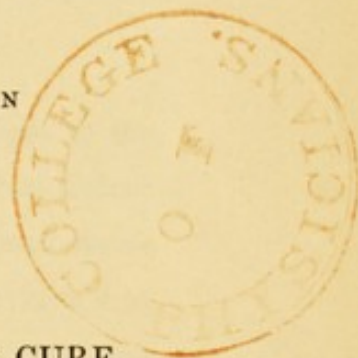
PRACTICAL ESSAY

ON

DELIRIUM TREMENS.

A
PRACTICAL ESSAY
ON THE
DISEASE GENERALLY KNOWN UNDER THE DENOMINATION
OF
DELIRIUM TREMENS;

WRITTEN PRINCIPALLY
WITH A VIEW TO ELUCIDATE ITS DIVISION
INTO
DISTINCT STAGES,
AND
HENCE TO SIMPLIFY ITS METHOD OF CURE.



BY
ANDREW BLAKE, M.D. M.R.C.S.

PHYSICIAN TO THE NOTTINGHAM AND NOTTINGHAMSHIRE GENERAL LUNATIC
ASYLUM, AND FORMERLY SURGEON TO HER MAJESTY'S SEVENTH
DRAGOON GUARDS, AND FIFTH FUSILIER REGIMENT, &c.

SECOND EDITION, REVISED AND MUCH ENLARGED.

"Woe unto them that are mighty to drink wine, and men of strength to mingle strong
drink."—ISA. v. 22.

LONDON:
LONGMAN AND CO. PATERNOSTER ROW.
J. HICKLIN, NOTTINGHAM.

1840.

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TO

SIR JAMES M^cGRIGOR, BART.

M.D. LL.D. F.R.S. L. and E.

PHYSICIAN EXTRAORDINARY TO THE QUEEN,

DIRECTOR GENERAL OF THE MEDICAL DEPARTMENT OF THE ARMY,

&c. &c. &c.

SIR,

As the following Essay owes its origin to the stimulus afforded by your order, "That each Medical Officer should make an annual report to you of his practice and observations," I may with justice attribute my having written it to the wisdom of a regulation which emanated from you, and which has tended eminently to raise British military medicine to its present high station.

These considerations naturally induced me to venture to dedicate the first edition of this work to you; and your kindness, in having permitted it to appear under your auspices, leads me to hope, that you will allow me to take a similar liberty with a second edition, which I have carefully endeavoured to render more deserving of so distinguished a privilege.

I trust, also, that you will again permit me to subscribe myself, with much esteem,

SIR,

Your most obedient

humble servant,

ANDREW BLAKE.

PREFACE.

The first edition of this Essay, which I ventured to submit to the profession several years ago, being out of print, and the subject of it having in the interim occupied the attention of many writers both in this and foreign countries, some of whom have expressed very opposite opinions regarding the pathology and mode of cure of the disease of which it treated, I have been induced to revise it thoroughly, with a view to the publication of a second edition. In doing so, I have taken advantage of whatever has been suggested to me, either from the writings alluded to, or personal observation, in the hope of being enabled to offer to the profession more defined rules, than any hitherto laid down, by which we may determine our theory and practice in the very alarming affection which we are about to consider.

Valuable facts * likewise have been lately laid before the public by Major Tulloch, under the auspices of the Right Hon. Lord Howick, her Majesty's late Secretary at War, the perusal of which has increased my wish to draw the attention of army medical officers, as well as of the profession generally, to the great importance of bestowing

* The documents from which these *facts* were obtained, are a series of returns and reports made by military medical officers, and containing an historical record of the medical transactions of the British army since 1816, in one hundred and sixty folio volumes, a collection which must always be regarded as invaluable to the nation.

Major Tulloch says, in a note to the introduction to his work, "the expediency of framing a digest of these documents, for the advancement of medical science, had frequently been suggested by the Director General, though the reduced establishment of his department did not admit of its being carried into effect. Independent of the materials which have been made available in this report, these documents contain a vast mass of information relative to the treatment and medical history of the diseases incident to the colonies, which must prove of great utility to the medical profession in all questions connected with that interesting topic."

They certainly reflect infinite credit on Sir James Mc.Grigor, and evince his zeal and good judgment in having *first established them*, of which they will ever remain an indelible record, and justly entitle him to say, in the words of the poet, "Exegi monumentum ære perennius."

particular attention on the nature and treatment of this disorder.

Major Tulloch's interesting work is published in the form of statistics relative to the sickness, mortality, and invaliding amongst troops in various climates.

It appears by the tables * which it contains, that the total admissions into hospital in consequence of diseases, injuries, &c. amongst the white troops in the windward and leeward command on the West India station, during twenty years, from 1817 to 1836 inclusive, amounted to 164,935, and that the deaths amongst that number were 6,803, or 78·5 per 1,000 annually of the mean strength, while during the same period in the Jamaica command, 93,455 cases were admitted to treatment, of which 6,254 died, or 121·3 per 1,000 annually of the mean strength. It likewise appears by the tables illustrative of the principal classes of diseases contained in the above gross numbers, that the admissions from brain fever of drunkards in the windward and leeward command during the same twenty

* The tables are copied at the end of this preface.

years, amounted to 1,426, of which 175 died, or 1 in 8 of the admissions for that complaint, and that during the same period the admissions from a similar cause in the Jamaica command did not exceed 192 in number, while the fatal cases amounted to 42, or 2 in 9 of the total treated.

This difference in the prevalence and mortality of this affection, in two stations so similarly circumstanced with regard to geographical position and climate, is at once striking and worthy of our particular attention.

The author's remarks on this subject are as follows:—"Numerous as are the cases of delirium tremens in this island (Jamaica), they are, however, scarcely one-third as much so as in the windward and leeward command, where more fall victims to their own imprudence, from this cause alone, than die in Jamaica by all the diseases of the brain together. Thus, soldiers must either have less facilities for intemperance in that island, or it does not there produce so prejudicial an effect."

This is all that Major Tulloch offers in explanation of the difference in the prevalence and mortality of this disease in the two commands. It can

scarcely be supposed that this intelligent writer alludes, in what he has expressed, to the soil or climate of the windward and leeward islands, as possessing peculiarities more favourable to the development of delirium tremens than those of Jamaica, soil or climate having no direct influence in the production of this disease. I, however, quite agree with him in his supposition, that soldiers may have fewer facilities for intemperance in that island than in the windward and leeward command; the troops in the latter station are scattered over a much greater extent, being divided amongst the numerous islands and possessions composing it, and being again subdivided into still smaller detachments for the protection of the various assailable points in each of them; indeed, in many of those islands, the soldier is quartered so near to sugar estates, that no discipline can prevent him obtaining new and cheap rum, should he be so disposed, which article is acknowledged by all to be the ordinary predisposing cause of this disease. This then will at once account for its greater prevalence in those islands than in Jamaica, where the troops are generally distributed in larger numbers, and in situations

better calculated for the maintenance of discipline ; but other causes may likewise concur in inducing this apparent preponderance in the windward and leeward command.

By comparing the general returns of sickness from the two great West India commands, we find that in Jamaica the mortality during 20 years was greater than that in the windward and leeward station, in the proportion of 121·3 per 1,000, to 78·5 per 1,000. In fever cases alone the deaths amounted to 1 in 9 of those admitted, while in the windward and leeward station they only reached 1 in 20 ;—now, under such circumstances, it appears to me highly probable that, in Jamaica, many of the casualties from delirium tremens may have been returned as if they had occurred from fever, this disease being readily confounded, by those unaccustomed to treat it, with the delirium supervening on febrile affections, for which the patients may have been, in the first instance, admitted into hospital, in which case, many deaths, arising from delirium tremens, must have been returned amongst those caused by other diseases. We may endeavour thus to account for the apparent predominance of this complaint in the

windward and leeward command when compared with Jamaica; but why it is so much more fatal in that island remains to be explained, and in the solution of this difficulty, Major Tulloch has not afforded us the least assistance. It will be seen by his tables, that the mortality from delirium tremens has amounted, in Jamaica, to 2 in 9 of the cases returned as having been treated as such, whereas in the other command the proportion is only 1 in 8, making the deaths from this affection nearly double in Jamaica.

To attempt a satisfactory explanation of this remarkable difference between the results of medical practice in two stations, in the treatment of a disease originating from the same cause in both, and which was found to be less fatal in the station in which its predisposing cause is allowed to be most frequently indulged in, appears, at first sight, to be a task of no easy performance; it is true that endemic causes, which render fevers more fatal in Jamaica, might also weaken the human constitution so as to render it less capable of withstanding the violence of an attack of delirium tremens; but this ought not, in my mind, to be sufficient to account

wholly for its increased mortality, as an experienced practitioner ought not to be inattentive to this influence on the type of the complaint, and ought, by appropriate treatment, to enable the system to be prepared to resist it, so as to go safely through the various stages of the disease. Hence the greater necessity of being intimately acquainted not only with the predisposing and occasional causes of this complaint, but likewise with the nature of the influences likely to effect its type, whether they arise from external atmospherical phenomena, diseased action, or the want of a sufficiently nutritious diet, either or all of which causes would tend to give a typhoid character to the disease, which if not judiciously treated, must become much more formidable in its consequences.

In the year 1823, Mr. Tegart, the then able and zealous Inspector General of Hospitals, in the windward and leeward command, established a uniform and approved mode of treatment in delirium tremens, throughout the many stations under his superintendence, by addressing to the various principal medical officers, copies of a paper which I had the honour to submit to him on the nature and treat-

ment of this complaint ; his communications were accompanied by an explanatory letter, a copy of which I have given at the end of this essay.

The paper alluded to, as well as the measures adopted to give it publicity, received the unqualified approbation of the Medical Board, as will likewise be seen by reference to the copy of the letter which follows the last alluded to. Am I not then authorized, without the risk of being accused of egotism, to attribute, in default of a more satisfactory explanation, some share in the superior success obtained in the treatment of delirium tremens in the windward and leeward station, to the uniformity and propriety of the principles laid down by the Inspector, as to the theory and practice to be followed in this disease? It is generally acknowledged that the younger medical men are but imperfectly acquainted with the phenomena of this disorder ; Mr. Tegart's judicious communication must, therefore, have had the effect of directing their attention to them, and may thus have given an advantage to those serving within the sphere of his superintendence.

Amongst the many services rendered to medical

science by the publication of Major Tulloch's interesting statistics, none appear to me of greater importance than those derived from the exhibition of the difference between the mortality attendant on diseases generally, and particularly on delirium tremens, in the two great West India stations; and it is to be hoped that they may lead to the adoption of measures calculated to insure, as far as possible, *equal success* in the treatment of this and other diseases, throughout the whole of her Majesty's dominions.

In concluding this preface, I must once more beg leave to claim the indulgence of the profession for the many repetitions and imperfections which may be discovered in the following work. The number of authors from whom I found it necessary to quote, many of whom have adopted the same mode of reasoning in speaking of what I consider opposite conditions, has rendered repetitions unavoidable, while professional occupation has prevented that attention to its composition which greater leisure might have permitted. However, should the theory and practice which I have endeavoured to establish for the elucidation and treatment of delirium tremens be

found in any way useful to the general practitioner, whether civil or military, in relieving him from the painful perplexity occasioned by the conflicting symptoms which oftentimes characterise this affection, my labours will have been more than amply repaid, and I shall have attained my sole object, that of contributing my mite towards mitigating the ills to which humanity is liable.

Nottingham, 1840.

Tables showing the principal Diseases amongst White Troops in the WINDWARD AND LEEWARD COMMAND, taken from Major Tulloch's Statistical Report of the Sickness, Mortality, and Invaliding among Troops in the West Indies, pages 7 and 9.

	ADMISSIONS.		DEATHS.	
	Total among whole Force in 20 Years.	Annual Ratio p. 1000 of mean strength.	Total among whole Force in 20 Years.	Annual Ratio p. 1000 of mean strength.
Fevers	62,163	717	3,195	36.9
Eruptive Fevers	13	2-10	1	
Diseases of the Lungs	9,975	115	906	10.4
Liver	1,946	22	161	1.8
Stomach & Bowels	36,474	421	1,795	20.7
Brain	2,447	28	312	3.7
Dropsies	659	7 8-10	180	2.1
Rheumatic Affections	4,202	49	17	
Venereal	3,043	35	6	
Abscesses and Ulcers	17,708	204	18	
Wounds and Injuries	11,149	129	60	
Punished	4,327	50	2	2.9
Diseases of the Eyes	7,686	89	4	
Skin	559	6	1	
All other Diseases	2,584	30	145	
Total	164,935	1,903	6,803	78.5

FEVERS.

	Admitted.	Died.	Proportion of Deaths to Admissions.
Quotidian Intermittent Fevers ...	24,607	149	1 in 165
Tertian	1,973	11	1 in 179
Quartan	133	1	1 in 133
Remittent.....	17,799	1,966	1 in 9
Common continued	16,821	726	1 in 23
Yellow Fever (Icterodes).....	774	331	1 in 2½
Typhus.....	48	11	1 in 4½
Synochus	8	0	0 in 8
Total.....	62,163	3,195	1 in 20
Annual ratio per 1000 of } mean strength..... }	717	36.9	

DISEASES OF THE BRAIN.

	Admitted.	Died.	Proportion of Deaths to Admissions.
Inflammation of the Brain	108	8	1 in 13½
Head-ach	127	1	1 in 127
Stroke of the Sun	6	0	0 in 6
Water in the Head	3	2	1 in 1½
Apoplexy	159	83	1 in 2
Paralysis	106	10	1 in 10½
Epilepsy	325	22	1 in 15
Fatuity	83	5	1 in 16½
Madness	104	6	1 in 17½
Brain Fever of Drunkards	1,426	175	1 in 8
Total.....	2,447	312	1 in 8
Annual ratio per 1000 of } mean strength..... }	28	3.7	

Tables showing the principal Diseases among the White Troops in JAMAICA, taken from the same Work, pages 45, 46, and 48.

	ADMISSIONS.		DEATHS.	
	Total among whole Force in 20 Years.	Annual Ratio p. 1000 of mean strength.	Total among whole Force in 20 Years.	Annual Ratio p. 1000 of mean strength.
Fevers	46,922	910	5,253	101.9
Eruptive Fevers	10	2-10		
Diseases of the Lungs	4,357	84 8-10	388	7.5
Liver	539	10	51	1.
Stomach & Bowels	12,282	238	260	5.1
Brain	720	14	137	2.6
Dropsies	268	5	61	1.2
Rheumatic Affections.....	1,479	29	5	
Venereal	1,021	20	1	
Ulcers and Abscesses.....	9,667	187	18	
Wounds and Injuries	6,164	120	21	
Punished	3,285	64		2.
Diseases of the Eyes	4,644	90		
Skin	337	6		
All other Diseases	1,760	34	59	
Total in the preceding Table	93,455	1,812	6,254	121.3

FEVERS.

	Admissions.	Deaths.	Proportion of Deaths to Admissions.
Intermittent Fevers	6,090	37	1 in 165
Remittent.....	38,393	5,114	1 in 8
Common continued.....	1,971	86	1 in 23
Yellow Fever (Icteroles).....	20	15	1 in 1 $\frac{1}{3}$
Synochus	448	1	1 in 448
Total.....	46,922	5,253	1 in 9
Annual ratio per 1000 of } mean strength..... }	910	101.9	

DISEASES OF THE BRAIN.

	Admitted.	Died.	Proportion of Deaths to Admissions.
Inflammation of the Brain.....	31	13	2 in 5
Head-ach	6	0	0 in 6
Stroke of the Sun	6	2	1 in 3
Apoplexy	93	53	1 in 2
Paralysis	33	7	1 in 5
Epilepsy	258	19	1 in 14
Fatuity	39	1	1 in 39
Madness	62	0	0 in 62
Brain Fever of Drunkards	192	42	2 in 9
Total.....	720	137	1 in 5
Annual ratio per 1000 of } mean strength..... }	14	2.6	

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PREFACE TO THE FIRST EDITION.

Since October, 1823, when a paper of mine appeared in the Edinburgh Medical and Surgical Journal, on the disease which forms the subject of the present publication, so many detached observations have been written upon this curious affection, in various parts of the world, as at once to show that it is either becoming gradually more prevalent, or that medical men begin to be more generally aware of the importance of being better acquainted with its peculiar nature and treatment. Systematic writers, such as Good and Gregory, have also given it a place in the last editions of their valuable works. These authors, however, differ with regard to its classification; the former placing it amongst nervous diseases, while the latter has added it to his list of phlegmasial complaints.

Such diversity of opinion between authors so deservedly esteemed, concerning the nature of this disease, and the consequent utility of its particular investigation, will be further appreciated by the perusal of the following remarks from the pen of Dr. James Johnson.* This intelligent author observes, "Much as has been written on delirium tremens, the disease is every day mistaken, maltreated, and rendered fatal by confounding it with inflammation of the brain or its membranes, to which it certainly bears much resemblance in many particulars."

Dr. Michael Ryan † corroborates this statement. In one of his papers he says, "As the systems of practical medicine in this country do not contain an account of the disease at the head of this paper, and as many persons lose their lives in consequence of this omission, I am induced to attempt its description. Should this paper be the cause of saving the life of a single individual, I shall have no reason to regret its obtrusion on the junior members of

* Vide Medico-Chirurgical Review for August, 1828, page 509.

† London Medical and Surgical Journal for October, 1829, page 316.

the profession. I am not acquainted with any disorder so often mistaken and mismanaged as delirium tremens ; and the reason is very obvious, because the greatest proportion of the profession, especially in this metropolis, have not leisure to refer to any works, except the popular systems, and I am satisfied a vast majority of them have never perused the original essays on the subject, therefore there is a sufficient reason for the present allusion to the disease.”

Authors in general continue likewise to describe the disease as if it were constituted of but one stage, namely, that of delirium ; an error which must ever lead to the adoption of improper curative means, at least during the existence of the other stages, and which it shall be the object of this publication to endeavour to point out.

From December, 1822, the period at which I wrote the paper already alluded to, until July 1824, many cases of this complaint came under my care in the Islands of St. Vincent and Dominica, all of which tended to confirm me in the opinions I had before formed as to its nature and appropriate treatment. On my return to this country, when about

to receive a medical degree, I added the result of my further experience on this subject to what I had before written, and reduced the whole into the form of a thesis,* which was not however published, owing to the delay it would have then occasioned.

