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AN INAUGURAL DISSERTATION
ON THE
MORBID EFFECTS OF OPIUM
UPON
THE HUMAN BODY:

SUBMITTED
TO THE EXAMINATION
OF THE
REV. JOHN ANDREWS, D. D. PROVOST PRO TEM.
THE
MEDICAL PROFESSORS AND TRUSTEES
OF
THE UNIVERSITY OF PENNSYLVANIA,
ON THE EIGHTH DAY OF JUNE, 1803,
FOR THE DEGREE OF
DOCTOR OF MEDICINE.

BY DANIEL WILSON,
OF VIRGINIA,
HONORARY MEMBER OF THE PHILADELPHIA MEDICAL SOCIETY.

Disease is an unit, and the pulse is its nosometer.

RUSH.

To dissolve false associations, and to combine facts according to their natural and just relations, appear to constitute perfection in the intellectual faculties of man.—Rush.

PHILADELPHIA:

PRINTED FOR THE AUTHOR, BY SOLOMON W. CONRAD,

1803.

TO THOMAS WILSON, Esq,

OF RICHMOND, VIRGINIA.

BOUND as I am to you by the ties of nature, generosity, and gratitude, if Shakespear who immortalized himself by his knowledge of the human heart, were present, his effort would be a feeble one in describing my sensations on the present occasion. Your generosity alone has enabled me to pursue my studies, and your fraternal care truly merits the epithet of paternal: then, sir, permit me to assure you that with a heart overflowing with gratitude, I can only say, that if this Essay involved the destiny of nations, it would be as much devoted to your service as it is in its present imperfect state.

Your brother, and friend,

DANIEL WILSON.

TO BENJAMIN RUSH, M. D.

PROFESSOR OF THE INSTITUTE OF MEDICINE, AND
CLINICAL PRACTICE IN THE UNIVERSITY OF
PENNSYLVANIA.

TO

JAMES GREENHOW, M. D.

OF RICHMOND, VIRGINIA,

THIS ESSAY

IS ALSO INSCRIBED,

AS

AN HUMBLE TESTIMONY

OF THE

HIGH ESTEEM

IN WHICH

HIS PROFESSIONAL TALENTS

AND

NUMEROUS VIRTUES

ARE HELD BY

HIS OBLIGED FRIEND,

AND PUPIL,

THE AUTHOR.

THE AUTHOR.

TO BENJAMIN RUSH, M. D.

PROFESSOR OF THE INSTITUTES OF MEDICINE, AND
CLINICAL PRACTICE IN THE UNIVERSITY OF
PENNSYLVANIA.

SIR,

IN dedicating this probationary essay to you, I do not solicit your protection of its imperfections, but hasten with real pleasure to say that my object is to bear my testimony how much the medical world is indebted to you.

Philosophical faith was once so strong as to induce a belief, that the sun revolved round the earth. I am persuaded I shall not be thought extravagant when I say, the medical world is indebted to you for the diminution of a faith in certain errors in medicine, equally repugnant to reason and facts.

The perplexing, inconsistent, presuming phantom of nosological authority, has, under your direction, for some time begun to disappear: The blazing meteor, which has so long perplexed the medical world, verges towards the horizon, and grows pale before the efforts of your steady mind; and we have the fairest prospects for grounding a belief that the physicians of America will be the first to prescribe for the symptoms, and not the name of a disease.

I have the honour to be,

Sir, your humble servant, and friend,

THE AUTHOR.

TO BENJAMIN HUGHES, M. D.
PRESIDENT OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA
WASHINGTON, D. C.

IN dedicating this publication to you, I do not select you as a person of high rank, but rather as a person to whom it is to bear my testimony that such the medical world is indebted to you.

TO JOHN SYNG DORSEY, M. D.

Philadelphia was the place where I was first introduced to the study of medicine, and it was there that I met you. I am a student of your school, and I am proud to be a student of your school. I am a student of your school, and I am proud to be a student of your school.

JOHN GRIMES.

MY FELLOW GRADUATE, FROM GEORGIA.

GENTLEMEN,

To me it is so pleasing, and in these days so rare, to find talents and liberality combined in an eminent degree, that it affords me the highest satisfaction in having an opportunity of paying my respects to them: for which purpose I inscribe this essay to you.

I have the honour to be,
Your sincere friend,

THE AUTHOR.

TO JOHN SYNG DORSEY, M. D.

OF PHILADELPHIA—

AND

JOHN GRIMES,

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MORBID EFFECTS OF OPIUM

UPON THE

HUMAN BODY,

AND THE REMEDIES PROPER TO REMOVE THEM:

TO WHICH IS PREFIXED

AN ANALOGY

BETWEEN THE

MORBID EFFECTS OF OPIUM AND Miasmata

UPON THE HUMAN BODY,

AS THEY APPEAR IN THE FOLLOWING SYSTEMS:

1. The stomach and bowels.
2. The blood-vessels.
3. The glands.
4. The nerves and muscles.
5. The mind.
6. The skin. And
7. The blood.