I have now, at the suggestion of some friends, and for the reasons already stated, determined to submit it to the public with a few additions, which are the result of reading and observation, in the hope that it may tend to establish a rational theory, and point out a successful mode of practice for the cure of this interesting and dangerous complaint ; or at least to excite some more fortunate investigation concerning its extraordinary phenomena. In doing so, I am aware that the scholastic form I have adopted, as well as the numerous repetitions which this essay unavoidably contains, may seem objectionable to many ; but if it serves to convey my meaning, and produces, even in the slightest de-

* The learned professors of the University of Glasgow, being aware of the facility with which a thesis can be obtained, and consequently that, generally speaking, it can be no criterion of the candidate's knowledge, judiciously leave it to his option to write one or not.

gree, the effect I propose, I shall consider as well spent the time allotted to its composition.

Had I been anxious to increase the size of this monograph, I might have done so easily by the addition of a number of cases, the details of which would have extended it considerably; but as I only intend it to be of practical utility, and have written principally with a view to establish a few facts regarding the true nature and proper treatment of delirium tremens, I have refrained from doing what seems to me unnecessary.

The paper which I originally wrote on this subject was meant as a part of one of those Annual Reports which the present indefatigable and distinguished chief of the Army Medical Department requires from all medical officers. It was forwarded to Mr. Tegart, then Inspector of Hospitals in the West Indies, who was pleased to notice it particularly, by addressing a circular letter, of which the annexed is a copy, to each of the principal medical officers of the various stations then under his superintendence. Exclusive of the gratification which it affords me to make known the approbation of so learned and zealous an Inspector, I am anxious,

under the present circumstances, to give his letter publicity, as it contains a concise and clear analysis of the views I entertain with regard to the division of this disease into three distinct stages.

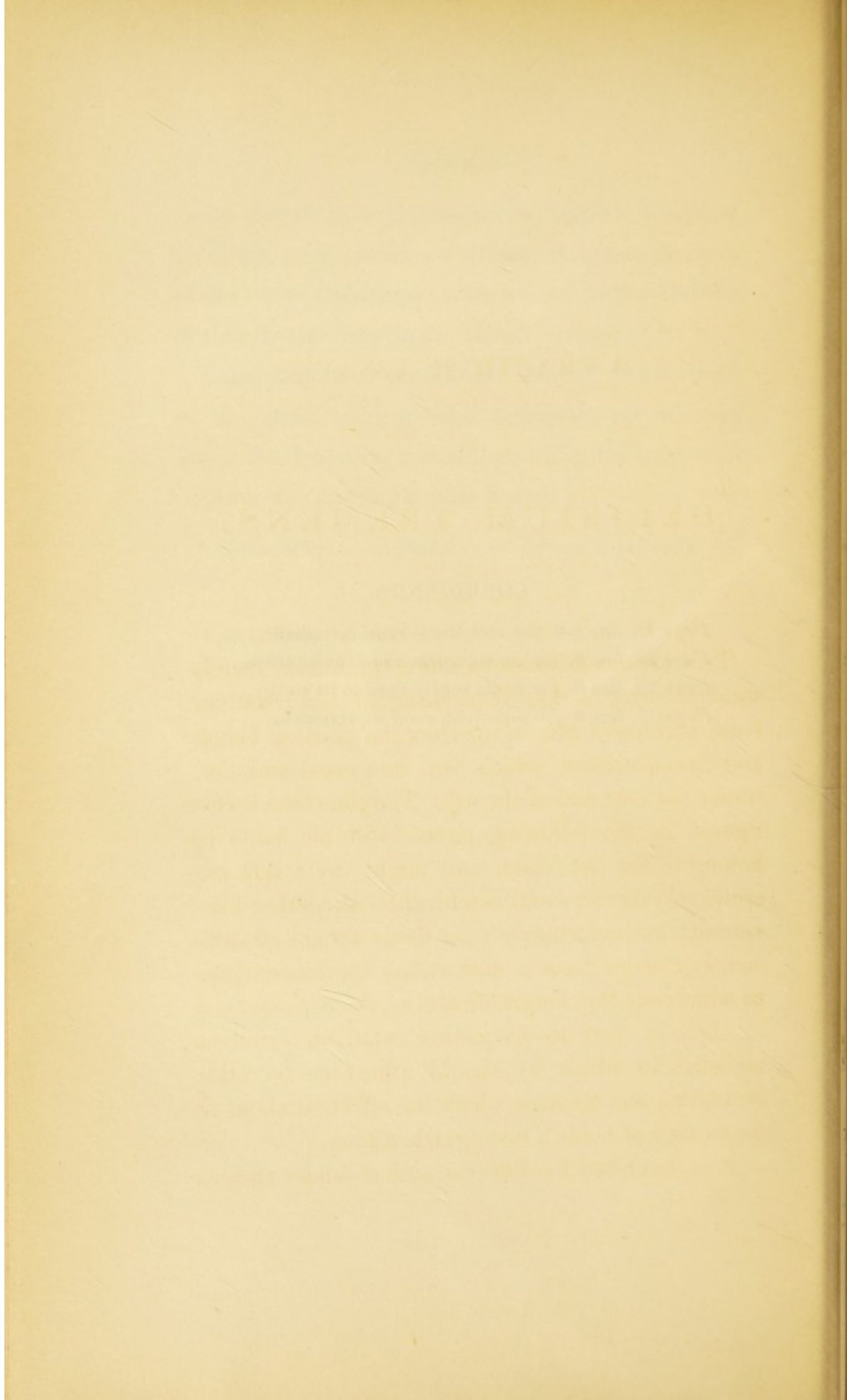
I also subjoin copies of other letters* which allude to the same subject, and testify the approbation which the Inspector's measures and opinions received from the Army Medical Board.

* Copies of the letters alluded to will be seen at the end of this essay.

Canterbury Barracks,
1830.

CORRIGENDA.

- Page 18, line 5-6, for ebriositatis read ebriositatic.*
Page 26, line 8, for consequences read consequence.
Page 38, line 6, for on its supply read to its supply.
Page 77, line 8, for supervent. read supervenerit.



A PRACTICAL ESSAY
ON
DELIRIUM TREMENS.

THE various diseases to which the human race is subject, arise either from original confirmation, from accidental causes, or from the effect of habits and circumstances, which are, in a great measure, under the controul of the will. The complaint investigated in the following pages, will be found to belong to the last class, and might, by a due exercise of the sensorial faculties, be altogether prevented; but unfortunately for us we do not all sufficiently engage them in moderating the propensities to which our frail nature directs us, the consequence of which is, that we frequently entail on ourselves maladies to which we should otherwise be utter strangers, and amongst which the affection about to be treated of holds a distinguished rank.

It is described by different authors under various

appellations, such as Brain Fever, produced by intoxication, by Pearson; Delirium Tremens, by Sutton; a peculiar disorder of drunkards, by Armstrong; Mania à Temulentia, by Klapp; Delirium Tremefaciens,* by Elliottson; Mania à Potu intermisso, by Jackson; Encephalitis Tremefaciens, by J. Frank; Delirium and Mania è Potu, by some American physicians; Encephalopathie Crapuleuse, by a French writer; and in a paper which I wrote on the subject, and which appeared in the Edinburgh Medical and Surgical Journal for October, 1823, and the London Medical and Physical Journal for November of the same year, I proposed giving it the name of Delirium Ebriositatis. But on more mature consideration, I am induced to regard even this term as not altogether free from objection, inasmuch as it will appear in the sequel of this essay, that there is no febrile excitement or delirium in the first stage of the disease, and consequently that its adoption would be naming a whole from a part, and to join in the errors into which most authors on the subject have fallen, in considering the disease as attended with mental derangement "ab origine," and in not sufficiently distinguishing its different stages.

The term rigor, for obvious reasons, would as clearly designate a paroxysm of ague, as delirium

* Dr. Elliottson prefers the word tremefaciens, because, as he says, delirium cannot tremble.

does the disease in question. Dr. Armstrong's appellation of the complaint appears to me least liable to criticism, namely, "a peculiar disorder of drunkards;" but even this is very vague. Perhaps it would be more appropriate to call it *Erethismus Ebriositatis*,* and to assign it a place in the

* Dr. Ryan, in the learned paper already alluded to in the preface to the first edition of this work, after having explained the necessity of calling the attention of the profession to the description and treatment of this disorder, says, with reference to its appellation, "This disease was called Brain Fever, by Drs. Pearson and Armstrong; *Delirium Tremens*, by Dr. Sutton; and *Delirium Ebriositatis*, by Mr. Blake, to each of which appellations there are many objections. The term Brain Fever is applied to very different diseases, to Typhus, Phrenitis, and Mania, and various other complaints. We are also aware that the disease under notice may exist unaccompanied with tremors, and it may arise from the abuse of various stimuli, as opium and belladonna, &c. as well as from the abuse of ardent and fermented liquors. A much more correct term for the disorder, in my opinion, is *Delirium Nervosum*."—To this term I have to repeat, with all due deference, the objections already stated with regard to the word *delirium*, that symptom being only peculiar to one of the three stages into which this disease is divided. Ague might as well, as I said before, be called rigor, because rigor is a prominent symptom in the cold stage of that disorder. The term *nervosum* appears to me equally objectionable, even on the same principles as those on which the Doctor himself opposes Dr. Pearson's appellation, as we are aware that every functional derangement of the intellectual faculties, such, for example, as Puerperal Mania, has as good a claim to the term *Delirium Nervosum*, as the Disease generally known by that of *Delirium Tremens*. With regard to the Doctor's objection to the term *Delirium Ebriositatis*, namely, that the disease "may arise

nosology of Cullen,* in his class Neuroses, and order Adynamiæ. The propriety of this classification from the abuse of various stimuli, as opium and belladonna, &c. as well as from the abuse of ardent and fermented liquors,"—I must say, that, although I coincide perfectly with him in this opinion, yet as the Doctor admits this disease, to use his own words, "most commonly attacks persons of either sex who are of intemperate habits," and as the habitual use of opium or other diffusible stimuli produces similar ultimate results to those which succeed to long and intemperate indulgence in ardent and fermented liquors, I cannot perceive the great objection to the ebriositatic portion of this appellation, more particularly as it implies previous habits which "most commonly" predispose to the disease.

Dr. Ryan's objections to the term Delirium Tremens, on the grounds that the disease may exist without tremors, is equally applicable to the appellations given to it by Drs. Copeland, Elliottson, and Frank. Mania a Potu Intermissa, the name given to it by Dr. Jackson, would seem, at first sight, more appropriate, but again we shall find that, as mania only exists in the second stage of the affection, it ought not to give it a name. On the whole, I see no reason to induce me to change the appellation I proposed giving it in the first edition of this essay, namely Erethismus Ebriositatis, yet as this disease is so much better known to the profession under the denomination of Delirium Tremens, I shall, on that account, generally use that term. I am aware, also, that the term Erethismus may be objected to, owing to its derivation, but I took the liberty to use it in the same sense as Mr. Pierson applied it to the affection spoken of further on.

Notwithstanding that Dr. Ryan has differed in opinion with me on the above points, I feel particularly flattered by his literal adoption of what I consider of much importance, that is, my division of this disease into "three distinct stages."

* Good, in the last edition of his elaborate and scientific work, notices Delirium Tremens, and places it in his Class Neurotica,

cation will be estimated by a consideration of the following definition of the disease, viz.

Indirect general debility, succeeded by a morbid increase of action in the brain and nervous system, which is attended with delirium, and terminates generally, either in sleep and subsequent health, or in death from collapse or effusion within the cranium. It ought, however, to be mentioned that cases occasionally occur in which the second stage, or that of delirium, glides into more or less permanent aberration of intellect, particularly in subjects pre-disposed to insanity; or, the second stage may be suspended or extinguished by the supervention of some inflammatory affection. Examples of these deviations from the usual course of the complaint, will be found in the sequel of this work.

I have endeavoured to be as concise, and at the same time as expressive as I could, in making the definition include in a few words all the leading symptoms of this disease, and particularly the most prominent features in its different stages, as they occur in pure and unmixed cases.

The complaint under consideration is particularly prevalent amongst British soldiers, as well as the lower classes of the white population resident

Order Phrenica, and Genus Alusia. He, however, gives but few data to enable the practitioner to treat the disease, and seems satisfied by referring in a note to my paper in the *Edinburgh Medical and Surgical Journal* for October 1823, page 501.

within the tropics ; hence it becomes a subject equally worthy the attention of the civil and military medical officer obliged to sojourn in such latitudes. Since the reduction in the price of spirits in these countries, it has also become a much more common occurrence than formerly, more particularly in manufacturing districts and large towns. Its predisposing cause, as it will appear in the sequel, is admitted to be the habitual abuse of diffusible stimuli, but more particularly of ardent spirit ; we may therefore naturally expect that it will occur in every part of the world where such customs prevail, and its prevalence will be found to be in the direct ratio of the facility with which the necessary agents are attainable.

The West Indies, where rum is an object of so little value, and where the debilitating effects of permanent elevation of temperature excite the most abstemious to allay their thirst, and thus insensibly lead to the acquirement of intemperate habits, will appear a very likely situation to furnish frequent examples of this curious and distressing malady ; and it will generally be met with in regiments, or inhabitants, in proportion to the length of their residence in these islands. This circumstance does not appear to me to have sufficiently attracted the attention of writers on tropical disease, none of them having, to my knowledge, noticed it in any of the celebrated works they have published on the sub-

ject. Such a neglect might be excusable in an author on the diseases of England, where this complaint has been, until lately, comparatively unknown, or in a great measure confined to certain parts of it, owing to the difficulty which the lower orders experienced in obtaining spirits in sufficient quantity to induce the necessary predisposition. Accordingly we find that it was not until the beginning of the present century that Dr. Samuel Preston Pearson gave this disease the name of delirium tremens. This author was the first to give a good description of it, and he subsequently wrote on this subject in some of the periodicals under the name of Brain Fever following intoxication. Traces of this affection may, notwithstanding, be discovered in the writings of ancient authors, even so far back as in those of Hippocrates,* under the heads of Febrile, Phrenitic, and Maniacal disorders; and yet it is not a little remarkable, that Dr. Trotter, in his well-known work on drunkenness, published so late as 1804, has allowed this disease to pass unnoticed. He occasionally speaks of hallucination, particularly in one of his cases of phrenitic delirium, or brain fever; but he does not appear to have been aware of the particular nature of the complaint in question, having treated this case as if it were the immediate effect of stimulation, by general bleeding, &c.

In another part of this work he says, "There is

* De Morb. Popular, lib. iii. sect. ii. ægrot. v.

a species of delirium that often attends the early accession of typhus fever from contagion, that I have known to be mistaken for inebriety among seamen and soldiers, where habits of intoxication are common : it will sometimes require nice discernment to decide,—the vacant stare, the look of idiotism, incoherent speech, faltering voice, and tottering walk, are so alike in both cases.” Such symptoms as those just detailed, occurring in persons addicted to intoxication, would induce me to regard them as indicative of the first stage of delirium tremens ; but this author, although treating on the effects of drunkenness, seems to have been totally ignorant of the nature of such a disorder.

Within the tropics, and in all countries where rum or other spirits are cheap, and where the soldier, in some instances, is, I may say, perched on the truncated summit of a volcanic cone, as on Fort Charlotte, in the island of St. Vincent, without a contiguous spot of level ground to amuse himself upon ; and has, at the same time, as if to try his powers of abstemiousness, a canteen for the sale of spirits established under the same roof with him ;—I say that so situated, and only gifted with the ordinary mental resources of those who move in his sphere of life, while he is amply supplied with money to gratify his propensities, it cannot be wondered at, that, after a few years' residence, what may be called the ebriositatic diathesis should be

induced, and that he should become the victim of diseases arising from the effects of habitual intoxication.*

From a knowledge of these facts, it appears to me extraordinary how so remarkable and prevalent an effect, and one which, for evident reasons, must have manifested itself during every prevailing endemic in such situations, could have been so long overlooked by authors of deserved celebrity. It is not to be supposed that this affection is to be met with more frequently in those latitudes at the present day than formerly, the habits of the soldier not being more depraved now than at the periods when these authors wrote. If any change has taken place, I should think it must be in favour of so-

* Since the first edition of this work appeared, I understand the ration of rum has been discontinued to the soldier; the canteen has been also put under better regulations, and endeavours have been made to substitute the sale of porter for spirits: but the facilities for obtaining rum in the West Indies, must be at all times sufficiently great to enable the soldier to indulge in intemperance; indeed, I fear that nothing short of the establishment of Temperance Societies, patronised and encouraged by officers, both by precept and example, will ever be found to check drunkenness amongst the troops serving in tropical climates: much, however, might be accomplished by the formation of such Societies, both for the health and comfort of the men; we have daily encouraging examples of their beneficial influence in this country, and still more so in the sister isle, where we see the almost miraculous results of the Rev. Mr. Mathew's indefatigable exertions for the attainment of this desirable object.

briety ; at least if I were to judge of their habits from the reformation which has been effected of late years in those of all other classes of West India inhabitants.

During a residence of upwards of five years in the West Indies, as surgeon to his Majesty's fifth regiment of foot, and during part of that time, while acting as principal medical officer of the island of St. Vincent, I had frequent opportunities of observing the progress and effects of this disease from its earliest stages, and I shall now relate the result of the observations which a close attention to the subject enabled me to make, not only while serving in that climate, but likewise since my return to this country.

The greater number of authors who have published any thing concerning it, appear to coincide, with but little variation, as to the nature of its causes, and, to a certain extent, as to the principle on which the methodus medendi ought to be directed ; but they do not seem to me to have sufficiently explained all its phenomena, and they have omitted altogether the division of the disease into stages,* a precaution of considerable moment, as on an accurate knowledge of them will be found to

* The only authors, with whom I am acquainted, who have adopted the division of the disease into stages, are Doctors Lyons and Ryan. The former was an intelligent staff surgeon, who

depend that judicious modification of treatment so essential in the cure of all such diseases. They have likewise neglected to remark on some of its pathological characters, as well as on many essential points in the order of treatment in this formidable complaint.