Of the Analogy between the morbid Effects of Opium and Miasmata upon the Human Body.

PREVIOUS to an account of the analogy proposed to be established between the effects of opium and miasmata upon the human body, our purpose will be facilitated by shewing the causes which prevent the general acknowledgment of such analogy. The first which deserves to be mentioned is the gaseous and invisible state of pestilential miasmata.

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Where opium is spoken of, we know it to be a certain visible and palpable substance, the conveyance of

which into the stomach is a sufficient signal of approaching mischief. And this relation between cause and effect is usually so obvious and uniform, as to be recognized even by the most careless and ignorant.

All this, however, fails in the aerial form of the noxious power producing malignant diseases, which, in a great measure, escapes the observation of the senses, and is chiefly to be known by its effects only. A second cause of overlooking the analogy contended for, is the more frequent suddenness of death from opium, produced by the largeness of the dose, which stimulates beyond the point of fever, and quickly overpowers and extinguishes the vital principle. By diminishing the quantity of opium to an appropriate amount, it may be made to exhibit nearly all the phenomena of what is called a malignant fever. But, above all, the attention of physicians has been diverted from this analogy between miasmata and opium by the febrile part of the character which generally belongs to pestilential diseases, and which in common apprehension is constantly connected with them: Yet these diseases are by no means universally accompanied with what is strictly called fever; there is often a degree of virulence in the Asiatic plague, in the yellow fever, and in all other forms of pestilential and malignant diseases, which altogether transcends the process of fever, and extinguishes life in a more summary manner. Thus when persons are burnt to death, or are killed by lightning, the tedious process necessary to the production of fever has no time to appear; hence in the worst cases both from opium and miasmata the febrile part of the symptoms are absent.

The author begs leave to observe, that to contrast the whole of the phenomena produced by opium and miasmata would swell this essay to an unusual size; he must therefore content himself with attending to the most prominent of them.

1st, *On the stomach and bowels*—opium produces inflammation, gangrene, costiveness, diarrhœa, and debility, according to circumstances. All these phenomena are observable in yellow fever.

2d, *On the blood-vessels*—In this system the effects of opium appear in what Dr. Rush has emphatically called suffocated excitement, preternatural vibratility, &c. These are prominent phenomena in yellow fever.

3d, *On the glands*—The effects of opium appear in this system in an increased action of the secerning and absorbent vessels, producing excessive perspiration or preternatural thirst, and dryness of the skin, according as the action of the absorbents, or secerning vessels are most increased. All these phenomena result from miasmata.

4th, *On the nerves and muscles*—The effects of opium on this system are varied according to the quantity taken : they are increased in tone from small doses, and languor and debility from too large doses, or where too long continued in small doses. All these phenomena result from miasmata.

5th, *On the mind*—The effects of opium on this system are acknowledged by every person who has taken it. It has acquired the name of *medicina mentis* among writers : It produces a brisk, gay, and good humour, promptitude, serenity, alacrity, and expedition in dispatching and managing business, when taken in appropriate doses ; also courage, contempt of danger, and magnanimity. See the case in Dr. Rush's letter hereafter to come.

Dr. Rush has supposed that if miasmata could be properly collected, it might be administered as one of the most grateful cordials.

6th, *On the skin*—The effects of opium on this system are, itching, efflorescence, and preternatural warmth or coldness. These phenomena are all observable in yellow fever, and travellers remark the affections of this system in the eastern countries during the prevalence of the plague.

7th, *On the blood*—The phenomena produced in this system by opium, are, first, when taken in excessive doses, the blood sometimes appears morbidly thin, dark coloured, and indisposed to the usual manner of coagulation: at other times it exhibits the inflammatory coat. All these phenomena are observed in yellow fever.

The following analogies are left by the author to be contrasted by the reader, as they may appear in the different systems already treated of.

ARE miasmata received into the system without producing any apparent morbid effects? The same applies strictly to opium when taken in small quantities.

Do not persons languish and die for the want of their accustomed stimuli, when they are not able to procure a substitute, who use opium as a luxury? The same results from miasmata. Dr. Rush says, that old persons who have lived in countries where miasmata prevail, die for the want of its stimulating powers, on going to a country which does not afford them.

Do not patients often complain of a sense of heat in the stomach, nausea, and vomiting, in yellow fever? All these phenomena result from opium.