From all the observations I have been enabled to make, and more particularly from the table which I shall annex, exhibiting the duration of the most prominent symptoms as they presented themselves in the cases which occurred in the right wing of the fifth regiment, in the course of the year 1822, as well as from my subsequent experience, I am induced, for the better description of the disease, to divide it into three distinct stages ; and the regularity with which they came under my notice in every case, makes me consider this affection as a disease "*sui generis*," somewhat similar in its course to a paroxysm of ague ; to which, indeed, it bears no small analogy, being to the brain and nerves what intermittent fever is to the arterial system.

published a thesis on the subject at Edinburgh, in August, 1827. This officer had ample opportunities of observing the course of the disease in the West Indies.

Dr. Ryan's paper will be found in the October number of the London Medical and Surgical Journal, of which the learned Doctor was then editor. Since writing the above, I find a Doctor Barkhausen, of Bremen, and others, have also adopted this division ; but they have all written since my first publication on this subject.

In the ten cases alluded to in the appended table,* the stage of nervous excitement came on, at different periods, within five or six days from the date of their admission into hospital, which may be also regarded, in most instances, as the date at which the patient began to abstain from intemperate habits. It succeeded to trivial affections of various sorts, such as slight febrile action, gastric derangement, &c., which were often the effect of an unusual debauch, and in one instance it supervened to a case of ambustio. I have since had an opportunity of seeing this disease come on frequently during the prevalence of endemic remittent fever and ophthalmia, as well as subsequent to accidents of different sorts, which occurred in the garrisons of St. Vincent and Dominica during the years 1823 and 1824. I also observed a tendency to it in many persons labouring under these affections, which, by attending to the principle "*principiis obsta,*" in the timely administration of appropriate remedies, was checked, and the disease prevented. This complaint, therefore, could not fail, as I said before, to have been frequently met with under similar circumstances amongst old residents in the West Indies; and it is probable, from the silence of authors concerning it in their works on tropical disease, that it has been regarded, when it did occur, as ordinary delirium, supposed to have arisen from

* For the table see the end of this work.

excitement, and must consequently have been treated in any way but the proper one.

This disease, supervening, as it often does, on febrile cases, must have been frequently mistaken for the delirium of fever, to the almost certain destruction of the patient. Of the ten cases of this disorder, noticed in the table at the end of this work, five will be seen to have been admitted as fever. I shall ever recollect two cases of this description which occurred in my own practice, soon after my arrival at Antigua, before I had time to become well acquainted with the nature of the delirium which sometimes supervenes on fever, but which I now know to have been delirium tremens. After due consultation with an old practitioner, these men were bled, and very soon sunk, to my very great surprise and regret; on examination, after death, the brain was devoid of the usual appearances consequent on febrile delirium; I was, therefore, induced to reflect on the cause of this unexpected event, and my attention was thus led to the contemplation of the affection which we are now considering.

I read lately, with very great satisfaction, in the *Edinburgh Medical and Surgical Journal* for January, 1840, some able "Observations illustrating the character of a febrile epidemic which prevailed in Dominica, in 1838," by John Imby, M.D. The epidemic was very similar, in its nature and effects,

to the fever which raged there in 1821, and which proved equally fatal to a detachment of the fifth regiment, under the command of the late much to be lamented Lieut. Col. Emes. I shall take the liberty of quoting from these observations, as it appears to me that, at least in the case which I shall select, the fever was complicated with symptoms of delirium tremens, which no doubt were developed sooner, and rendered fatal by the sudden debility consequent on an unexpected discharge of blood from the mouth and nostrils. Dr. Imby says, "Such was the case with Lieutenant Mould, of the Engineers, whom I visited with the late Dr. Hopkins, of the 74th regiment. The discharge came on unexpectedly in the middle of the night, when an apparent amendment had taken place, and the blood flowed from the mouth and nostrils almost in a stream. The intellectual functions, previous to this time, had not been disturbed, although extreme dread of the result" (evidently a symptom of the disease) "had been present from the commencement; but the discharge of blood was soon followed by great debility and delirium, of the character peculiar to fever. He could with difficulty be restrained from leaving his bed, and walking about the room, or quitting it if left for a moment alone. His friends he recognized, and his reply invariably to any enquiry how he felt, was, that he had no pain, and was getting better; and after answering

one or two questions rationally, broke out into loud lamentations at having a quarrel with the police, and being unable to find securities to rescue him from confinement. He peremptorily refused to take either food or medicine, stating that he had taken two solemn oaths not to touch either the one or the other, and if still further urged, reasoned on the impropriety of compelling him to violate his oath. He sank into a state of exhaustion, and died without having any convulsion, which was generally the case after much loss of blood in this manner, or when taken from the arm. I mention this case, amongst many others, principally to give you some idea of the nature of the delirium." The general restlessness, the panophobic bias of the mental aberration, the absence of consciousness with regard to his dangerous state, and the temporary power of answering questions rationally, are all strong features resembling those of delirium tremens, and very different in their character from symptoms expressive of phrenitic or febrile delirium.

When we consider the general habits of persons residing in the West Indies, we must take it for granted that the ebriositatic diathesis exists in most persons who have sojourned there for any length of time; in coming to this conclusion, we must, however, recollect that, to induce the state of constitution favourable to the developement of delirium tremens, it is not necessary that individuals should be

of those habits which would entitle them to the appellation of drunkards ; all that is required is, that persons should accustom themselves to take a certain quantity of diffusible stimulus daily, perhaps little more than sufficient to remove those feelings of debility which are induced by the effects of the climate, and which, as they are indirectly increased by the means used for their relief, require a gradual increase in the quantity of stimulus taken to keep up the feeling of benefit afforded by them. Under such circumstances, any sudden cessation, or material diminution of the stimulus thus habitually taken, will be felt in a strong degree by the nervous system ; and, should depletion be used at the same time, the nervous and sensorial powers, already deprived of their accustomed stimulus, may be so reduced as to be unable to maintain the reasoning faculties unimpaired, and thus the developement of delirium may be hastened.

I am not aware of the previous habits of the late officer, whose case is related, but the delirium which existed was precisely of the same kind as that evinced in delirium tremens. Dr. Imby says, " I mention this case amongst many others, principally to give you some idea of the nature of the delirium." But I am of opinion that this and many of the cases which were treated during the epidemic he so well describes, were complicated and considerably aggravated by the supervention and admixture of

delirium tremens ; and I need not, I am sure, take any pains to impress on the minds of my readers how much such complications must tend to increase the danger of an epidemic already so fatal in itself.

When a patient is taken into hospital, labouring under symptoms of endemic fever or ophthalmia, for example, he is, of course, deprived, under ordinary circumstances, of spirituous potations during the first days of his illness, at least he is so by practitioners who are unaware of the nature and causes of delirium tremens ; the consequence is, that the nervous system of such a person begins to feel the loss of its accustomed stimulus, and for want of it gradually sinks into a state of extreme exhaustion, which is generally increased by the depletory measures used at the commencement of the attack for which he was admitted. This state of exhaustion, as will be seen in the sequel of this essay, is the first stage of *erethismus ebriositatis*, or what is generally termed delirium tremens, and it is succeeded by a state of delirium too easily confounded with phrenitis, particularly by those who are unacquainted with these facts, and which, if treated as such, will, in all probability, terminate fatally. Such morbid combinations must always be perplexing and dangerous, even under the care of those who happen to be acquainted with their nature, as the treatment necessary for the cure of this species of

mental derangement may be highly injurious in the affection under which the patient originally laboured.

There were several men belonging to the fifth regiment in the West Indies with me, in whom the ebriosis diathesis was so perfectly established, that, almost at any time I could have induced in them an attack of delirium tremens, by simply taking them into hospital, and keeping them for three or four days on spoon diet; and I should have hastened the appearance of the disease, had I had recourse at the same time to general evacuation, but particularly to blood-letting. This will not be thought surprising, when it is known that rum became, by habit, incapable of inducing in their well-accustomed stomachs the warmth which was agreeable to them, in consequence of which they had recourse to the addition of capsicum, to render it more potent. Yet these same men might be suddenly deprived of their drink, even with advantage, if stimuli of other sorts were substituted for it. For example, when soldiers were sent to what is termed the walking drill for several days together, as a substitute for corporal punishment, they were rarely attacked with the disease in question, although they could not have access to rum while under that discipline, as they slept on the guard bed, and were marched about in heavy marching order by corporals who were relieved every two hours, from sunrise to

sunset, except during a short time to allow them to take their meals. Now men so punished were, generally speaking, the most drunken characters in the regiment, and the most likely, under other circumstances, to have had delirium tremens ; but it would appear that the mental stimulus of their situation, the constant exercise, and the substantial food, of which they were not deprived, were sufficient to keep up the necessary balance between the nervous and vascular systems without the aid of their accustomed potations ; indeed, I have often remarked the improved appearance of these men after having been perhaps a fortnight at this drill, most of the time under a tropical sun, and have been much astonished at the wonderful change for the better in their health, which was altogether attributable to the effects of good food and exercise, uncontaminated by the pernicious habit of drunkenness.

In Europe, also, this disease has been oftentimes overlooked, or even treated as mania or phrenitis, by copious depletion, to the no small risk of the individuals so affected. The various periodical publications are not devoid of examples of this fact. Cases, likewise, are on record, in which surprise is expressed at finding that the delirium, which came on some days subsequent to the occurrence of a compound fracture, was cured by a copious draught of ardent spirit, obtained by stealth ; denoting

clearly a total ignorance of the nature of the disease under consideration. Fortunately, however, there are but few good practitioners of the present day who would betray such a want of discrimination.

In the following lines, taken from some old manuscript notes of lectures delivered by Dr. Colles, a learned and experienced professor in the Royal College of Surgeons, Dublin, nearly forty years ago, it will be seen that this able practitioner did not allow so interesting a complaint to escape his observation:

“ A fever of a peculiar kind is apt to attack men who have been addicted to hard drinking ; as, for instance, brewers’ men. Such patients having a compound fracture or wound, will be seized about two or three days after with fever and delirium (apparently ferox), and great nervous agitation : this happening in a strong and bloated man, would lead you to suppose that venesection would be the proper means of treatment, but this is not the case ; opium in large doses, as sixty drops, and repeated in two or three hours, until the patient is thrown into a deep sleep, is the only remedy. As soon as sleep is procured, the man will certainly awake quite well. For the same reason, a large quantity of his usual beverage might be given.”

In Dublin this disease is not uncommon, as might be expected from the low price of spirit in that city, and it is known to the lower orders there under the appellation of whiskey fever.

The late justly celebrated Baron Dupuytren, of Paris, wrote in the periodical termed the *Reper-toire*, on what he called a particular species of traumatic delirium. In it he observed, that "no surgical writer had taken notice of such an occurrence." He also stated, that "there is but one case of this sort on record, the author of which was a Mr. Bouillon." Now if the ingenious Baron had read the number of the *Archives Generales de Medicine* for January 1824, section *Medicine Etrangere*, he would have seen in it a translation of my paper on delirium ebriositatis; and by a reference to the table at the end of it, he must have observed that the sixth case noticed there succeeded to an affection, the treatment of which belongs to the province of surgery, namely, *ambustio*. He would likewise have seen, by comparing the history of his cases with my description of the disease, that we both alluded to the same complaint, that generally known under the denomination of *delirium tremens*. But had the Baron given the affection he treated of that name, he must have relinquished the claim to originality of observation, to which it is evident he aspired. We must either take this view of the case, or come to a conclusion, the truth of which is less probable, namely, that this celebrated surgeon was not previously aware of the nature of the disease in question. Our continental brethren are naturally desirous to appropriate to themselves any thing

which may tend to enhance their professional fame, which the number and zeal of their authors, particularly on pathology, have already raised to a high degree of pre-eminence.

The greatest objection which I see to Baron Dupuytren's appellation of this disorder is, that it is liable to mislead us in our practice, as it would imply its being the peculiar consequence of wounds or accidents, whereas it is not confined to any one state or injury of the system, but will arise in all conditions, whenever the necessary diathesis is induced by habitual intemperance, and then that the system be suddenly deprived of its accustomed stimulus, owing to a cessation of intemperate habits. Under such circumstances, it does not matter whether the subject be affected with yellow fever, typhus, or a whitlow, or whether he be put into solitary confinement and restricted to bread and water, though in apparent health at the moment of his confinement—in either case he will, in all probability, be attacked, *in due time*, with the disease under consideration.

Since the Baron's publication, cases have appeared in the periodical works of this country, under the head of Traumatic Delirium, all of which I attribute to the sudden cessation of habitual intemperance alone, and not to the peculiar shock or consequence attending on a wound or fracture, further than that such wound or fracture may have

been the cause of the sudden cessation of intemperance; hence the impropriety of the term traumatic delirium.

Dr. Barkhausen, of Bremen, has published observations on delirium tremens, the analysis of which I saw in the 14th number of the North American Medical and Surgical Journal. This author, who wrote in 1828, divides the disease into the acute and chronic, the idiopathic and symptomatic, and the sthenic and asthenic species. The first two of these terms, he says, are used in the ordinary sense of the nosologists; idiopathic delirium tremens is stated by him as arising solely from intemperance, unconnected with any other disease or injury, while he considers the symptomatic as that which occurs during some other affection, or subsequent to a fracture, wound, &c. The last division, which Dr. Barkhausen considers the most important, is that of the disease into the sthenic and asthenic forms.

From what I have already said on the subject of traumatic delirium, it will, I think, appear evident that no good grounds exist for the division of this disease into the idiopathic and symptomatic forms: the disorder, in my humble opinion, is in all cases purely idiopathic, arising invariably from the same cause, namely, the sudden cessation or material diminution of intemperate habits.

With regard to the sthenic and asthenic division

of the complaint, I consider them equally objectionable. I look upon delirium tremens as altogether an asthenic affection; as well from the nature of its cause, as from the nervous symptoms which constitute it. This author's division of the disease into the acute and chronic species seems to me also unnecessary, and only calculated to mislead. Of course the symptoms of this complaint, as I have elsewhere stated, will manifest more or less of a chronic, acute, sthenic or asthenic tendency, according to the previous state of the constitution, age, and habits of the patient; but they never follow such a course as would warrant the division above alluded to: however particular symptoms may simulate the sthenic diathesis, we must ever bear in mind that the system, during this affection, will generally be found in a very opposite state.

Dr. Höegh Guildberg, of Copenhagen, published, in 1836, an essay, in which he has followed pretty nearly Barkhausen in his division of this complaint.

The slight febrile action, and other trivial indispositions noted in the table already alluded to as preceding this affection, were generally the immediate effects of excesses.

The first distinct indications of this disease usually appear in the following order: a peculiar slowness* of the pulse, frequently as low as forty-

* This slowness of the pulse I have invariably observed as indicative of the first stage of the complaint. I am not aware of any

four in a minute, attended with coldness of the hands and feet, which being in general bedewed with moisture from the effect of evaporation, present a clammy, icy feel; these are preceded and accompanied with symptoms of general debility, and a diminution of temperature, owing of course to the defect of sensorial or nervous influence. Cramp in the muscles of the extremities, with giddiness, nausea, and occasional vomiting, are also troublesome; the bowels are generally open, but sometimes the contrary; nervous tremor of the hands and tongue, the latter being moist and but slightly furred, form also, in most instances, prominent features in this stage. All these are accompanied with dejection of spirits, frequent sighing and oppression of the precordia, anxiety and depression of the countenance, with short and interrupted slumbers.

Dr. Guildberg, in his work just alluded to, says, "Occasionally the patient is attacked by epileptic fits, and some medical men have so constantly observed these to take place, that they have been convinced that, within twenty-four hours an attack of the disease would commence." But I agree author having previously noticed this symptom, which may, perhaps, be explained by the circumstance of my having had the subjects I treated more immediately under my command, and, consequently, an opportunity of investigating the disease at its commencement; while practitioners in civil life, in general, are only consulted when the second stage, or that of delirium, has begun.

with the editors of the British and Foreign Medical Review, in regarding this assertion as founded in error.*

The length of time which elapses after the privation from the accustomed stimuli, before the commencement of these symptoms, or the first stage of the disease, is uncertain, as it depends on predisposition, the consequences of the previous habits of the subject, and the general state of his constitution.

The immortal Byron seems to have been well acquainted with the feelings peculiar to the ebriositatic diathesis, or the necessary state of predisposition to this disease, which is brought on by intemperate habits. He describes it in the following lines :—

“ The drainer of oblivion, even the sot
Hath got blue devils for his morning mirrors ;
What though on Lethe’s stream he seem to float,
He cannot sink his tremors or his terrors ;
The ruby glass that shakes within his hand,
Leaves a sad sediment of time’s worst sand.”

As the second stage approaches, the countenance gradually assumes a wild expression ; the patient begins to entertain hallucinations, he fancies he sees loathsome objects, such as lizards or cockroaches, for example, on the bed, or somewhere near him, which he suddenly attempts to catch, and he becomes more restless, with an apparent anxiety

* British and Foreign Medical Review, vol. vi, p. 325.

to perform immediately whatever you desire, or even to anticipate you in what he thinks you are about to require of him.

I have generally been able to prognosticate approaching delirium, by a careful discrimination of this last symptom.

Sir Philip Crampton, Bart. Surgeon General of Ireland, in his clinical lectures on compound fractures says, "that traumatic delirium, or, more properly speaking, delirium tremens, may be suspected to be on the eve of appearing if the patient becomes sleepless, and is disposed to toss about the bed; and if, though rational when spoken to, he mutters when alone, and draws back the curtain every now and then with an anxious expression of countenance, as if he expected to see somebody concealed behind it; the delirium runs upon various subjects, but the prevailing impression usually is, that he is pursued by the officers of justice on account of some crime which he has either committed, or of which he has been falsely accused. The crime most commonly has some relation to the profession or occupation of the individual; but whatever may be the species of delusion, it is invariably attended with a high degree of excitement. There is no degree of violence which the patient is not ready to inflict upon himself, but he is not disposed to injure others. Terror seems to be the deep and all pervading emotion, and this affords a key to the moral treatment of

this affection, which I have to recommend in the very strongest manner to your attention.”

When I come to the treatment of this disease, I shall quote again from Sir Philip's truly practical lectures ; but, in the meantime, I beg to remark, that his assertion, with regard to the harmless state of patients labouring under delirium tremens, is not applicable *to all* cases, though it is generally true ; some, as Dr. Carter says, resemble mania very closely, as in the case of the black man mentioned further on, while others evince a strong suicidal tendency, and require to be kept under strict surveillance.

The duration of the first stage will invariably be in proportion to the nature and extent of the cause, and the state of the constitution and previous habits of the patient ; thus, in a young and healthy subject, where habits of excess have not been of long standing, and consequently where the resources of nature have not been much exhausted, nervous reaction, or the stage of excitement, will come on much quicker than in those persons whose systems have been nearly worn out by the repeated and destructive application of spirits to the stomach, as well as by the debilitating effect of a residence in tropical climates, and vice versa. The first stage, however, under any circumstances, but seldom lasts many days without the accession of mental derangement to a certain extent.

When the second stage is established, a train of symptoms, consonant with high nervous irritation, gradually follows; mental alienation, in various degrees and forms, is developed, and with this an exertion of the nervous power to re-establish the state of energy, or rather excitement, to which the system had been habituated, and which existed previous to the cessation of the application of diffusible stimuli to the nervous system through the medium of the stomach. The heart and arteries also at length sympathize, and the pulse becomes quicker, though it continues small, and the heat of the surface increases. There is, however, throughout the disease, a marked difference between the temperature of the hands and feet and the rest of the body, the former retaining, in some degree, the icy and clammy feel already spoken of, while the rest of the surface may become even hot and dry. If this state continues long without amelioration, a clammy sweat pours from the skin, accompanied with excessive irritability, the disorder of the mind increases, and objects of the most frightful forms present themselves to the imagination of the patient, and in positions in which, as Dr. Pearson says, "it is physically impossible they can be situated." I recollect having witnessed a very distressing instance of this sort in the case of a man of the fifth regiment: the unfortunate sufferer, for a considerable time before his death, imagined he saw the devil at the ceiling

above his bed ; and as the disease, which terminated rapidly, increased, he fancied the evil spirit approached him with a knife to cut his throat ; and he actually expired making violent exertions to avoid the fatal instrument.* Fortunately, however, the disease does not, in all cases, assume so intractable a form ; and when judiciously treated, and not blended with endemial fever, or other diseases, or occurring in subjects worn out by repeated attacks, it will, in much the greater proportion, terminate favourably.

The mental bias is generally of the melancholic sort, usually concerning some misfortune to which the patient was liable previous to his illness. Thus, a soldier will often think he is accused of some military crime, and the whole of his attention will be occupied in endeavouring to exculpate himself of it ; or, if he has been much on service, he, perhaps, fancies he sees the enemy coming in at the window with fixed bayonets ; the civilian may imagine that he is pursued by constables, on account of some offence which he has either committed, or of which he has been falsely accused, or that a robber,

* Dr. Sigismond, in his lectures, given at page 107, of the *Lancet*, for April 21, 1838, attributed the relation of the above case to Dr. Pearson. Again he says, in speaking of the stages of this disease, " this division into three stages has been observed by nosologists." Had the Doctor's memory served him better, he would have said, that the case alluded to and the division of the disease into three stages, were originally described by the author of the first edition of this essay.

or some evil intentioned person lies concealed beneath the bed, under which he makes frequent attempts to peep; while, if he has been at any time of his life religiously disposed, he supposes he has committed some deadly sin, for which he cannot expect forgiveness, and calls frequently on his comrades to read prayers to him, as he thinks he is soon to appear before his God. During all this he makes frequent endeavours to get out of bed, and cannot be thoroughly convinced of the fallacy of his ideas; at the same time he is generally tractable, if properly managed, and will, in most instances, attend for a short time to what his medical attendant advises, and will even answer questions rationally; but he almost immediately relapses into his erroneous train of thought.

Cases sometimes occur where the patient fancies that vermin or other disagreeable objects are near or upon him, or that he is occupied in drawing ribbons in quantity from the extremities of his fingers, with a variety of fantastical extravagancies of a similar nature.

From the moment delirium is fairly established, the patient is deprived of the restoring solace of "balmy sleep," and is harassed by obstinate pervigilium, which may be looked upon as a *pathognomonic* symptom of the *second stage* of this disease. During all this the appearance of the countenance becomes particularly anxious, the tremor of the

hands and tongue generally continues, and the fur on the latter increases ; the urine at the same time becomes scanty and pale, and the bowels rather confined, or if relaxed, the stools are dark coloured ; the pupils at this period are contracted, but without intolerance of light.

When these symptoms have continued for one, two, or three days, and in a few instances even beyond that period, where a fatal termination is not about to take place, I have almost always observed their gradual mitigation, attended with a strong tendency to sleep, exhibited by yawning and drowsiness, which, as soon as it supervened, became profound, and lasted from six to eighteen hours, and occasionally much longer, constituting the *third stage* of this nervous paroxysm, or general relaxation of the nervous energy, similar to the capillary relaxation of the arterial system which takes place during the sweating stage of ague, and to which, in almost every instance that I have seen, convalescence has succeeded.

I am aware that authors mention having seen delirium continue for a month in this disease, but no such occurrence has fallen within my observation. I once, however, witnessed a fatal instance where it lasted six days. The subject of it was a black native of the Isle of France ; but this case may be regarded as uncommon, the patient having refused to take any medicine or food, and persisted

in his determination with the greatest obstinacy to the last moment of his existence.

A second exception to this general course presented itself to my notice, in the case of an old soldier, fifty-one years of age, and much addicted to drink. The disease, in this instance, was so violent, that partial effusion must have taken place within the cranium, as for some days after the sleeping stage commenced, it was exceedingly disturbed, and a state nearly of fatuity existed, which was accompanied by paralysis of the tongue: these symptoms were, however, gradually removed by the aid of blisters, alteratives, and tonics, and due attention to the state of the bowels, and tolerable health was restored; but shortly afterwards this patient fell a victim to a fit of apoplexy.

On dissection, general vascular turgescence, and serous effusion into the ventricles and on the surface of the brain, were alone discovered.

When the third, or sleeping stage, does not supervene in due course in this disease, and the general symptoms increase in violence, the mind appears to labour under excessive irritation, and the patient makes violent and frequent struggles, which are attended with copious perspiration. This, as the disease advances, and the strength fails, becomes deadly cold; the pulse at the same time increases in rapidity, becomes thready, and declines in vigour; the tremor of the hands also augments

and extends to the whole frame, approaching almost to subsultus tendinum, though it does not exactly resemble that affection; it seems rather allied to nervous rigors, which I have sometimes witnessed in violent cases to precede the approach of the sleeping stage, and which are very alarming, particularly to those unaccustomed to meet with them, as by such persons they are liable to be taken for rigors indicative of internal mischief.

According as all the symptoms of the malady increase, the pupils become exceedingly contracted, the countenance is pale and anxious, the tongue brown, and dry in the centre, the patient talks incessantly, and with astonishing rapidity, and may be, perhaps, affected with pseudoblepharitis and carpologia. The delirium then becomes excessive, and continues till a short time before death. In one case, at this stage, the mind was so disordered, that after having desired the patient to put out his tongue, he continued for nearly half an hour drawing it in and putting it out alternately, in quick succession, whenever I looked at him, from a deranged association of ideas.

There is generally, however, a calm previous to death, which in most instances takes place without a struggle, though in some cases it may be immediately attributable to the supervention of an epileptic fit.

During the course of this disease, the patient

seldom complains of any local pain, and when asked how he feels, will often answer abruptly, that he is perfectly well.

I have met with four instances of this complaint attacking black men, and three, where the subjects of it were white females, the wives of soldiers. Indeed, all classes of human beings appear to me equally liable to it, when predisposed by the same intemperate habits; but, from want of means, it is proportionably a more rare occurrence amongst the black population within the tropics. Neither is any age exempt from it, should the causes already alluded to be sufficiently indulged in.

Drs. Bang, Lind, and Rayer, however, think the disease occurs more frequently between the age of thirty and fifty, whereas Dr. Höegh Guildberg limits its greatest frequency to between forty and fifty; in the table at the end of this work, it will be seen that from thirty to forty was the age at which the cases mentioned in it happened; but the fact is, it may be induced at any age, from the cradle to the coffin, and in either sex, on the due application of its causes. The author last quoted gives a synoptical view of the cases treated by him, in which it appears that twice as many attacks of this complaint occurred in the month of May as in any other month. Dr. Bang, on the other hand, found June and July as fertile in its production as May. In my opinion, neither sex or age, or season

or climate, has any material influence on the prevalence of this affection, except inasmuch as very high temperature or extreme cold, although opposite in their natures, may both lead to the same result, namely, over-indulgence in intemperate habits, the general and principal predisposing cause of this disorder.

Such are the general symptoms of the three stages of this complaint, as they presented themselves to my observation.

The first, or the stage of exhaustion, I would compare to the cold stage of ague; the second, or that of nervous excitement, to the hot fit; and the sleeping, or third stage of this disease, to the sweating stage of intermittent fever: thus completing the analogy between the arterial and nervous paroxysms in the two diseases.*

* I have adhered to my original division of this disease into three stages, conceiving, as I do, that it is the most natural, and, at the same time, that it best maintains the analogy between the paroxysmal efforts of the arterial and nervous systems; I see nothing to be gained by the division of the disease into four stages, as proposed by Dr. Gulberg, in his work on this subject; he divides my second stage, or that of excitement, into two, making his second stage continue as long as any consciousness remains; his third stage beginning when the patient "knows not where he is, or to whom he speaks:" but these are only degrees of violence in one and the same stage. In my first stage sleep is short and interrupted; in the second stage the patient is altogether deprived of rest; and the sleeping stage constitutes my third division of the symptoms of this nervous paroxysm.

The human fabric appears to be principally composed of two great systems, namely, the nervous and the vascular. The first comprises the brain and nerves, while the vascular system includes the heart and blood-vessels. These two great supporters of life depend reciprocally on each other, and are influenced by their respective conditions: thus, when they are both in a state of vigour and equilibrium as to energy, the highest health is the result.

The brain and the nervous system are allowed by all physiologists to exert a most powerful influence over the rest of the body, conveying to every part of it that capability of action and sensibility which are necessary to its various functions; and in this respect their influence stands pre-eminent in the animal machine. They seem likewise to be the great medium through which we communicate with external objects: and, while they are themselves influenced in a particular manner by the state of all surrounding elements, they receive internal support from, and are acted on by, the contents of the vascular system, on the nature and condition of which their energy of action particularly depends. Thus we see the vascular system, on the one hand, depending on the state of the brain and nerves for sensation and capability of action, while, on the other, the nervous system owes its vigour, not only to the state of external causes, such as the

purity of the atmosphere, &c., but likewise to the healthy nature of the contents of the blood-vessels, or, in other words, to the wholesome condition of the blood, to the formation and perfection of which all the other organs of the body are subservient—some on its supply, as the organs of mastication, deglutition, digestion, and absorption; and others to its purification, by depriving it of principles, which, having served the purposes of life, have become either noxious or useless; these are the lungs, the liver, the kidneys, the skin, and the various mucus surfaces, &c.

Thus we can comprehend how the nervous system may become gradually accustomed to the stimulus of alcoholic particles in the blood, and how the paroxysmal efforts already mentioned may be instituted by that system, in order to endeavour to compensate for the loss of stimulus sustained by the absence of those particles, consequent on the sudden cessation of intemperate habits; we likewise are enabled to understand how the arterial system at first sympathises in the nervous depression, and afterwards in its re-action, and, finally, how it participates in the calm which is restored during the supervention of the sleeping or third stage of this nervous paroxysm.

It will be seen by what I have stated generally, as well as by the definition I have given of delirium tremens, that I regard it as being altogether of a

nervous nature. Mr. Pearson has described a disease under the appellation of *erethismus mercurialis*, which, though affecting a different system, is attended with symptoms resembling some of the most remarkable of those manifested in the first stage of this disorder. I have copied the learned author's definition of it in a note below,* with a view to show how particular systems may become affected by particular causes. As soon as mercury ceases to act as a stimulant to the vascular system, either from the effect of long administration, or a peculiar idiosyncrasy of constitution, indirect debility is the consequence, affecting more particularly the system on which its stimulating effects have been most evident. Hence the production of the symptoms described in the note, as well as the propriety of the tonic and stimulating mode of treatment proposed by Mr. Pearson.

We must not then be astonished at seeing that different substances affect in a particular manner different systems ;† the wourali poison, for example,

* " Great depression of strength, anxiety about the præcordia, irregular action of the heart, frequent sighing, trembling, a small quick, sometimes intermitting pulse, occasional vomiting, a pale contracted countenance, a sense of coldness, but the tongue is seldom furred, nor are the vital and natural functions much disturbed. In this state any sudden exertion will sometimes prove fatal."

† For the account of the experiments of the celebrated Mr. Waterton, on the effects of the wourali poison, see page 185 of the *Medico Chirurgical Review* for July, 1839.

acts, it is supposed, on the nervous system. We know, also, that even different principles of the *same substance* will have this effect; for example, the infusion of tobacco, which contains* nicotin, acts by its influence on the arterial system, and will even induce death by a suspension of its action; while the essential oil, which does not contain nicotin, is equally destructive, but acts principally upon the nerves. Hence we can have no difficulty in comprehending the possibility of delirium tremens being a nervous paroxysm, during which the brain and nervous system are particularly, and at least functionally deranged.

The predisposing cause of this affection, as it has been already stated, is generally agreed upon by authors to be the habitual and excessive abuse of strong liquors; though this predisposition may be induced by the immoderate and long continued use of any of the diffusible stimuli, such as opium, belladonna, stramonium, &c.

Notwithstanding that cases, having their origin attributable to the last mentioned causes, have not come under my immediate notice, I feel convinced, from their nature, they sometimes do occur; and indeed I have the testimony of a medical officer of acknowledged high talent in favour of their existence, at least from the abuse of opium; this gentleman had an opportunity of treating more than

* Vide Paris's Pharmacologia, sixth edition, vol. i, p. 245.

one case of the kind in his practice. I recollect his relating one in particular to me, the subject of which was a lady, who was in the habit of taking immoderate quantities of laudanum privately, and who, on being prevented from persevering in her habits, became attacked with this disease.

Dr. Armstrong also gives the case of a female who had been long in the habit of taking opium, and who, on lessening her daily quantity, fell a victim to this disease.

Dr. Coates likewise says he has seen strongly characterised cases in which it was produced by the intermission of the use of opium. Höring refers to the case of an old man, in whom he witnessed this disease, after long abuse in strong coffee. Dr. Sutton saw it in a lady, after an habitual indulgence in the use of red lavender; and Dr. Barkhausen, who affirms that he has seen the disease in a mild form follow the use of strong beer, expresses his doubts of it ever being induced by wine; but on what grounds his doubts are founded, it is difficult to conjecture. The editors of the British and Foreign Medical Review witnessed a case which afforded proof of the possibility of such an occurrence.*

Starvation, emanations from lead, malaria, &c., are also said by some authors to induce delirium tre-

* Brit. and For. quarterly Medical Review, vol. vi. article Delirium Tremens.

mens ; but of this I cannot speak from experience, never having witnessed symptoms resembling that disease as their consequence.

Dr. James Johnson, the talented and much respected editor of the *Medico-Chirurgical Review*, mentions the case of a young lady, in whom intense mental application was the cause of symptoms resembling those of delirium tremens, and we are bound to give due attention to such authority. Examples of this nature have not, however, come under my observation. I have seen a violent paroxysm of mania induced in a lunatic by long continued mental efforts to discover the perpetual motion ; but the stimulus of mental application might, in this instance, be compared to the immediate and direct influence of spirits on the brain in exciting delirium ebriosum, which shall be shortly noticed. I can, at the same time, easily imagine that, had the subject of this case ceased suddenly his continued mental efforts to discover the perpetual motion before he became maniacal, and had the brain become thus suddenly deprived of its accustomed stimulus, a train of nervous symptoms, similar, in a great measure, to those alluded to by Dr. Johnson, might, particularly if assisted by idiosyncrasy, have developed themselves, and given rise to an affection closely resembling delirium tremens.

I have frequently observed aberration of intellect

to accompany typhus fever, even long after the patient was, according to my judgment, out of all danger; but it was not accompanied by any of the pathognomonic symptoms of delirium tremens.

I recollect a strong instance of this in the case of a young man, of the seventh Dragoon Guards, named Bond: he had, when quartered in Ireland, a most aggravated and prolonged attack of typhus fever, during which the integuments over the sacrum and trochanters sloughed: the system was, as may be supposed, reduced to the lowest ebb, indeed, it was only preserved from death by the most cautious and assiduous administration of nutriment and medicine. In the course of his delirium, he fancied that a man of his own name died in the hospital in which he was, and that he had bought his shirts, which he thought had been sold after his death, as is usual amongst soldiers. When in an advanced state of convalescence, and perfectly rational on all other subjects, I desired that he might have his shirt changed, to which the orderly-man replied that he had not one clean; the patient immediately started up and said, "I ought to have some in my valise, for I bought three shirts when my namesake died here." On questioning him, I found that he laboured under the delusion already mentioned, and strange to say, that years after the event, although he admitted he must have been mistaken, yet he could not divest himself of

the belief that the occurrence had actually taken place.

Large and repeated bleedings, by impoverishing the blood, and thus rendering it incapable of perfectly exciting the brain, have been known to produce delirium. Dr. Marshall Hall gives many cases of this species of mental affection, in his excellent work on the effects of blood-letting. The Doctor treated them successfully with brandy and beef tea.

It appears that any change in the vital fluid, whether arising from excessive depletion, the effect of typhoid influences, or the sudden cessation of intemperate habits, may be productive of a species of delirium approaching, more or less, to the nature of delirium tremens, according to the circumstances of the case.