Such is the effect of opium on the venereal appetite, that old men, otherwise strangers to venereal pleasures, are not callous to its power; and the erection of the penis remains even after death in those turkish soldiers slain in battle, who have previously swallowed opium! For similar effects from miasmata I must

refer the reader to the third volume of Dr. Rush's works.

Flushing of the face, neck, and breasts, redness of the eyes, and heat, are remarkable symptoms in the first stage of yellow fever. These are common effects of opium.

The success with which the practice of Dr. Rush was marked, in treating four unhappy cases where opium was taken with the view to destroy life, serves eminently to substantiate the analogy attempted. The doctor says, "Exactly the same phenomena are often produced in the body by the miasmata which induce the yellow fever. Reasoning from this analogy, I have prescribed the same remedy in the former as in the latter disease, and with success in four cases."*

OF THE REMEDIES PROPER TO REMOVE THE MORBID EFFECTS OF OPIUM—AND FIRST OF THE ACUTE MORBID EFFECTS.

THE remedies which fall under this head, appear to me properly to arrange themselves into three divisions, viz.

1. Such as are proper where a large dose of opium has been taken and has not operated.
2. Such as are proper where a large dose of opium has been taken and is still operating.
3. Such as are proper where a large dose of opium has been taken and the system is sinking or has sunk into great indirect debility.

Previous to treating of the cure of the morbid effects of opium, I shall take the opportunity of exhibiting a view of those remedies which are and have been proposed as antidotes. And, first, of the vegetable acids. It appears from the experiments of Dr. Leigh, that this remedy does not deserve any attention.

* See New-York Medical Repository.

on as an antidote to the effects of opium. He found that when he exhibited the acid previous to the opium that it proved salutary; but that no such effects appeared when it was given after the opium. He supposes that the acid produces its good effects by diminishing the sensibility of the stomach, thereby leaving less room for the opium to act, which he supposes to operate in the same way.

Another theory of the operation of opium supposes its effects to depend on its depriving the system of its due portion of oxygen, and that the vegetable acids being little tenacious of their abundant oxygen, produce their salutary effects by restoring such deficiency.

To animadvert on these opinions belongs to those who treat on the *modus operandi* of opium.

At present the vegetable acids are considered as of little consequence. Pierre Lassus considers that at any rate, these acids are to be depended upon only when the quantity of opium taken is small.

Strong coffee also falls under this head.

Such modern writers as hint at the treatment of this disease, recommend it. (See Ontyd on mortal diseases.)

Milk and oil are recommended by Dr. Struve in his Essay on suspended Animation, and by others as remedies in cases where poisons are recently taken. I once heard a votary to the shrine of Bacchus say, that he was always able to counteract the intoxicating effects of wine and spirits by taking olive oil.

By attaching themselves to the internal coat of the stomach, they may be useful in obtunding the action of opium. Milk, however, is known to be coagulated by the gastric juice and by alcohol, hence it can do little as a diluent: A similar objection may be made to oil, especially when the dose of opium has been taken in the form of tinct. opii, as it is known that oils and spirits are difficultly miscible.

Castor and aromatics are considered as correctors of opium.* I shall attempt hereafter to make it appear that they can only be proper in the last stage of disease from opium.

Thus much for those remedies which are and have been considered as antidotes to the effects of opium, in the conclusion of which it may not be improper to observe, that authority may be brought forward in support of their efficacy: this authority may consist in facts, and facts are said to be stubborn things. I shall conclude with them for the present, by recommending their use to such persons as find them recommended by such authority as they can depend upon; at the same time, I take the privilege of cautioning them to consider the observation of an eminent physician,† who says, there are ten false facts for one false theory in medicine.

The remedies proper to remove the acute morbid effects of opium have been already considered as properly arranging themselves under the three following divisions, viz. 1. Such as are proper when a large dose of opium has been taken and has not operated. 2. Such as are proper when a large dose of opium has been taken, and is still operating: and 3. When a large dose of opium has been taken, and the system is sinking or has sunk into indirect debility.

The author apprehends that the cure of any disease cannot be so satisfactorily illustrated as by throwing together a number of cases, and the remedies which were used, to which intent he introduces the following, previous to investigating the remedies proposed in the three divisions already mentioned.

* See Alston on opium.

† Dr. Cullen.

CASE I.

COMMUNICATED TO DR. MITCHELL BY MR. SHEPHARD.

I SUBMIT to your consideration a case of debility arising from the effects of opium, that fell under my care, which perhaps more accurately illustrates the operation and effects of this medicine, and shows to what extent it may be exhibited, and the patients still have a chance for recovery, than almost any experiment by which it has been preceded.