Subjects, in whose constitutions the ebriositatic diathesis has been established by habitual excesses, may be attacked with this disease, after having been exposed to hunger or deleterious exhalations from lead or swamp; but in such persons the complaint, though it may be somewhat complicated, or masked in the same way, as we sometimes observe agues to be, would have come on in due course after the sudden cessation of accustomed intemperate habits without their aid. I believe it will be found, that the delirium which follows hunger, emanations from lead, depletion, malaria, &c. when it does not oc-

cur in subjects duly prepared for delirium tremens, by the long continued abuse of strong liquors, will be unattended by any of the other pathognomonic symptoms of that disease. In short, I am of opinion, that true or legitimate delirium tremens will never be found to arise in any but those subjects in whom the necessary predisposition has been induced, by the intemperate use of some of the diffusible stimuli.

The immediate or occasional cause of the disease appears to me to be, in general, the sudden cessation, if I may use the expression, of the application of accustomed stimuli, through the medium of the digestive organs, to the nervous system, in consequence of which cessation the nervous power gradually sinks to the lowest ebb; and in endeavouring to rally and re-establish the lost equilibrium between it and the vascular system, its efforts exceed the exhausted resources of the sensorium, the consequence of which is delirium, &c.

Dr. Peace, in his thesis on delirium tremens, says, "However paradoxical it may appear, it follows that this disease is produced by the absence of the remote cause, or in other words, that the immoderate and habitual use of ardent spirits is the remote cause, and its sudden cessation or discontinuance the immediate or exciting cause."*

* North American Medical and Surgical Journal, No. 16, for October, 1839.

In the *Memoires de l'Academie Royale de Medicine*, tome premier, Dr. Leviellé has written a paper, "Sur la Folie des Ivrognes, ou sur le Delire Tremblant," in which the author seems to have paid more attention to the diseases with which he states delirium tremens may be complicated, than to the true nature of the affection itself, as may be seen by referring to the fourth fasciculus, No. 18, of Dr. Johnson's *Journal* for August, 1828, in which publication I had an opportunity of reading the review of it.

This author draws, amongst others, the following conclusion :—" This delirium consists in exaltation of the vital powers of the brain, excited by alcoholic molecules, absorbed from the surface of the stomach and bowels, and carried into the current of the circulation." With regard to the theory of the disease being excited by the absorption of alcoholic molecules, I can only say, that I never saw an individual attacked with delirium tremens so long as he continued to indulge in his accustomed alcoholic potations ; but it invariably came on when old drunkards ceased altogether taking, or materially diminished their usual quantity of liquor for a given time, either from the effects of an excessive debauch, or from any other cause whatever, such as a wound, a fracture, or a fever, &c., showing clearly, that although intemperate habits may be the predisposing, yet they are not the imme-

diate causes of this complaint ; and hence, that the absorption of alcoholic molecules would, in this point of view, rather tend to prevent than excite such a disorder.*

Dr. Carter expresses himself thus in the article

* When the first edition of this essay was ready for the press, I read a note to page 157, vol. iv. of Mr. Cooper's edition of Good's Study of Medicine, which I shall take leave to copy here, as it comes from such high authority. Mr. Cooper says, "Post obit examinations have also frequently pointed out another local cause, which we should otherwise little expect, and that is a displacement of the transverse colon. The facts in support of this doctrine have not been so numerous in this country as in France, and its correctness has even been doubted. In Paris, however, the opportunities of dissecting the bodies of insane persons have been for many years much greater than in London ; and when we find such authorities as MM. Pinel and Esquirol attesting, by recorded dissections, the truth of the cause here assigned for the present species of mental alienation, the fact, in relation to the natives of France, must at all events be admitted."

To this I can only observe, that I never remarked such a displacement in any of the dissections I have witnessed ; but, should such an occurrence at any time be detected, I should be more disposed to regard it as the effect than as the cause of delirium tremens ; the violent efforts which are sometimes made during the height of this disorder, being quite sufficient to induce an irregularity in the situation of the floating viscera : therefore, although I am free to admit with Mr. Cooper, that such phenomena may have been discovered in dissections of the insane by MM. Pinel and Esquirol, who, from the situations they hold, must have had frequent opportunities of making such examinations, yet I cannot comprehend how such a displacement could be looked upon as a "local cause" of delirium tremens.

on delirium tremens, written for the Encyclopedia of Practical Medicine:—"To overthrow M. Leviellè's theory would perhaps cost little labour, but we do not consider that it is the least degree shaken by the objection just stated" (alluding to what I have said concerning it), "for, that delirium tremens may manifest itself in individuals who may have never been deprived of their accustomed stimuli, even for an hour, is most certain; as for example, in publicans who live in *an atmosphere charged with alcohol*, who, though seldom absolutely intoxicated, are always more or less under the influence of intoxicating liquors, and are sipping from morning to night. Instances of well marked delirium tremens occurring in such persons have fallen under our observation. Interesting cases might be cited, where, upon the patients being at once removed *beyond the sphere of temptation*, recovery was rapid and complete; and others might be adduced in evidence that the habitual stimuli being obstinately persisted in, or after a certain interval of abstinence foolishly resumed, the disease will proceed to a fatal termination."

Does the Doctor seriously mean to insinuate, by what I have just quoted, that true delirium tremens can be cut short by the removal of a patient from his accustomed *alcoholic atmosphere*, and by total abstinence from his usual stimuli; or, that a person so cured would relapse immediately on returning to

his old habits? If so, this ill accords with the means which the Doctor recommends to be used in delirium tremens, namely, the stimulo-narcotic plan of treatment. Dr. Carter seems to have fallen into a serious error here, and must have mistaken the affection in question, and confounded it with the delirium ebriosum of Dr. Darwin, which is spoken of further on, and which has since been mentioned by Drs. Copeland, Elliotson, Jackson, Roots, Stokes, and others, as delirium with tremor, the immediate effects of intoxication in peculiar temperaments, and accompanied with increased vascular action, an affection allied to pyrexia, while true delirium tremens belongs to the class neuroses.

Many physiologists have maintained that "alcoholic liquor enters the circulation, and gives there an additional stimulus." But Dr. John Percy, of Nottingham, in a thesis published in Edinburgh, in 1839, and which was most deservedly regarded as the prize essay, and in consequence rewarded by a valuable gold medal from the faculty of the University, has proved by the most accurate and conclusive experiments that, "the rapidity with which alcohol may, under favourable circumstances, be absorbed from the stomach and conveyed to the brain, is remarkable: that alcohol may be detected in the blood, the urine, the bile, and the liver." Dr. Percy also observes, "a remark may here be appropriately introduced respecting the situation in

which the alcohol may exist in the brain; that, to a certain extent, it is diffused through the substance of the brain, and that it is not all contained in the cerebral vessels, will, I think, appear from the following circumstances—namely, that although I have subjected to analysis a much greater quantity of blood than can possibly be present within the cranium, yet I have in general been enabled to procure a much larger proportion of alcohol from the brain than from all this quantity of blood. Indeed, it would almost seem that a kind of affinity existed between alcohol and the cerebral matter.” Now it may be readily conceived that alcoholic molecules, being so easily conveyed to the brain, must, by their habitual application to its delicate texture, establish gradually a state of morbid tone, which would be soon disturbed by the atony which must follow the sudden cessation of their absorption, or, in other words, the abandonment of intemperate habits. The brain, which, under *habitual* stimulation, was enabled to make manifest the reasoning powers of the mind, ceases to be able to do so when suddenly deprived of its accustomed stimulus; hence the first stage of delirium tremens, or general enervation of the system ensues, after which the disorder, if not checked by judicious treatment, will pursue the regular course already described. But, should delirium, with or without tremor, come on in the course of, or immediately

after an unusually prolonged debauch, during which alcoholic molecules may be carried to the brain in unaccustomed quantity, the symptoms which they induce will be found to be of a very different character from those of true delirium tremens, inasmuch as they will not follow its usual course; and the first stage of delirium tremens will be altogether wanting; in fine, to a person acquainted with the nature, of this disease there can be no difficulty in forming a diagnosis.

The fact having been ascertained of the absorption of alcoholic molecules into the circulation, and likewise the affinity which cerebral matter possesses for alcohol, it appears wonderful, considering the quantity of spirits consumed by the lower classes in this country, that affections arising from disordered functions of the brain are not more prevalent than they are.

It is, however, to be hoped the influence of the Temperance Societies will materially diminish the consumption of this baneful article, and thus tend to improve the human race, both in a moral and physical point of view.

The progress which these Societies are making in Ireland under the auspices of the Rev. Mr. Mathew, is very cheering, and cannot fail being productive of the greatest good in that unhappy, though fine country.

Dr. Carter, a little further on, in his essay al-

ready alluded to, says, " We have stated that delirium tremens is caused by the intemperate use of strong liquors, or of certain other diffusible stimuli; of those latter, opium, either alone or in its various combinations, is the chief. The long continued and free use of opium may certainly induce true delirium tremens,—we have known it to be so produced; and this fact is sufficient to overthrow the theory of M. Leviellé, before referred to, which would make the absorption of alcoholic molecules the exciting cause of the disease." Now this appears to me to be very strange logic; it is clear, by the Doctor's own statement, that he considers the intemperate use of strong liquors as the most frequent cause of delirium tremens, at least in these countries, and it may be presumed that M. Leviellé was not ignorant that excessive indulgence in taking opium, induced symptoms perfectly resembling those which follow the intemperate use of spirits; but, at the same time, that he only alluded to the latter as the ordinary, and by far the most frequent cause of delirium tremens. I, however, only consider the presence of alcoholic molecules, or those of any other diffusible stimulus, carried into the circulation, or the continued stimulus of intense mental application, as the predisposing, but not as the exciting causes of delirium tremens. The immediate cause of this complaint is, generally speaking, as I before stated, the cessation of intemperance in the use or application of these stimuli.

The able reviewer of Dr. Höegh Gulberg's work, in the sixth vol. of the Brit. and For. Medical Review, page 323, says, "When discussing the remote causes, Dr. G. had omitted the by no means unimportant questions, whether a protracted course of immoderate drinking is always essential to the production of the disease; and whether, as many suppose, there must be a suspension in the use of ardent spirits immediately preceding the attack?" In reply to the first question, I would say, that the longer the indulgence in the predisposing cause has been continued, the more likely is the disease to follow the immediate or occasional cause, but that it is not always necessary that the course should be long protracted, as a great deal depends in this, as well as in all other disorders, on idiosyncrasy. I have likewise remarked that, when once that state of constitution is established, by a long continued indulgence in the abuse of diffusible stimuli, which renders the individual susceptible of having delirium tremens, and which state I have termed the ebriositatic diathesis, it becomes uncertain how long the constitution may continue to retain that susceptibility, even after the person may have resumed the most temperate habits. In such constitutions, I have seen the disease follow in two or three days after one hard bout of drinking, although intemperance had been abandoned months before: but, it is my opinion that, had the ebriositatic diathesis not

been previously established, one debauch would not have been sufficient to act as the apparent predisposing cause to it.

To establish the ebriositatic diathesis, it is not necessary that the individual should ever drink to intoxication, taking regularly, and daily, as much as the head can bear, short of that state, by which one may screw up the system, so as to be able to endure a very large portion of stimulus, without inebriation, which is the almost constant condition of many brewers, distillers, and publicans, in whom the predisposition to delirium tremens becomes so fully established, that any sudden cessation, or even a material diminution in the quantity of drink daily taken, will, in due time, be followed by the nervous paroxysm. This will explain why Dr. Barkhausen saw the disease in persons who never had been intoxicated. The second question will be found so often answered in the course of this work, that I shall not entertain it at present.

The proximate cause of this disease must, of course, vary according to its different stages; thus, in the first, it will be found to be indirect debility of the nervous system, in which the arterial system sympathises; in the second stage, re-action, or a morbid increase of action in the same powers, but more particularly in the nervous system; and in the third, or last stage, a general relaxation of both, evinced by profound sleep.

It appears immaterial what form of disease or accident immediately precedes the malady under consideration ; the nervous disorder, when it supervenes, is always essentially of the same nature, although its symptoms may be modified by the state of the constitution in which it occurs.

When this disease terminates fatally, it does not seem to me to be owing to venous congestion, as the late much to be lamented Dr. Armstrong asserts, in his valuable work, or to inflammation of the brain, as Dr. Clutterbuck maintains, in his Lectures, in the *Lancet*, vol. ii, page 376. I would rather ascribe it to serous effusion within the cranium. Baron Larrey says,* “ Dans les accès de colère, et dans toutes les passions violentes il parâit que les fonctions du systeme absorbant sont suspendues, ce qui fait accumuler instantanément ou pour toujours les fluides dans les cavités sereuses du corps.”

The irritation which obtains during violent delirium, must be equivalent to violent passions, and consequently may produce the same effect. Dissection, as far as my experience goes, bears me out in this opinion. The fatal case which occurred during the year alluded to in the annexed table, afforded strong proof of the correctness of my assertion ; and every post mortem examination that I have

* Vide *Journal Complimentaire du Dictionnaire des Sciences Medicales*, troisieme Observation, Mai, 1820.

since witnessed in cases of pure delirium tremens, tended to confirm me in these sentiments. Mr. Home, lately surgeon to the eighty-fifth regiment, then attached to the hospital staff, who assisted me in the dissection above alluded to, drew up the following report:—

“ On bringing the surface of the brain into view, it did not exhibit any marks of recent inflammatory action, and, with the exception of a small quantity of coagulable lymph, which, on removing the dura mater, was found thrown out between that coat and the tunica arachnoidea, appeared otherwise healthy.

“ All the ventricles contained a considerable quantity of serous fluid, but more especially the two lateral, which were very much distended.

“ The choroid plexus showed no marks of turgescence. The contents of the thorax and abdomen presented a natural appearance. The liver was small sized, but healthy in its parenchyma.”

Cases are, however, on record, which were attended with feverish delirium, in which no effusion was observable; on the contrary, in one instance, Sir A. Cooper and Dr. J. Johnson found the brain presenting an appearance as if it was dried up. It should also be borne in mind, that persons labouring under structural disease of the brain, are not exempt from delirium tremens, should they

indulge in the necessary causes of this affection, in which case the result of old disease would be found after death, and might be looked upon by some as a cause of delirium tremens.

The diagnosis, in this disease, is not difficult, if attention be paid to the symptoms already detailed, which, taken as a whole, do not resemble those of any other disorder, and will immediately distinguish it from the delirium attendant on phrenitis, typhus, &c. There may, however, it has been thought, be some little doubt, at least for a short time, on the minds of those unaccustomed to meet with cases of this kind, in distinguishing them from mania.

A very remarkable instance of a mistake of this kind occurred not long since, in one of the London hospitals, when an old practitioner, of great respectability, actually gave a certificate of insanity, in order to have a patient labouring under delirium tremens removed to a lunatic asylum; such a precaution may be thought necessary with a view to prevent the disturbance of other patients; but those who are thoroughly acquainted with the stages which this disease follows, would have the case removed to a private room, under the care of an orderly, and treated there during its comparatively short course.

Dr. Armstrong mentions two cases which assumed the character of confirmed madness, in consequence of which he says, "there can be no question but this disorder may identify itself with true

mania, in particular subjects." I have never, in any of the numerous cases I have seen, observed this to follow an attack of pure delirium tremens; but, as I already mentioned, I have witnessed temporary paralysis and fatuity ensue, apparently from partial effusion on the brain: I therefore see no reason why such a condition of the cerebral vessels and parenchyma might not be induced, during a severe attack of this disorder, as is necessary to the production of true mania, or even any other affection depending on structural or functional derangement of the brain; but then it becomes quite another complaint, and should no longer be treated as the one under consideration.

Delirium tremens may occasionally supervene during the puerperal state, and hence might be mistaken by inexperienced persons for puerperal mania; but a due attention to the stages which it observes, as well as to the investigation of the previous habits of the patient, will generally enable the physician to distinguish between these diseases, which, in my mind, are very nearly allied to each other in their nature, inasmuch as they are both examples of true nervous delirium, and each caused by the sudden privation of habitual* stimuli. It might even so happen that both disorders should be manifested successively in the same subject, a circumstance

* See a paper on the cause of Puerperal Mania, in Dr. Ryan's Medical and Surgical Journal for February, 1830.

which would, in all probability lead those who were not aware of the possibility of such an occurrence, to regard them as one and the same disease.

As a mark of distinction in the alienation attendant on delirium tremens, it is said that its delusions are generally accompanied with a sense of fear, and are on the subject of the patient's private affairs, or relating to his occupation or station in life; but this I have not always observed to be the case, though it generally is so; besides, it is well known, that in mania the mental aberrations might be on the same subject. Mania likewise is generally preceded by a state of incubation, indicated by premonitory symptoms, which, in most instances, last days, and even weeks or months, before the complete manifestation of this affection; and although these precursory symptoms may, in some degree, resemble the first stage of delirium tremens, they are rarely of such short duration, nor do they manifest such a sudden state of general enervation.

Perhaps we should arrive 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 exasperated by such influence.

The celebrated Darwin, in his *Zoonomia*, speaks of delirium ebriosum,* which, from the name, is also liable to be confounded with the disease under consideration. But on investigation, it will appear that he only alludes to the delirium which *immediately* follows indulgence to excess in spirituous liquors; this affection, therefore, is easily distinguished, and requires a very different mode of treatment from the delirium which does not come on until a given time after the cessation of intemperate habits. The Doctor, however, judiciously warns us against an attempt to relieve it by general blood-letting, having been well aware of the indirect debility consequent to this state, and of the increased danger likely to follow a plan of general evacuation.

* The delirium a potu continuo of Jackson.

Dr. Copeland claims the credit of dividing delirium tremens into two kinds, the first from excited vascular action, and the other from exhaustion; he disputes with Drs. Elliottson and Roots the honour of this division (see page 318 of the *Lancet*, for 1835 36); but I think that by the above, which was written in the first edition of this work, it will be seen that Dr. Darwin was not ignorant of the *immediate effects* of indulgence in spirits; I also object to this affection being made a species of delirium tremens, as they do not even belong to the same class.

There was a man in the light company of the fifth regiment, named John Holding, who has since been discharged from the service under peculiar circumstances. He was an habitual tippler, and whenever he exceeded his usual allowance, which was tolerably often, he was instantly attacked with furious delirium, or what Dr. Darwin terms delirium ebriosum; and which, if not cautiously treated, was followed by a consequent state of exhaustion, and in due time by all the stages of delirium tremens.