Daniel Grayham, aged about 35 years, of a firm robust habit, and apparently in perfect health, took the fatal resolution of destroying himself by opium. Early in the morning of February 4th, 1800, he procured 3 ij of opium, which he took: this, as nearly as could be ascertained, was about eight o'clock in the morning; and about eleven he was discovered. I saw him immediately, and found him in a state of insensibility, accompanied with a complete apoplectic respiration, and some slight convulsive contractions of the muscles, especially of the hands and face. The pulse was full, regular, and not perceptibly removed from the standard of health. From these appearances I supposed him to be in the interval of an epileptic paroxysm; it not being known at the time, that he had taken any thing to injure himself. The symptoms, however, continuing the same for a considerable length of time, without any succession of spasm or appearance of returning animation, I was totally at a loss how to proceed, or, in fact, what opinion to form of the disease. Some other physicians were now called in by the general alarm; but previous to their arrival, I had accidentally discovered a paper on the floor, in which I found had been opium, and which at once developed the wretched scene.

One of the physicians who now attended proposed, on this discovery, immediately to give an emetic,

which was accordingly exhibited : but as the opium had had its full effects long before, no benefit could be expected from such practice. I exerted myself to have an opposite mode of practice pursued, and could not effect my purpose, but calmly contented myself with looking on while a variety of other exertions were made, without the least advantage.

As a dernier resort, he was, about two o'clock P. M. placed into the hot bath, in which he was immersed a considerable time ; but the result of this experiment was similar to every former trial, and he was now abandoned by all to the certainty of his fate.

For some time previous to this period, I had been absent ; but about four o'clock, and near two hours after all exertions in the patient's favour had been discontinued, I again saw him. To support the system by the exhibition of an adequate degree of stimuli, was the object I had before wished to pursue. In this last stage of the disease it was the only object : And although I scarcely retained a hope of success, yet the dictates of humanity, the prospect of future utility to the world, and the confidence I had in the principles on which I proceeded, urged me not to relinquish every hope while existence remained. This was the moment to which the stimulant mode of cure was adapted ; for now the effects of the opium were subsiding, and the system rapidly sinking into the impending dissolution with which it was momentarily threatened. The apoplectic respiration now nearly suspended, and a weak, sinking, tremulous, and irregular pulse, were the only remaining indications of vitality : his skin was universally cold, and partially suffused with a glutinous moisture ; and his cadaverous countenance was literally the aspect of death : the tongue and mouth, which were widely extended, were perfectly dry, and produced to the touch a sensation similar to the action of a rasp ; and in fact, every appearance pointed to an immediate termination of the

tragic scene. These were the formidable symptoms I had to encounter; and as the patient was exposed to public view, I sustained a degree of censure for the temerity of retaining a hope of success in a situation so desperate. The safety of the patient, and my own reputation, were sources of great anxiety; but still I adhered to my first resolution of trying the experiment.

I took some brandy, which was sweetened, and diluted with a trifle of water; I exhibited a little immediately after each respiration, the intervals of which were now nearly a minute. I soon found the mouth and tongue were assuming a natural softness, and was confident the liquid was gradually, though quite mechanically, passing into the stomach; and in this cautious manner I very soon gave him more than a gill of brandy; and I flattered myself I discovered some slight symptoms of returning animation. At this period I was obliged to leave the patient with an attendant, directing him, with the most forcible injunctions, to pursue steadily the plan I had adopted. I was absent near an hour; and, on my return, had the pleasing satisfaction to find my patient perfectly sensible, able to turn and raise himself in bed, and to converse freely, but incapable of supporting an erect position, in consequence of the vertigo incident to that situation, in cases of extreme debility.

He had now taken about one pint of brandy. His irritability was so great, that the smallest cause of emotion would excite great, and sometimes an alarming degree of agitation. I continued this practice through the night, without any variation, excepting gradually diminishing the quantity of stimulus exhibited. The next morning I changed the stimulus by alternating the brandy with wine; which I continued through the day and night ensuing, still diminishing the quantity of spirits; and as soon as the stomach would admit, gave him biscuit, and wine and water, and from thence proceeded to the use of fresh meat broths. On

Thursday he took a portion of calomel, which, I presume from the irritable state of the stomach, proved violently emetic and very slightly cathartic. This medicine was materially serviceable, as his lungs had been all along somewhat oppressed, which, by this, were relieved, and the stomach and bowels sufficiently cleansed for the reception of the bark. From this period the bark was exhibited, and laudanum and wine used as stimuli, and the case in every respect treated as a convalescent of indirect debility. In about ten days he was able to leave town, which he performed on foot.

After his recovery, he informed me, that his design being to make his exit sure, he had taken all the opium procured of the physician, which he said was two drachms (the truth of which the physician afterwards confirmed to me) together with a piece he had before obtained; as he supposed, about half a drachm; and that he retained his recollection for about ten minutes.*

CASE II.

BY V. SEAMAN, M. D. NEW-YORK.