This peculiar idiosyncrasy of constitution, by presenting both diseases successively in the one subject, serves to point out clearly the difference which exists between the delirium consequent to the *immediate effects* of spirits, or other diffusible stimuli, called delirium ebrietatis or ebriosum, or *ā potu continuo*, and that which succeeds in one, two, three, or more days, as the consequence of *suddenly* desisting from the *habitual* abuse of any of the diffusible stimuli, and which, in contradistinction, I termed *erethismus ebriositatis*, *delirium ebriositatis*, *delirium tremens*, or *delirium ā potu intermisso*.

Since the first edition of this work appeared, I have had an opportunity of reading in the London Medical and Surgical Journal for 1833, page 778, the clinical lectures of Dr. Stokes, which were delivered at the Meath hospital, Dublin, in the session of 1832-33. This gentleman says, "It would

appear that, in cases of delirium tremens, much benefit has been obtained from the administration of stimulants, and on this an erroneous practice has been founded; all cases are considered alike, and all treated in the same way; my experience, with regard to the treatment of delirium tremens, is as follows:—

“ I divide all forms of the disease into two classes, one in which the delirium is the result of an immense debauch; another, in which the patient has been in the habit of using ardent spirits in quantities, and has suddenly given up their use. In the former case the disease appears to be the result of excess; in the latter, of a want of the customary stimulus. It is a common custom for persons in this country, particularly in the lower classes of life, to take a periodic fit of drinking, or as the phrase describes it, *to be for drinking*. They continue for perhaps a fortnight, in a state of constant intoxication, and get delirium tremens from excessive stimulation. Another cause is this: a person, who is in the habit of taking a great quantity of whiskey punch every day, happens to meet with an accident; he gets, suppose a broken leg; he is debarred from the use of his usual stimulus, and the consequence is delirium tremens. Now when a person happens to have an attack of this kind, from a deficiency of his customary stimulus, the exhibition of wine, brandy, or whiskey, is certainly productive of be-

nefit; but when it arises from excess, are we to continue the use of stimulants? Certainly not. In a case of the former kind we derive very great advantage from the use of stimulants; we cure our patients principally by means of opium, brandy, and wine; but I must confess, on the other hand, that I have never seen a case of excessive stimulation benefitted by such a plan of treatment; nay more, I have seen many patients, who have been treated in this way, die with symptoms of inflammation of the brain or stomach, and have found the diagnosis afterwards verified by dissection. In all cases where delirium tremens has been the result of excessive stimulation, we have found in this hospital, that the most decided advantage has resulted from an opposite mode of treatment, and that we were able to effect a cure by keeping our patient on a strict antiphlogistic diet, and applying leeches to the epigastrium, followed by an opiate. You are aware that Broussais first announced the doctrine, that delirium tremens was only an acute gastritis. This, I believe, is not true; but in a great many instances, I believe there is a good deal of gastric irritation, and that much good may be done by relieving it. In some cases, which have been treated in this hospital, we have succeeded in immediately bringing on sleep, in removing the tremors, and mental aberration, in fact, in restoring the patient to a state of health, by the application of leeches to the epigas-

trium, without any other treatment. If a patient be in a state of excessive stimulation, you can easily conceive what organs are most likely to be affected, and you can pathologically explain the injury done by the use of stimulants. The rule I have laid down for myself is this,—where the disease proceeds from a deficiency of stimulus, give wine, brandy, opium, &c. ; but where the stimulation has been excessive, apply leeches to the epigastrium and head, and if the disease still continues, then you may have recourse to the opiate treatment.”

I feel great satisfaction in having it in my power to quote thus from Dr. Wm. Stokes' lectures on this subject, because the treatment he recommends is founded on the same principles as those propounded in the first edition of this essay, a fact which is highly gratifying to me, as I am aware of the value of such an authority. I however must, with every deference, beg leave to differ with the Doctor on the propriety of his division of delirium tremens into two classes, such an arrangement being, in my mind, likely to mislead the inexperienced in the treatment of these affections. I prefer regarding them as distinct and opposite diseases, the one being the *immediate* consequence of intemperance, the other arising from the sudden cessation of accustomed intemperate stimulation—the one requiring the cautious use of depletion, the other the administration of stimuli—the one belonging to

the class phlegmasiæ, the other to that of neuroses, as I have endeavoured to explain in another part of this work.

Delirium ebriosum, or the first affection, is rarely the effect of a fit of drinking *which has lasted a fortnight* or more, as the Doctor would lead us to suppose; in such a case the stomach would at length become irritable, and oblige the individual to cease his intemperate habits, the consequence of which would be the supervention of a state of extreme exhaustion, or the first stage of delirium tremens, which inevitably follows the sudden cessation of long accustomed stimulation. Delirium ebriosum is the direct or immediate consequence of stimulation, induced by "an immense debauch," generally of but one or two days' duration, and, according to my experience, occurs rarely but in a subject possessing that peculiar idiosyncrasy of constitution which is necessary to its production; nor must we permit ourselves to be led away in our opinions by the success which may be attendant on very moderate depletion, such as the application of leeches to the epigastrium, *followed by an opiate*, as such treatment would prove successful in many mild cases of true delirium tremens.

It is truly surprising how men of established reputation will sometimes confound other affections of the brain with delirium tremens. Dr. Roots, in a lecture delivered at St. Thomas's Hospital, and

reported in the *Lancet* of the 31st October, 1835, page 165, gives the case of a man who had been subject to *fits for twenty years*, from which he was even paralytic of the right leg, and who, after having been in difficult circumstances from poverty, which had acted much on his mind, on the 6th of August, three days previous to admission into hospital, drank a bottle of wine, on the next day he did not appear to his friends to be perfectly rational, and on the day after he *fell down in a fit*, from which time he had delirium. The face was flushed, the pulse quick and jirking, and in fact, he manifested all the symptoms of determination to the head, for which he was duly treated by bleeding locally and generally, opium, mercury, &c. He continued under treatment until the 1st of *October*, when he was discharged perfectly rational.

The Doctor, because there was some tremor of the tongue and hands in this *old affection* of the brain (and how few affections of the brain exist without more or less tremor of the extremities), proposes in his lecture to divide delirium tremens into two species, one arising from exhaustion, the other from irritation of the brain, accompanied by more or less of inflammation or conjection. If an insane person, affected with the species of general paralysis peculiar to that class of patients, happened to have taken a bottle of wine previous to the Doctor's visit to him, I suppose he would, on the

same principle, set him down as affected with his second species of delirium tremens, because in all probability he would discover that tremor of the tongue and hands accompanied mental alienation.

I have more than once witnessed a very different kind of immediate effect from the one just described, as having followed the immoderate use of ardent spirits : in one instance it occurred to a prisoner of war in France ; the nervous power and irritability of the stomach were so much destroyed by the large quantity he swallowed, that emetics alone were not productive of vomiting until aided by cautious and sparing venesection, to relieve the sanguineous pressure on the brain, and the stimulus of large and repeated doses of æther taken into the stomach. The state of this patient bore so strong a resemblance to that exhibited in apoplexia, that it might with propriety be termed *apoplexia ebriosa*.

All persons who die suddenly, from the effects of immoderate quantities of spirits, are affected in this way.

Emetics of the sulphate of zinc, assisted by the administration of antispasmodics and stimulants, such as æther, camphor mixture, coffee, &c. with the application of cold to the head, while the surface of the body and extremities are sponged with tepid water, are the most probable means of affording relief in this particular state. Whenever local or general bleeding is found indispensable, it should only

be employed with a view to relieve congestion, and care should be taken that it be not pushed so far as to increase debility materially, lest the patient should sink under it, or that an attack of delirium tremens should be induced.

Some difficulty will be experienced in forming a just prognosis in this disease, it being so very insidious in its effects ; in giving it, we must, of course, be guided by the constitution and habits of the patient, and the nature of any prevailing epidemic, as well as by the violence of the symptoms with which he is affected. In a worn-out and diseased habit, much addicted to the abuse of spirituous liquors or diffusible stimuli of any sort, and one that has, perhaps, suffered frequent attacks of this disease, more is to be feared, particularly should any typhoid epidemic be prevalent, as, under these circumstances, the indirect debility or exhaustion may be such as to require an effort which would be too great for the depressed and worn-out nervous system to support, in its endeavours to restore order. On the contrary, in a young and healthy subject, this disease is seldom fatal when properly treated ; but in either case we should be considerably assisted in forming our opinion by attention to the favourable or unfavourable symptoms detailed in the course of this essay.

The state of the pulse, though not always an infallible guide in disease, has been to me a comparatively sure one in this complaint, as when its

frequency did not exceed* one hundred strokes in a minute, I looked on the patient, generally speaking, as safe ; but on the contrary, when from its rapidity, and the tremor of the hands it could scarcely be counted, I considered him in imminent danger.

In the method of cure, I would recommend that the most particular attention should be paid to the various stages of this complaint ; and as in each a very different series of symptoms exists, so I would suggest a consequent modification in the plan of treatment. The age, temperament, habits, and integrity of the constitution of the patient, as well as the nature, or type, of any accompanying disease or accident, become all necessary objects for our consideration ; very great care should likewise be

* Dr. Ryan says, in page 233 of his valuable Journal, for September, 1829, " Mr. Blake thinks the prognosis unfavourable when the pulse exceeds one hundred, but my experience enables me to form an opposite opinion."—Now I refer to what I have said above, which is an exact copy of the paper I published on this subject, and from which the Doctor quotes, to enable my reader to judge of the propriety of his assertion: saying that when the pulse does not exceed one hundred, I looked on the patient, generally speaking, as safe, does not authorize the unlimited adoption of the converse of the proposition. I have seen many patients recover when the pulse exceeded one hundred, though, " when from its rapidity, and the tremor of the hands, it could scarcely be counted." My experience led me to consider patients so affected in imminent danger.

taken to soothe all irritation of mind by every moral as well as physical means.

During the first stage much may be done, the disease may even be cut short, and a prevention of the second stage effected under proper management, that is, by attending sufficiently to the precept, “*venienti occurrere morbo;*” thus, if slight gastric derangement be present, attended with nausea and occasional vomiting, I have found effervescent draughts, in which there were ten drops of laudanum, administered every second hour, with emollient, and if necessary* anodyne enemata, very efficacious. In the intermediate hour I have been in the habit of giving an ounce of rum with a little warm water and sugar, and of prescribing the warm bath, or tepid affusion, or even the cold affusion, according to the strength of the patient, and the probability of the production of reaction; thus, in a young and healthy subject, I would have recourse to the cold affusion, and “*vice versa;*” but if in this stage the warm bath should be preferred, it ought not to be of a temperature high enough to induce debilitating effects.

I would recommend that anodyne frictions be at

* Reference to my paper, published in the Medical and Surgical Journal for October, 1823, will show that I have not copied this practice, I mean the administration of anodyne enemata, from Baron Dupuytren's publication, which appeared some years later than mine.

the same time made on the epigastrium, and that the head should be shaved and well rubbed with strong volatile liniment, so as gently to stimulate the surface of the scalp: a blister to the nape of the neck is also of advantage in assisting to excite action in the immediate vicinity of the brain.

Some American physicians recommend emetics in this disease, but as they appear ignorant of the stages it observes, they cannot be expected to point out the proper period for their administration; for my own part, I would not, even in its second stage, risk giving one more permanent in its action than the sulphate of zinc, as I should fear its debilitating effects, more particularly those arising from tartar emetic.

While on the subject of emetics in the treatment of delirium tremens, it may not be uninteresting to observe, that as far back as the year 1778, Stoll recommended their administration in delirium, although late writers, both in this country and America, have claimed for themselves the merit of having introduced this practice. Professor Forget, of Strasburg, has published four cases, which he considers to have been of delirium tremens, in the *Bulletin General de Therapeutique*, from which they have been translated into the *Medico-Chirurgical Review* for 1839, page 269. I am not, however, convinced that any of these cases exhibited the symptoms of true delirium tremens, or mania *à potu*

intermisso. The subject of the first case does not appear to have been addicted to intemperance. The second was probably a case of delirium ebriosum, or mania ā potu continuo, increased by the effects of having been heated from over-running. The third case, although it appears to have occurred to a person habituated to drinking, is not more satisfactory, as the shivering, head-ach, frequent vomiting, and convulsions which attended it, are not the usual symptoms of this disorder. These three cases were treated by Stoll, himself. Professor Forget gives a fourth, which came under his own care, and in which he also administered opium, as well as emetics, and it was equally accompanied by the “most severe epileptiform convulsions;” on the whole, the Professor does not seem to me to be aware of the peculiar symptoms characteristic of true delirium tremens. These cases, however, are valuable, as Dr. James Johnson justly remarks, inasmuch as they prove the inutility of sanguineous depletion under similar circumstances.

But to return. In the event of the stomach being retentive, and not at all affected with nausea, I gave an ounce and a half of the camphor mixture with twenty or thirty drops of æther, and ten of the tinctura opii, in lieu of the effervescent draughts; and when the appetite allowed it, I permitted soup, arrow root, sago, or any other mild nourishment, to be taken in moderate quantities; but the stomach

was in general so weak as not to call for any thing more than what was given in the way of medicine. My reason for ordering rum in preference to any other stimulating liquor, was that the patients who were under my care were accustomed to that spirit; to patients of a different sphere in life I would allow wine, ale, or porter, &c., as the circumstances might indicate.

The first stage of delirium tremens is evinced by general enervation of the system; hence the habitual stimulus is recommended, but irritation being the attendant of enervation, appropriate doses of opium are successfully conjoined.

The late Dr. Gregory, in the last edition of his *Elements of the Theory and Practice of Physic*, says, in speaking of the treatment of delirium tremens, "Where the complaint can be traced distinctly to the excessive use of spirits, the accustomed stimulus must not be too rapidly withdrawn." I quote this paragraph, not with a view to differ from the Doctor in the view he has taken of the treatment of this disease, as far as regards the administration of the accustomed stimulus, but lest it might tend to mislead as to the immediate cause of the disorder, which is the sudden cessation of intemperate habits. Now, saying the accustomed stimulus must not be too rapidly withdrawn, would imply that the disease arose while the intemperate habits were persevered in, which is the reverse of my ex-

perience on the subject, and is, in my mind, calculated to give origin to fallacious notions regarding it.

When constipation prevailed, I found a drop or two of the croton oil a most useful medicine; 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.

At this particular stage, or that of exhaustion, I would not have recourse to large doses of opium, as is indiscriminately recommended by some authors, and more particularly by Dr. Coates, of Philadelphia, in a memoir he published on the subject, in the North American Medical and Surgical Journal, extracts from which will be found in the periscope of Dr. Johnson's Review.*

Dr. Coates, like other authors on this subject, has not attended to the different stages of this complaint. In his second conclusion he says, "It consists in a heightened activity of the sensorium; and this appears to arise from the generation in that organ of an unusual vital power, which is not, as in common, exhausted by the narcotic poisons habitually used; this is not considered as an hypothesis, but the expression of a fact existing in nature." The Doctor has here described pretty nearly, the second stage of the disorder, but not the first, in which the power

* Vide fasciculus 2, No. 16, for January, 1828, p. 457.

of the sensorium is depressed instead of being heightened. The enormous doses of opium which he found successful, although they would be injurious in the first stage, might have been applicable in certain cases to the state he describes.

Dr. Coates says, that "the patient must sleep or die, there is no alternative, yet the physician should personally watch the effect of very large doses of opium." Dr. Samuel Jackson, of Philadelphia, is an advocate for the same mode of treatment. Dr. Ward, of Boston, however, differs with both these gentlemen, and gives his experience of the effects of large doses of opium, in eight cases of this disease, in elucidation of his opinions. 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; we must not be led away by the success of a remedy in individual cases; examples of this disease occasionally occur, in which almost any remedy will prove successful, but we are not to be encouraged by rare occurrences, as, should we allow ourselves to be so, we shall often have to regret our misplaced confidence.

I feel much indebted to Mr. Watts, a surgeon of considerable standing and respectability in this town, for the following cases, as they will convey to the reader that gentleman's opinion concerning the administration of large doses of opium in this disease. They are likewise valuable, as they show that the effects of delirium tremens may be such as to induce in the brain a susceptibility afterwards, to the production of delusions upon taking even a small quantity of spirits.

“ At three A.M. on the 10th October, I was called to attend Mr. W. aged about 42 years, who had been drinking for the last three weeks. I found him labouring under a severe attack of delirium tremens; he had not slept for the last eleven nights, only dosing for about a quarter of an hour the first four or five nights—he was very violent, breaking every thing in his room. I immediately administered to him $2\frac{1}{2}$ grains of the acetate of morphia; in the course of an hour he became tranquil; if spoken to by his wife he became again violent—if the conversation was upon ordinary matters, and addressed by myself, he spoke calm and rationally; between the hours of four A. M. and ten A. M. he took 12 grs. of acetate of morphia in divided doses, as there had been no disposition to sleep, but occasionally rambled; at three P. M. he went to bed and slept for two hours; when he awoke, every unpleasant symptom had disappeared; during the day he had taken

three half pints of ale, his usual drink, and occasionally a small quantity of rum. In the evening I ordered the following pills :—

℞. Ext. Colocynth, C. ℥ij.
 Pulv. Opii, gr. vj.
 Ol. Croton, gutt. ij. m.
 et divid. in pilulas xij. quarum capt. ij. 3tia. quaque hor. donec
 catharsis supervent.

He took two of them, and retired again to bed at eight P. M. and slept till nine the following morning, when his bowels were freely moved, and he was perfectly free from every symptom of disease.

“ After a debauch of nine days, he was again attacked on the 20th of November, when I was requested to visit him. I administered directly $1\frac{1}{2}$ gr. of morph. acet. but as he was very restless, and expressed his determination to accompany me home, as he wished to be protected from persons who he thought would injure him, at eight P. M. I gave him 4 grs. of morph. acet.; in two hours it was repeated; at half past eleven 4 grs. more were given—in half an hour he went to sleep, and slept for two hours. When I awoke him and took him home, he had then lost all fear of any one injuring him; when he got home he directly went to bed, and slept till eight in the morning, when his bowels were opened with pills as in the former attack—although he had slept well, the idea of imaginary injury returned, and he was determined to leave

home, which he did about one P. M. and walked about eight miles, where he stayed all night, having had a glass of rum and water ; he scarcely slept. In the morning he got upon the coach, and went about twelve miles further—he remained from home five days, and during this period he had but little sleep ; the fear of injury still continued. On his return home, in consequence of his having some tenderness in the epigastric region, I ordered him small doses of pil. hydr. which quickly produced severe ptyalism, and continued for three weeks ; this had the effect of removing his fears ; he speedily regained his usual state of health, but even more than two months afterwards, upon taking only a small quantity of drink, his delusion returns, and I have little doubt he will eventually become maniacal.”