HAVING so frequently observed the great quantity of opium that a person, under the operation of acute pain, will take, without having any soporific effects induced by it, I have been long of the mind, that pain might be usefully excited to remove the deadly influence of a large dose that may have been previously taken.

Yesterday I had an opportunity of putting my principles to the test of experiment, being called to the wife of — Head, in Water-street, who had, about two hours before, taken an ounce of laudanum, and

* See New-York Medical Repository, Vol. IV.

then lay in a deadly stupor ; from which all the efforts of her friends were insufficient to awaken her. Attempts had been made to get some vinegar into her stomach, but I believe with little effect : nor did I succeed much better in endeavouring to give her a dose of white vitriol. I then procured a small switch, and applied it pretty freely to her arms and shoulders, which were defended only by a thin linen covering. I also applied some strokes to her legs. In the course of a very short time, indeed almost immediately upon the application of this remedy, she roused up and begged me to desist. She continued for a time much confused with involuntary turns of laughter : ʒij of white vitriol were then administered ; followed, in about fifteen minutes, by ʒfs of ipecacuanha : notwithstanding which, and also having her throat repeatedly tickled with an oiled feather, it was near an hour before she could be made to puke : however, finally she puked, and by the assistance of frequent draughts of warm water, her stomach was pretty thoroughly evacuated.

By the assistance of her friends she was kept awake, or at least slept but little at a time during the night, and this morning appears entirely recovered.*

CASE. III.

BY PIERRE LASSUS.

PUBLISHED IN THE MEMOIRS OF THE NATIONAL INSTITUTE OF FRANCE.

A WOMAN, aged sixty, who for many years had been troubled with occasional fits of melancholy, swallowed 36 grs. of opium in the middle of the night : five or six hours after, she was found in a deep and profound sleep, breathing with stertor, like a person in apoplexy. She revived, however, for a few mo-

* See New-York Medical Repository, Vol. III.

ments at a time; and in those intervals informed the attendants what quantity of opium she had taken. Some ipecacuanha was given to her, but without exciting vomiting; they then made her swallow, though with difficulty, some spoonfuls of vinegar and water. At this time the author, with citizen Fourcroy, visited her. She had now no knowledge of any thing that passed about her, or shewed the smallest signs of sensibility. Her respiration was loud and laborious, her skin warm, her pulse quick, the pupils of her eyes considerably dilated; her joints were flexible, and the muscles of her whole body in a state of relaxation. She died ten or eleven hours after taking the opium.

On opening the body, the whole of the internal surface of the stomach appeared to be inflamed, but it was in no part eroded. The inflammation was extended through the small intestines, on which there appeared large gangrenous spots of a greenish colour. In the cavity of the stomach were found five or six spoonfuls of a turbid fluid, of a reddish colour; it was the vinegar mingled with the ipecacuanha, the mucus of the stomach, and, we suppose, the opium, which was so completely dissolved that not the smallest particle of it could be collected. The small intestines were flaccid, and lying on one another: the cæcum and colon distended with flatus; the rest of the abdominal viscera, as well as those of the thorax, were in a sound and healthy state, excepting three large sized stones were found in the gall-bladder, although the relations of the deceased were not conscious that she had ever made any complaint that could be attributed to that cause. The blood in the cavity of the heart and in the large vessels, was of a blackish colour, and congealed, as it is usually found in those parts; the brain was in a healthy and sound state, and the vessels not over distended with blood, neither was there any serum in the ventricles. In a

word, all the diseased appearances were confined to the stomach and small intestines.

It follows from hence, the author remarks, 1st, that opium taken in large quantities does not produce a true apoplexy ; that is, it does not occasion a congestion of blood in the brain: 2d, That the earlier it is dissolved in the stomach, the greater its activity, producing inflammation, speedily degenerating into gangrene : 3d, That the vegetable acids, recommended by authors as antidotes against the poison of opium, are only efficacious in that way, when taken in small quantities.

CASE IV.

ON the 30th of March, 1803, a gentleman, about thirty years of age, of a robust habit of body, and apparently in perfect health, took $\frac{3}{4}$ i laudanum in a gill of brandy, with the design of killing himself.

The circumstance was detected at half past six o'clock, P. M. and as near as it could be ascertained half an hour had elapsed since he had taken it. He was found in a state of insensibility, accompanied with stertorous respiration. The pulse was depressed, and exhibited the phenomena of prostrated excitability, being small and almost imperceptible. Thirty-five grains of ipecacuanha were immediately exhibited, and not operating, in fifteen minutes after, a vein was opened, and a drachm of ipecacuanha with $\frac{3}{4}$ ss of the sulphate of zinc were exhibited. When a few ounces of blood had flowed, his pulse rose and became active. The emetic now operated, and he discharged a considerable quantity of fluid from his stomach : his hands and feet were immersed in very warm water, and freely rubbed. At seven o'clock sinapisms were applied to his feet, and continued till nine o'clock, when they were removed in consequence of his complaining of them. Upwards of two ounces of blood was drawn, shortly after which, and the operation of the emetic,

the alarming symptoms began to disappear, and at nine o'clock the only one which remained was a small degree of sterterous breathing. He complained of much thirst, and drank freely of lemonade till three o'clock; at which time, he told me that a little confusion of his head was all that ailed him. He now fell asleep, and awoke at six o'clock in the morning, dressed himself, and assumed his business.

In the early part of the night he made many attempts to discharge his urine, which he could only do in small quantities.

Dr. Dorsey informs me, that he has seen two cases of the morbid effects of opium successfully treated by the use of blood-letting in the commencement, and stimulant remedies in the latter stage of the disease. In one of these cases, the patient, aged 50, took two ounces of laudanum: a powerful emetic was given, which did not operate till after the discharge of 3 ij of blood; it consisted of 3 ij of ipecacuanha and 3 i of sulph. zinci.—The second patient was a child, to whom 3 iij of paregoric tincture were given by mistake: both were cured by the above-mentioned remedies.

OF THE REMEDIES WHICH FALL UNDER OUR FIRST DIVISION.

THESE are such as are proper to remove the opium which is present in the stomach, or to counteract its effects. They are emetics, cathartics, injections, some of the medicines called antidotes, and external stimulants: And, first,

OF Emetics.—The great prostration of excitability which appears in the stomach from large doses of opium renders it of the utmost consideration to know the most expeditious manner of producing a discharge from the alimentary canal. To one unacquainted with the treatment of this stage of the disease, the immense quantities of white vitriol and

other emetics, which have been given without producing effect, will appear truly astonishing; specimens of which are to be seen in the cases already stated. Among the class of emetics custom seems to give a decided preference to the sulphate of zinc. Dr. Barton, in his lectures, informs us that he has found the certainty of operation much increased by combining ipecacuanha and the antimoniated tartrate of potash, and that he has been long in the practice of giving them thus combined: he also speaks highly of the success which attends the external application of tobacco to the region of the stomach, in producing vomiting. Tickling the throat with the finger, or with a feather has sometimes succeeded when other attempts failed.

Lately Mr. Hambolt has made some remarks on the possibility of renovating the excitability of the stomach by alkalies, the success of which is shewn in a case by the ingenious Dr. Brown of Kentucky. The case was in a child who had taken of the seeds of the datura stramonium, and until the doctor exhibited some of the ol. tart. per deliquium, he was unable to produce a puking, notwithstanding the exhibition of a strong dose of tartar emetic which was assisted with a feather.

The case stated from Dr. Seaman seems to prove that the operation of the emetic was favoured by the stripes which were given to the patient.

In case iv. the operation of the emetic seemed to be favoured by venesection. It is no uncommon thing for persons to faint or wish to lie down under this operation, and I have remarked the effects in those persons who felt no intimidation, especially at the time that the flowing of the blood was stopped.

OF CATHARTICS—I can say nothing of them from my own knowledge, and considering the length of time necessary for their operation, they should be superceded by more active medicines; yet they pro-

mise much if we could produce a speedy operation by them.

OF INJECTIONS---I propose in these a substitute for emetics and cathartics. In contemplating the impossibility which often occurs in cases where large doses of opium have been taken, of producing a discharge either by emetics or cathartics, I am induced to suggest an idea, which, as far as I know or have been able to learn, originated with myself---it is the mechanical distension of the whole alimentary canal; and seeing the difficulty with which patients are made to swallow, I imagine it can be most conveniently and readily effected by injections into the rectum, from thence into the stomach, and out at the mouth. The melancholy effects which result from our inability to procure a discharge in such cases, as well as in many cases of obstinate costiveness, I am persuaded would justify the testing this observation. So new is this idea with me, that the time for handing in my essay was expired before I was in possession of it; and the consequences are that I have not been able to offer a single experiment on the subject, which with a little time might have easily been made. On suggesting my ideas upon this subject to an ingenious friend and fellow graduate, he informed me that he had seen something analogous to it in an experiment upon a dog; which was the passing of wind, by means of a bellows, into the rectum and out at his mouth; and that the dog experienced no inconvenience from it, except alarm for his safety, which he effected by running seven miles, as soon as he had got through the operation.

Of the antidotes which have been already treated of, the vegetable acids, strong coffee, milk, and oil may all be used at the discretion of the practitioner in this stage of the disease; but from the experiments of the celebrated Fontana in his elaborate work on

poisons, and from the experiments of Dr. Leigh, stated in his experimental essay on opium, we object to the internal exhibition of stimulants in this stage as well as in the second stage of the disease, and this once for all. These writers found alcohol to expedite and protract the effects of opium. The latter found that an increase of temperature also favoured very much the action of opium : hence we also object to warm drinks in this as well as in the second stage of the disease.