REMARKS.—“ From this and many other cases of delirium tremens which I have treated, I am fully satisfied of the impropriety of giving large doses of opium. I am of opinion, that at the commencement a full dose of opium should be given, and followed up by small stimulating doses until sleep is procured ; by this method the brain is more quickly brought to a healthy action, and there is not that risk of apoplexy which is liable to be induced by large doses.”

Mr. Watts’s prediction has been since realised, his patient was received into the Nottingham Asy-

lum, where he became gradually weaned from his habits of drinking, and has been brought to teetotalism, soon after he was discharged apparently well.

In the preceding pages I mentioned that Dr. Armstrong stated having seen two cases of delirium tremens, which assumed the character of true mania, an occurrence which I had not then witnessed; I have, however, within the last few years, in my capacity of Physician to the Nottingham Lunatic Asylum, treated many cases of insanity brought on by intemperance, particularly in persons predisposed to that affection by hereditary taint. One case which came under my notice was particularly interesting; the subject of it is an extremely well disposed and intelligent person, but one highly predisposed to insanity. Intoxication in his case is almost immediately accompanied by a violent attack of delirium ebriosum, during which, the suicidal tendency develops itself so strongly, that he instantly attempts to destroy himself, indeed he has succeeded in suspending himself, and has been saved on four or five occasions, by the providential discovery of his lamentable situation. For a considerable time after such an occurrence, often for months, he continues to suffer from extreme depression of spirits, attended with hallucinations prompting him to suicide, but which he has always been enabled to conquer, except when under the excite-

ment of inebriation. This individual has since become a teetotaller, and continues quite well.

A female, who had been a nurse in the Asylum, evinced, under similar circumstances, the same unfortunate disposition, which was followed by long continued melancholia. These two cases were examples of the direct influence of stimulation, without presenting any resemblance to the stages characteristic of true delirium tremens; but it ought not to surprise us if similar effects followed that disease, as it is quite possible that morbid changes may be induced in the brain, during the height of a paroxysm of this disorder, which might induce temporary or even permanent delusions, particularly in persons predisposed to insanity. Such symptoms of more or less *permanent* mental aberration, do not, however, belong to this disease, although they may be excited by it, in the same way that scrophula may be called into action by the effects of small pox, measles, &c. and continue after these affections shall have gone through their usual courses.

When treating of the method of cure in the height of the second stage of this disease, I recommended, in the paper already alluded to, the administration of "full doses of opium;" but I should be sorry to try such means during the primary stage, or that attended by the exhaustion which succeeds to the deprivation of long accustomed

stimuli. How different was Baron Dupuytren's practice ; he directed a few drops of laudanum to be administered in an enema, which he says was generally successful. Perhaps we might reconcile the favourable results of such discrepance in practice by taking it for granted, that the sisters of charity, in the wards of the Hotel Dieu, are so attentive and experienced, as to detect the disease, either during its first stage or at the commencement of the second, while Drs. Coates and Jackson only saw it when the second stage was fully formed ; hence the propriety of the division into, and the necessity of attending to, the different stages of this complaint, with a view to the application of appropriate remedial means, according to the nature of each of them.

It is likewise very probable that the efficacy of Dupuytren's mild practice arose more from its being applicable to the early stage of the disease in which it was used, than that it should have been owing, as the Baron thought, " to the absence of digestive powers in the rectum, when compared to those of the stomach, and the absorption thereby of the medicine unaltered into the system." It is well known that three or four times as much opium can be given in the form of an enema as by the mouth, even in perfect health ; consequently ten, fifteen, or twenty drops, the quantity ordered in the former way, could be productive of but little effect on the sys-

tem at large, more particularly if used in the more advanced stage of the complaint; neither would I recommend, either from experience or theory, the exclusive use of stimulating or spirituous liquors, as has been proposed for the cure of this disorder, by Dr. Michael Ryan.*

I am quite aware that cases may occur in which the habitual stimulus of the patient may be sufficient to bring him through the disease; nay, there may be some so mild as to yield to the unassisted efforts of nature, but such cases are not commonly met with, and consequently ought not, as I before stated, to influence our general practice. Dr. Jackson's eighth axiom † is, "That mild cases have often been cured by various means, which fact has been the cause of many errors; that the worst cases are incurable without opium or spirits in enormous doses." Doctor Ryan says, "In one of the cases which has fallen under my care, a quantity of opium, equal to 960 minims, was exhibited in seventy-eight hours without any effect, and tranquillity, sleep, and health were restored by the administration of the usual stimulus." This statement is very plausible at first sight; but I think it very probable,

* Vide page 791, No. 264, vol. ii, of the *Lancet*, for September 20th, 1828, and the numbers of the *London Medical and Surgical Journal* for September and October, 1829.

† *Medico-Chirurgical Review* for October, 1839, page 500.

from the duration of the disease, seventy-eight hours, previous to the administration of the usual stimulus, that sleep was on the eve of supervening, and would have soon come on without its aid; I therefore cannot look upon it as a conclusive example of the efficiency of the exclusive use of spirituous liquors as a remedy in this disorder.

Digitalis has been recommended by Dr. Clep, of Wurtemberg, in this disorder; he administered it in thirteen cases, all of which were cured by it, but he states that two of them relapsed. *I* never saw a case of relapse after the cure of delirium tremens. In my opinion, such an event cannot take place; to re-produce the disease the patient must be exposed afresh to its causes. The Doctor gave a spoonful of the strong infusion every two hours, until narcotism appeared or recovery ensued.* Belladonna, and other medicines of the same class, have also been proposed as a substitute for opium, and have enjoyed an ephemeral reputation; but from the theory which I have laid down in this disease, I should fear their effects might be more than the system could endure.

A case of furious delirium successfully treated by mercury, together with local and general blood-letting, is related in the periscope of Dr. James Johnson's Journal, fascic. iii, page 503, for February 9th, 1828. From the duration of the delirium,

* Medical Gazette for August, 1835, p. 768.

and the peculiar symptoms detailed in this case, as well as the opinion expressed by Dr. Johnson, in his judicious remarks on it, I think few will have any hesitation in regarding it as a well-marked example of delirium tremens; yet I would not, because a young and healthy countryman survived this disease under such treatment, recommend its general adoption, knowing, as I do, what must be the issue, were it employed in constitutions such as are most generally a prey to this affection.

The success which practitioners may have observed to follow the administration of cordials, and the cautious, but steady perseverance in the use of diffusible stimuli, with suitable nourishment, in cases of delirium arising from hunger, excessive uterine hæmorrhage, typhus, &c., ought not to be a guide for us in the treatment of delirium tremens. These affections, though they may all, under certain circumstances, be relieved by similar means, are yet essentially different in their nature from the disease in question; delirium tremens alone assumes the regular paroxysmal form, which it manifests by the succession of stages through which it goes.

My object at this period, or in the first stage of delirium tremens, would be to raise the lowered scale of the nervous power, not by overwhelming it with large doses, but by the gradual effect of the administration of diffusible stimuli, aided by opium, or preparations of morphia, in quantities calculated

to allay irritation, without at the same time increasing debility. The means here mentioned should be persisted in, with modifications as the symptoms increase or diminish, and with a view to the general principles already laid down ; which, if properly attended to, will, in many cases, cut short the disease, by averting the second stage and inducing sleep, in the same way as the warm bath, on one principle, and bleeding* on another, used during the cold stage of ague, may either bring on the sweating, and thus prevent the accession of the hot stage, or by relieving congestion, prevent the supervention of either, and thereby at once shorten the paroxysm. I have witnessed the happy result of this mode of practice, in several instances, at the commencement of this disease ; among many, I shall here take notice of one which appeared singular, from the symptoms of the disease having followed almost immediately the primary effects of habitual intemperance. This patient, a general hard liver, and a musician of the fifth regiment, had been drinking very freely for three days, and had been in a state of intoxication every night during that period ; on the morning following the third night's debauch, he walked down with the regiment to bathe ; the distance from the fort where

* See the late Dr. Mackintosh's Remarks on the effects of Blood letting in the cold stage of Intermittent Fever.—Edinburgh Medical and Surgical Journal, April 1827.

he was quartered in St. Vincent's, to the sea, is about one mile of rapid descent. On his return he came to hospital, and stated, that, in coming out of the water, he was seized with rigors, and felt very weak, and that he then suffered from pain in the loins, with cramp in the calves of the legs; the pulse was exceedingly slow—the temperature of the surface low, particularly of the hands and feet; the stomach was slightly irritable, and the tongue and hands in a constant state of tremor. Towards evening a tendency to mental alienation succeeded; but by following the plan of treatment just now recommended during the first night, he was considerably relieved, and had no return of it afterwards.

I mention this case, as well to show the good effects of immediate and appropriate treatment, as to give an example where the disease, which under ordinary circumstances, would not perhaps have come on in less than two or three days from the moment of leaving off the use of the accustomed stimulus, was brought on in less than twelve hours, owing to the sudden depression of the nervous energy which succeeded the immersion of the body in cold water, the system having been too much exhausted to allow of its being capable of the least arterial reaction. This depression would have been equally induced by the bleeding, purging, or low diet suddenly adopted in consequence of any accident or indisposition arising from ordinary causes.

The circumstances of the case just alluded to would lead me to speak of the effects of indiscriminate bathing in the West Indies, where intemperance is almost inevitable amongst soldiers; but, as that would be foreign to my present purpose, I shall only say, I have always been of opinion, that when the sea is at any considerable distance from the barracks, such a practice is attended with more harm than good; and that, as the residence of a regiment becomes prolonged in a tropical climate, the bad effects arising from it must increase in the same ratio. But to return from this digression, and conclude the consideration of the treatment of the first stage of this disease, I would recommend that it should consist of the stimulo-narcotic plan, such as has been already described; it being, in my opinion, the only philosophical mode to be adopted during its continuance.

The practice of depletion, or the administration of opium or spirits in large quantities would be equally injurious: the former acts by inducing direct, and the latter indirect debility, either of which states would only tend to increase the symptoms already pointed out, and consequently be likely to induce greater reaction, and more distressing efforts in the sensorium and nervous system in general, during the succeeding stages of this complaint, should there be stamina remaining sufficient to support them.

If, after all our efforts to avert the second stage, or that of nervous reaction, the disorder should pursue its course, we must not be discouraged, but then act on the principles generally recommended, namely, the gradual administration of full doses of opium; taking care at the same time, to support the efforts of the system by the assistance of diffusible stimuli and antispasmodics, such as brandy, rum, wine, porter, and camphor or musk mixture, with æther, as directed in the first stage, varying, however, their administration according to circumstances. The combination of diffusible stimuli and antispasmodics with large doses of anodynes is essential in preventing the sudden supervention of that stupor or state of narcotism which is sometimes the consequence of their unguarded administration. To these means I have been in the habit of adding calomel and Dover's powder, say two grains of the former, and six of the latter, every two hours, until the system became affected, or the disease yielded. Mercury may have been of service here indirectly, owing to its deobstruent and equalizing effects, as well on the circulation in general, as on the secretions.

The warm bath should also be prescribed with the same views, but particularly to soothe nervous irritation, and favour an equal distribution of the circulating fluids, by exciting general perspiration, during the absence of which cold applications ought

to be constantly kept to the head, in order to diminish sensorial action. I have often found that a small stream of cold water allowed to flow from a kettle, and run slowly over the surface of the head, while the patient was in a warm bath, particularly soothing in this stage of the disease; but this requires a good deal of arrangement, in order to prevent the cold water falling on the body.

The state of the bowels ought likewise to be watched, and whether costiveness, or the nature of the egesta, render evacuations necessary, the croton oil * becomes as essential a remedy in this as in the first stage; indeed, I have observed the best effects to arise from procuring, daily, two or three evacuations through the aid of this concentrated and energetic medicine. It appeared, by emulging the hepatic system, to relieve the mental affection without inducing debility; should the oil be productive of much irritability of stomach, it may be administered in proportionate quantity, by friction to the abdomen. We must persist in this mode of general treatment until a favourable change is observed, which will manifest itself by a gradual diminution of all the symptoms and a tendency to sleep. This is sometimes preceded by slight nervous rigors, which are liable to alarm those not

* A drop or two shaken in a small quantity of spirit of wine, and then mixed with a little sugar and water, may be taken without difficulty, and with perfect effect.

acquainted with their nature and consequences. Care should be taken, at this particular approach of crisis, not to interfere too much with the intentions of nature, by over-doses of medicine, particularly of opium ; and I must here mention, that I think, after a fair quantity of that active drug has been administered, we ought to be cautious in giving more, without allowing sufficient time to intervene between the doses ; for, as Dr. Pearson observes, “if they do not succeed at their first operation, they add much to the intellectual confusion, and are fraught with danger.”

It does not appear, from my experience, that there is any advantage to be obtained in attempting to break the chain of morbid concatenation too abruptly, as the stage of mental irritation, when once formed, seems to require a certain time to subside, in proportion, perhaps, to the duration of the stage of exhaustion, to the primary mode of treatment adopted, and to the intensity of the causes of the disorder.

It would be as vain to attempt to cut suddenly short this disease, when its second stage has fairly formed, as it would be to endeavour to arrest, abruptly, the progress of typhus fever at the height of its career. Both affections are equally efforts of nature to re-establish health, and must go through a certain course before that object can be accomplished. All that we can do in either is to mitigate

as much as possible the most urgent symptoms, and at the same time to support the strength of the system, so as to pilot, if I may be allowed the expression, the patient through his disorder, with the least possible risk of any of the principal organs sustaining structural injury.

From the beginning of this stage, our most particular attention ought to be directed to the moral management of the patient, and we must endeavour, by all the means in our power, to gain ascendancy over his mind, without, if possible, having recourse to coercive measures ; in fact, the principles laid down by Messrs. Pinel, Esquirol, and other authors, on the subject of mental alienation, and now followed in all *well regulated asylums*, become particularly applicable to this disease ; but as they are generally known, a recapitulation of them here is not necessary.

I must however once more quote from Sir P. Crampton's lectures on this point. In speaking of the treatment of this interesting malady he says—
“ but useful as opium unquestionably is, I am quite sure that the surgeon performs but a small part of his duty in the management of this disease, if he omits moral treatment. I stated that one of the peculiarities of this disease was the overwhelming sense of terror with which the patient is affected ; another is the unbounded confidence which he reposes in some person who he supposes has the

power to protect him. Instead therefore, of tying the unfortunate being to the bed, or putting on a strait waistcoat, if any person in whom he has confidence will stay by him and soothe him, he will in a short time become perfectly amenable. I saw not long since a young officer suffering from traumatic delirium, or what is, more properly speaking, called delirium tremens; three or four soldiers could with difficulty hold him in the bed; his desire was to make his escape before the sentence of a court martial, which he supposed had condemned him to be publicly flogged in the barrack yard, should be carried into execution. For several hours he never ceased calling for the Colonel, in order that he might implore his intercession to have the punishment exchanged for death. I brought the Colonel, a most kind and sensible man, to his bed side; he took him by the hand, and assured him over and over again, that the whole affair was a mistake, and that he was come to send away the guard that was over him. The soldiers were dismissed, and in a few minutes the young man became perfectly tranquil, and remained so during the whole night. The Colonel never quitted his bed side, indeed he could scarcely do so had he been so inclined, so firmly did the young man hold his grasp. Meantime the Colonel continued with the most persevering kindness, to assure him that there was no charge against him, and towards morn-

ing the patient fell asleep, and awoke free from all delusion. I could give cases without end, in which, by a judicious moral treatment, the wildest excesses of delirium have been controlled, and where a few hours, spent in soothing and tranquillising the sufferer, have succeeded in bringing about the restoration of reason and a refreshing sleep."

When sleep comes on, it may be at first disturbed and accompanied with nervous startings; it is, therefore, to be encouraged by all the means in our power; all noise should be avoided, and in warm climates a mosquito net ought to be let down, so as to preclude any annoyance from insects. Should the patient awake soon, he will often be in a state of alarm and nervous agitation; but, if some warm stimulating drink with a moderate dose of opium be given, and mild and assuring conduct adopted, he will in almost every instance very soon fall into a more profound sleep, from which, through the restorative effects of "nature's soft nurse," he generally awakes perfectly rational, after which we have little more to do than support the strength, and gradually diminish the quantities of stimuli which we have been in the habit of administering, so as to bring the constitution back to a moderate and healthy degree of action.

Preparations of quinine, iron, hop, &c. have been used as adjuvants to opium in the treatment of this disease, but they are found to be particularly

advantageous in what may be termed the after treatment, that is, to restore the vigour of the shattered constitution, when the actual affection has ceased, at which period, when aided by the cold or tepid shower bath, as the stamina might have indicated, they were found of essential service in completing the restoration of health.

Perhaps it may be well to notice here a curious example of this disease terminating favourably, in which that sort of profound sleep, or third stage, was prevented by the supervention of pneumonia. As the irritation arising from the new disease increased, the symptoms of delirium tremens diminished. In this case I found it necessary to bleed freely and blister the chest, and, of course, to modify the administration of stimuli. It would appear that the inflammatory excitement raised in the thorax was sufficient, in this instance, to supersede, or extinguish, the cerebral disorder.

The case here alluded to, occurred in a black military labourer, who was much addicted to drinking. He came to hospital on the 14th January, 1823, with a slight wound on the head, and, having passed through the necessary ordeal of the first stage of this disease, became delirious on the morning of the 18th. The insanity manifested itself in the ordinary way, but it gradually became excessive, during the height of which he made an attempt to kill the cook of the hospital, whom he

wounded severely on the head with a knife, without having received the slightest provocation. Towards the morning of the 19th, he appeared less delirious, but evinced acute symptoms of pneumonia, for which he was bled, blistered, &c. and was discharged from hospital cured on the 31st day of the same month.