I am aware that the exhibition of spirits and water is a very common practice in this disease, without attending to the symptoms. It is to be observed, that Dr. Rush has somewhere remarked that the perfection of medicine consisted in giving medicines in their proper doses, and at proper times. When we come to treat of the last stage of this disease it will be found that our whole reliance will be placed on stimulants and tonics ; but as far as our ideas are correct on the subject, to give them in the first or second stage, would be curing the disease like the madman who attempted to put out the fire by adding fuel to it.

OF EXTERNAL STIMULANTS---These should consist of the warm bath, Dr. Seaman's remedy of stripes, and sinapisms.

I shall not presume to say in what manner stimulants externally applied produce their salutary effects in lessening morbid action internally. For the present, I shall content myself with knowing that they are useful.

Dr. Hartly mentions that whipping a dog after giving him a dose of *nux vomica*, counteracted its effects.

I am not in the habit of using snuff, and sneezing is the invariable consequence of taking a pinch, unless I use means to counteract it, in which I never fail ; that is, by clasping my nose between my finger and thumb, and rubbing it freely.

Whilst painful operations are performing on any part of the body, we are led involuntarily to close our teeth with much force, by which we lessen very much the pain which attends the operation: I have often remarked this in cases of ardor urinæ. In all these cases we plainly see the diminished action of one stimulant by another. Reasoning then from analogy, we may expect much benefit from the use of stimulants externally applied in our present case.

The temperature of the warm bath should be increased considerably: sinapisms should be applied to the ankles: and stripes, where the excitement is suffocated. Perhaps these external stimulants produce their good effects by creating a new action in a part less essential to life, or by equalizing such suffocated excitement.

OF THE REMEDIES WHICH FALL UNDER OUR SECOND DIVISION.

THESE are, 1st, evacuants: 2d, external stimulants which have been treated under our first division, and some of the remedies called antidotes.

Of evacuants---Our principal reliance will be placed upon venesection, and here we cannot recommend it too strongly. In this stage the system resembles a ship in a storm at sea, when the excessive force of the winds has laid her on her broad side, and if she recover, it is but to return at the next blast. The lancet here comes in, and like a charm quiets all before it. In drunkards morbid action has been happily compared to a soap-bubble, and as it not unfrequently happens that such persons are the objects of our present inquiry, it is thought proper to caution the practitioner against the indiscriminate use of the lancet. After venesection drastic purges should be exhibited.

The external stimulants are all those which have been recommended under our first division.

Of the antidotes---Those which have been recommended under our first division will apply here.

OF THE REMEDIES WHICH PROPERLY COME UNDER OUR
LAST DIVISION.

THESE will consist of stimulants and tonics.

In this stage of the disease the effects of the opium are subsiding, or have already subsided, and the system is falling or has fallen into a state of indirect debility. It has been already said that this is the only stage of the disease when the internal exhibition of stimulants are proper, to give due support to the system, and to excite and maintain its action until an equilibrium shall be established between the excitement and excitability which is the standard of health.

In exhibiting stimulants, we should prefer those which are most diffusible, as opium itself, alcohol, &c. It has been already mentioned that of the antidotes, castor and aromatics will fall under this division.

OF THE CHRONIC MORBID EFFECTS OF OPIUM.

THESE appear,

1. In debility and relaxation of the whole body, inability to transact business, and heaviness, except when the opium operates.
2. Diminution of appetite.
3. Weakness of digestion.
4. Weakness and derangement in the faculties and operations of the mind.
5. Premature old age.
6. Inclination to venery.
7. Frequent inclinations to make water.
8. Priapisms and frequent erections. And,
9. Nocturnal pollutions.

Baron De Tott says, "Those among the Turks who have given themselves up to the immoderate use of opium, are easily known by a kind of rickets, which this poison never fails to produce at last. Not