The violence exhibited by this patient towards the cook shows that we must not consider all persons affected with delirium tremens as perfectly harmless, and points out the necessity of taking all due precautions to prevent similar occurrences. This case would likewise tend to shew that inflammatory action supervening in this disease, may arrest its progress, while Dr. Jackson, the American author, before quoted, stated, in the summary of his opinions on this disorder, "That delirium tremens often supervenes on a system labouring under acute inflammation, the progress of which it will sooner or later suspend." This would appear inconsistent with the result of the above case, as the same influence which could suspend acute inflammation, when already established, ought, one would imagine, to have prevented its supervention in the case of the black man; we can only reconcile these two opposite facts by supposing that the original affection is superseded in either case by the supervening one, or that the sthenic efforts made by the system, during the presence of inflammatory action,

and the asthenic state attendant on delirium tremens neutralize each other, and that the amalgamation, if I may be permitted to use the expression, of these two conditions, produces a state of constitution incompatible with the existence of one or both of these affections, in proportion to the actual predominance of the sthenic or asthenic condition of the system.

In the year 1834, I attended a case of this disease, in consultation with Mr. Higginbottom, the intelligent and well known author of a valuable treatise on the use and application of the nitrate of silver ; the subject of it was a fat and robust publican, who lived in "an atmosphere charged with alcohol," as some would say, in addition to which he daily indulged very freely in ale and spirits, and had continued to do so for years past ; owing to some slight cause, one of his legs became inflamed, for which Mr. Higginbottom's attendance was requested, the patient was confined to bed in consequence, and deprived of his usual inebriating potations ; in the course of a few days, as might be expected, symptoms of delirium tremens ensued, at which period I was called in. The person was then in a state of general agitation and tremor ; he had not slept for two days, and made frequent attempts to get out of bed, and was almost constantly occupied in drawing the edge of the coverlet rapidly backwards and forwards through his hands.

His delusions were concerning brewing, on which subject he was particularly anxious; he also occasionally fancied that pigs were in a large clock, which stood in his room, and earnestly requested that we would drive them out of it; I suppose that, owing to some acoustic illusion, he took the ticking of the clock for the noise made by these animals. During all this, however, he was most good natured, and answered certain questions rationally, on the moment of being suddenly spoken to. In the course of our treatment, which was according to the stimulo-narcotic plan, with attention to the state of the bowels, &c., an inflammatory attack manifested itself in the chest, for which bleeding from the arm was deemed necessary; this succeeded in arresting the pneumonic symptoms, and by persevering in a due modification of our original plan of treatment, the new affection was cut short, and the patient was soon restored to health. Some months after this we again attended the same patient, but the delirium tremens was then simple and successfully treated in the usual way.

I was called to another case, requiring the use of the lancet, in April, 1837. A person, 37 years of age, of a robust make, a butcher and publican by occupation, had been drinking more freely than usual, during the three weeks preceding my visit. On the previous Saturday, after very great excess, the stomach became irritable, *which obliged him to*

abstain from drink, and apply to Mr. Hawksley, of this town, who prescribed for his urgent symptoms ; the patient was in a low and depressed state of mind, and remained in his room until the Monday following, when, soon after dinner time, he ran down stairs calling vehemently on his wife not to allow him to be taken into custody, for having committed, as he thought, a monstrous and revolting crime. On Wednesday morning, 12th of April, up to which period the usual treatment in such cases was adopted, acute pain of the head came on, attended with quick pulse and intolerance of light, for which Mr. Hawksley bled him, to the extent of sixteen ounces, applied cold to the head, and purged him freely ; the blood was highly buffed, but no permanent benefit was induced : I saw the case in the evening of this day (Wednesday), when, after consultation, he was freely leeches behind the ears, and pills, composed of calomel, aloes, and one grain of the muriate of morphia, were administered ; these means procured three hours' sleep, of which he had been deprived since the previous Saturday. After this he progressively improved under a modification of the stimulo-narcotic treatment, so as to enable me to cease my attendance on the 18th of the same month.

I could mention many other cases of delirium tremens, in which constitutionally local action of an inflammatory nature suddenly made its appearance,

and in which bleeding was found necessary ; but they are exceptions to the general rule, and such combinations do not invalidate the assertion, that true delirium tremens belongs to the class neuroses, and order adynamiaë of Cullen, and that it requires, generally speaking, to be treated on the stimulo-narcotic plan.

Dr. Gregory mentions having witnessed delirium tremens as a sequel, or metastasis, of acute rheumatism. I apprehend, that in such cases, the disease is not the consequence of metastasis, but of its peculiar and immediate cause, the privation of accustomed stimuli, which, joined to the antiphlogistic treatment employed in rheumatism, would, in patients predisposed to delirium tremens by old habits of intemperance, hasten its developement. However, when this disease does supervene, it may supersede, for a time, the rheumatic affection, on the principle of the celebrated Hunter's axiom, that "two diseases cannot exist in the system at the same time," or in the manner already alluded to.

The traumatic delirium, or delirium nervosum of Dupuytren, which is nothing more or less than delirium tremens, succeeds to some wound or fracture in the same way as it does to a rheumatic affection ; yet it cannot be said to be the effect of metastasis, although, were it possible that the wound or fracture was the mere effect of what Burns calls "sympathy of equilibrium," set up to relieve some func-

tional derangement, as gout or rheumatism might be, either might be superseded on the same principle by the more violent disease in question.

Should this second stage of the nervous paroxysm continue, and the wished for sleep not supervene, while untoward symptoms, such as have been described in the course of this essay, ensue, we must persist in the principle of our treatment, but with variation according to existing indications. Thus, at this period, when effusion has either commenced, or is about to take place, I would recommend, contrary to the general opinion, the application of a blister to the head, and the liberal administration of musk and ammonia. I would also blister the extremities, and order mercurial and iodic frictions to the spine, to excite the action of the absorbents, and continue, at the same time, the use of turpentine enemata, the tepid bath, &c. Though, when symptoms have attained this height, I fear little benefit can be derived from medical assistance, as it is more than probable effusion has taken place, which, if to a considerable extent, is generally the forerunner of death.

I have not noticed blood-letting as a general remedy in pure and unmixed examples of this disease, having met with few cases that required it; and as, from the nature and definition of this affection, I do not regard it as likely to be benefited by general depletory measures: however, I do not say that

they may not occasionally become necessary and even very efficacious auxiliaries when practised in peculiarly young and vigorous subjects during the height of its second stage, or where symptoms of local determination may manifest themselves, as in the case of the black man and others already related; but on no account are they to be carried, either locally or generally, further than merely to relieve the temporary morbid excitement, to effect which, the detraction of a few ounces of blood will usually be sufficient, and a repetition of it seldom necessary.

When a constitutionally local inflammation supervenes in any organ during the existence of delirium tremens, we may, as I already stated, be obliged, owing to the fear of structural mischief, to bleed even freely; but, at the same time, we must not lose sight of the general nature of the disease; therefore, while on the one hand we reduce the strength of the arterial system by blood-letting, we ought to endeavour, on the other, to raise, by appropriate means, the nervous power; and, as it were, make both systems contribute their mite towards re-establishing a due balance between them, without which healthy action cannot be restored.

These rules are equally applicable should delirium tremens come on during the course of fever, dysentery, epidemic, ophthalmia, or any other affec-

tion or injury, as I have often times observed it to do within the tropics ; such complications are exceedingly perplexing, more especially to practitioners who, from inexperience in the treatment of diseases incident to inhabitants of those unhealthy climates, are liable to mistake this disease for inflammatory or phrenitic delirium ; we ought, therefore, to endeavour carefully to distinguish it by a due consideration of all the circumstances of the case, in order to enable us to adopt the means of cure already pointed out, according to the violence of the symptoms, the nature of the epidemic with which it may be complicated, and the integrity of the patient's constitution ; in short, we ought, under such circumstances, to be guided by general principles, carefully avoiding excessive debility, and, at the same time, guarding against the effects of local determination. While steering between these two shoals, we must not forget to soothe nervous irritation, and to support the *vis vitæ*, the better to enable our patient to weather the great dangers to which he is exposed.

From what has been said it will be readily understood, that the prophylaxis in this complaint consists in the gradual abandonment of intemperate habits, and in improving the general state of the constitution, which is to be attained by due attention to the general rules already laid down. It will, however, be found a very difficult task in the generality of subjects, to attain the first object,

as they cannot be induced to forsake their intemperate habits. Dr. Copeland, in his learned and highly useful Dictionary of Practical Medicine, page 504, says, "I have never known or heard of an instance wherein the state from which the patient has escaped, or the representations of the medical attendant or friends, has effected a reformation of the habits which produced the disease. However, the physician should discharge his duty, by stating to him the consequences that will accrue from persisting in them."

I have often considered it as a matter of regret that the law of this country does not permit the forcible seclusion of individuals so addicted, as I am convinced that such a measure sufficiently prolonged, so as to give time for the establishment of a habit of perfect *teetotalism*, would be found the most effectual, and indeed the only means of inducing this desirable change in the habits of old established drunkards.

I have now terminated the detail of my opinions and experience on the subject of this interesting disease, as it appeared to me during the last twenty years, upwards of five of which were passed within the tropics, where it is, as I have already stated, much more frequently to be met with amongst all classes of people, but particularly among soldiers, than in Europe.

In doing so, I trust, with due deference to the opinions of others, that I have succeeded in establishing, to the satisfaction of my readers, the propriety of coming to the following general conclusions :—

First, that pure delirium tremens is altogether a nervous disorder, the consequence of the sudden cessation of habitual intemperance in the use of diffusible stimuli, and to which the system is equally liable, whether it be suffering under a sporadic or traumatic affection, or be in apparent ordinary health at the moment of such a sudden change in the habits of the patient.

Secondly, that this disease is one of a paroxysmal type, and may be divided into three stages, all essentially differing from each other in their symptoms and nature, and consequently requiring each a different modification of treatment.

Thirdly, and lastly, that the stimulo-narcotic mode of treatment, when so directed and modified as to be applicable to each particular stage of this disease, is the one which promises to be the most successful.

I have given these conclusions as I first published them, and although several years have elapsed since they appeared in print, I do not see any reason to induce me to alter them. Finally, I have much satisfaction in adding at the termination of this work, the summary of Dr. Jackson's opinions on

this disease,* as that gentleman has had vast experience in its treatment in America, where it is exceedingly prevalent, and as his work on the subject of it *appeared subsequently to mine*. It will be seen by them also, that our opinions coincide in *some* of the *leading* points of theory and practice in this affection. He states as follows:—

1. “That delirium tremens is the consequence of a sudden abstraction, or diminution of strong drink or opium, in many persons who have long used either of these poisons intemperately.

2. That necrotomy has never discovered any lesions to which it could possibly be attributed; that it is purely nervous so far as human knowledge extends. As a stringed instrument is thrown out of tune by the atonic state of the atmosphere, so is the cerebral system in this disease, by the debilitating abstraction of stimulus.

3. That in all its degrees it is curable by opium, or by ardent spirits, or by the simultaneous use of both, though we shall sometimes fail by not being able to ascertain before it is too late, the requisite dose.

4. That it often supervenes on a system labouring under acute inflammation, the progress of which it will sooner or later suspend, so that opium may be given in the necessary doses. That though it arrests inflammatory action, it does not remove the effect thereof, which is the effect of time.

* Vide Medico-Chirurgical Review for October, 1839, p. 500.

5. That suspending inflammatory action as it does, those authors who speak of pain in the head, with fiery eyes, requiring the loss of twenty to one hundred ounces of blood, have confounded the disease with temulent excitement.

6. That there are not two varieties of the disease, one to be cured by opium, and another by evacuations; one the consequence of too little, and the other of too much stimulus.

7. That evacuations, of whatever kind, have no tendency to cure this disease; they cure temulent delirium, or its inflammatory consequences.

8. That mild cases have often been cured by various means, which fact has been the cause of many errors; that the worst cases are incurable without opium or spirits in enormous doses.

9. That there is a delirium frequently from drunkenness, which is often attended with convulsions, fits of drowsiness, flushed face, and inflamed eyes, with angry passions, noise, and turbulence; in a few cases with trembling; and in many, with too much watchfulness; which delirium is often postponed for a day or more after the patients have quitted their spirits, but it is radically the inflammatory state of the system thereby induced. This is often taken for delirium tremens, though it is easily distinguished therefrom, and requires a very different treatment. When this is subdued by the proper means, true delirium tremens sometimes supervenes."

T A B L E,

Showing the duration of the various Stages of Delirium Tremens exhibited in the Cases which were treated in the Regimental Hospital of the Fifth Foot, during the year 1822.

Cases.	Age.	Diseases for which originally admitted.	Date of Admission.	Date of the commencement of Mental Derangement.	Date of the commencement of the Sleeping Stage.	Date of Death.
1	32	Dysenteria Acuta	5th June 1822.	8th June 1822.	10th June 1822.	—
2	40	Obstipatio	21st ditto	24th ditto	27th ditto	—
3	32	Feb. Con. Com ..	9th Aug.	11th Aug.	13th Aug.	—
4	32	Delirium Trem ..	17th ditto	20th ditto	22d ditto	—
5	32	Feb. Con. Com...	1st Sept.	4th Sept.	6th Sept.	—
6	36	Ambustio	12th ditto	15th ditto	17th ditto	—
7	40	Cholera Morbus..	14th ditto	18th ditto	21st. ditto	—
8	32	Feb. Con. Com...	25th ditto	27th ditto	30th ditto	—
9	32	Idem	30th ditto	5th Oct.	8th Oct.	—
10	33	Idem	3d Nov.	5th Nov.	—	7 Nov.

From the Inspector of Hospitals.

“ Barbadoes, Feb. 4, 1823.

“ SIR,—Mr. Elliott has before this arrived at St. Vincent's to relieve you from the duties of principal medical officer at that station, and I feel it my duty to thank you for the zealous and able manner in which you have performed that office. I am to request you will give Mr. Elliott the benefit of your advice and assistance, in making out the necessary returns and reports, and in the general detail of the duty; it is new to him, and he will of course be at a loss at first to know the various forms and returns required of him. He is lucky in having you near him, and if he carries on the duty as you did, I shall be perfectly satisfied. I have read your annual report with great interest and satisfaction; I shall not fail to call the attention of the Director General to it, and I think it will make the same impression on him that it did on me. It is a performance highly creditable to you, and indeed to the medical department of the army. The paper on delirium ebriositatis I think so well of, that, with your permission, I will have it copied and distributed to the various stations in this command. The disease is a serious and prevalent one, and has not in this, or any other country, been well understood. Your paper may save many lives, and will no doubt relieve the minds of many of the medical

gentlemen, particularly the juniors, who have had little opportunity of seeing (or indeed reading of) the disease, until they came to the West Indies; there they will see it often, and your instructions as to the treatment of it, will be of great service.

“ I have the honour to be,

“ Sir,

“ Your most obedient humble servant,

“ EDWD. TEGART,

“ Inspector of Hospitals.

“ Andrew Blake, Esq.

“ Surgeon, 5th regiment, St. Vincent's.”

Extract from a Circular Letter, dated Barbadoes, 12th March, 1823, addressed to the principal medical officer of each island in that command.

“ SIR,—Amongst the yearly reports lately received at this office, there was one from St. Vincent, which does great credit to the professional talents of Mr. Blake, surgeon of the fifth regiment.

“ The annexed paper, on delirium ebriositatis, was attached to that report. It appears to me to contain so much good sense and sound judgment, that I think I am performing a service in distributing it throughout the command; and I should, at all times, feel equal pleasure in making known any subject contained in those annual reports which may strike me as useful to the service.

“ The disease treated of by Mr. Blake is well known, and has frequently been reported upon by many medical gentlemen in this country, under the denomination of delirium tremens ; and the remedies in the treatment of it are similar to those recommended in the present paper ; but no writers that I have read have entered so fully and scientifically into the subject as the present one. They generally agree as to the cause and treatment of this disorder ; but the stages of the disease, the analogy of them to those of intermittent fever, have not hitherto been described, nor has its action upon the brain and nerves been compared to a similar one upon the sanguiferous system in intermittent fevers.

“ The disease described in this paper is not much known, and consequently little noticed in Europe ; it is, however, unfortunately a very common one in this country, and particularly so amongst British soldiers ; it becomes therefore of great importance that the theory and practice of it should be well understood, but especially by the junior medical officers, to whom it must be new, and who could have seen very little of it before their arrival in this climate.

“ I am to request you will give this paper as much publicity as you can throughout your station ; and that you will direct every medical officer under your superintendence to take a copy of it ; and that

you will have the original preserved amongst the official records in your office.

“ I have the honour to be,
 “ Sir,
 “ Your most obedient humble servant,
 (Signed) “ EDWARD TEGART,
 “ Inspector of Hospitals.”

“ Barbadoes, 17th July, 1823.

“ SIR,—Herewith I have the honour to send you the copy of a letter which was yesterday received from the Board ; and it affords me singular gratification to convey to you the thanks therein contained. I feel also satisfied with myself in having made the use I did of the very excellent paper alluded to. It may have the effect to stimulate others to merit such attention ; and I hope it may induce you to continue such useful exertions in the cause of science generally, and professional information.

“ I have the honour to be,
 “ Sir,
 “ Your most obedient humble servant,
 (Signed) “ EDWARD TEGART,
 “ Inspector of Hospitals.
 “ Andrew Blake, Esq.
 “ Surgeon, 5th regiment, St. Vincent.”

“ Army Medical Department,
 “ 28th of May, 1823.

“ SIR,—We have to acknowledge the receipt of your letter of the 8th April, with its inclosure; and have to express to you, not only our entire approbation with your proceedings, as regards Mr. Blake’s paper on delirium ebriositatis, but beg you will convey to that officer our best thanks for this valuable communication.

“ We at the same time take this opportunity of expressing our satisfaction with the sentiments expressed by you, in the circular letter which you have circulated on this occasion, and sincerely trust it will be followed by the wished-for exertions of all.

“ We have the honour to be,

“ Sir,

“ Your obedient servants,

(Signed)

“ J. M’GRIGOR.

“ W. FRANKLIN.

“ Edward Tegart, Esq.

“ Inspector of Hospitals, Barbadoes.”

THE END.