able to exist agreeably except in this species of intoxication, these persons are particularly objects of curiosity when they are assembled in a part of Constantinople, called Tcriaky Tcharchiss, or the market for the takers of opium. There, towards evening, the lovers of this drug are seen coming down all the streets which lead to the solimany; their pale and melancholy figures would be sufficient to raise our pity, did not their lengthened necks, their heads turned on one side, their back bone distorted, their shoulders raised up to their ear, and a number of other extravagant attitudes, which result from their disease, exhibit a picture of the most ridiculous kind. A long row of little shops are built against one of the walls that surrounds the square, within which is the mosque. These shops are shaded by an arbour which reaches from one to another, and under which the master takes care to place a little fofa to accommodate his guests without stopping up the passage. The customers arrive, and place themselves in order to take the dose which the habits each has contracted render necessary. The pills are distributed: those more used to the practice, perhaps swallow four, larger than olives, and each immediately drinking a glass of cold water, waits in his particular attitude. An agreeable reverie, at the end of three quarters of an hour, or an hour at most, never fails to animate these automatons; causing them to throw themselves into a thousand different postures, but always extravagant, and always merry. This is the moment when the scene becomes most interesting: all the actors are happy, and each retires home in a total state of irrationality, but likewise in the entire and full enjoyment of happiness not to be procured by reason: Disregarding the ridicule of those they meet, who divert themselves by making them talk absurdly, each imagines, and looks and feels himself possessed

of whatever he wishes. The reality of enjoyment often gives less satisfaction.”*

Such are the wonderful effects of opium on the human system when it has been used as a luxury and continued for any considerable time, that morbid derangement shews itself in every irritable and sensible part of the body. The sudden leaving it off produces great and intolerable distress, anxiety, depression of spirits, dangerous loosenesses, which in a few days in some, ends in a most miserable death. †

OF THE CURE OF THE CHRONIC MORBID EFFECTS OF OPIUM.

THIS will consist, first, in a gradual or sudden abstraction of opium, according to circumstances.

Second, in substituting other stimulants ; as wine, coffee, hot and cold baths, garlic, tinct. assafoetida, &c.

The following interesting Letter on the subject of the chronic effects of Opium, I am favoured with from Dr. Rush.

DEAR SIR,

“ THE following is the history of the case of the habitual use of opium, which you have requested from me :----J. H. a young man about twenty-five years of age, applied to me for advice, in the month of September, 1795, in great distress of mind, and much debilitated in body, from the use of opium in quantities of from 50 to 90 grains in a day. When under its operation he informed me, his intellects were more brilliant, his language more eloquent, and his

* In quoting the above observations from Baron De Tott, the author begs leave not to be considered as adopting his reasoning on the propriety or impropriety of conferring our pity on these poor wretches ; or his doctrine of the human system being an automaton ; his reasoning on the first is badly digested, and Dr. Rush has proved that the human system is not an automaton.

† See Jones on opium.

talent for writing more easy, than in the former and healthy periods of his life. His affections he said, were at the same time kind and benevolent, and that he felt no disposition to quarrel, as persons often do who take ardent spirits in excess. During the intervals of his taking opium, he suffered, he said, from cold sweats, tremors, the want of sleep, and sometimes delirium, accompanied occasionally with a diarrhœa. In this situation he started at the least noise, and even a fly upon any part of his body was a burden to him. My advice to him was, to leave off the use of opium gradually, and to substitute in the room of it, strong coffee, garlic, the tincture of assafœtida, zinc, &c. and now and then a few drops of ether, with the pediluvium every night. These vicarious stimulants had the effect I wished for, insomuch that in the course of a week or ten days he passed his time comfortably by taking but 8 grains of opium in a day. For several days after he reduced the quantity of opium to the above dose, his fæces, urine, and semen were discharged in an involuntary manner. On the 5th of October he called upon me, and with great composure of mind informed me that he continued to mend, and that he thought he had found great benefit from the use of sweet fern tea, which he had added to the medicines I had prescribed for him. I now advised him to use gentle exercise and a change of air, which he did, and I believe with advantage. I met him occasionally afterwards in the streets, and as he did not complain to me of any remains of indisposition, I presumed that he had recovered.

“I am sorry to add, that in two other cases nearly similar to the one I have described, which have occurred under my care within the last ten years, I have not been equally successful by my prescriptions.

“One of them was in a German physician in the Pennsylvania hospital, in whom the opium had induced chronic derangement. He was inoffensive and even amiable in his deportment, and employed him-

self constantly in the day time in drawing what he called maps of the different apartments in heaven, which he said he visited every night. He died soon after he was admitted into the hospital.

From, dear sir, your friend

And well-wisher,


BENJAMIN RUSH."

MR. DANIEL WILSON.

Thus have I drawn to a conclusion this imperfect essay, in which I cannot forbear to follow the steps of many of my predecessors in claiming all the indulgence exercised on similar occasions by the professors. I should do violence to my feelings, if I did not acknowledge the many advantages which have been held out to me, from the lectures of the professors of the different branches of medical science in this university; and I should do equal violence to my feelings, if I did not also acknowledge the advantages which may be derived from the lectures on surgery by Dr. Physic, and the lectures of Dr. James and Church on midwifery. I conclude, with the belief that nothing but the want of capacity and attention on the part of the student will prevent his acquiring every thing, in a pre-eminent degree, that is taught in any university in the world, as far as it is connected with medicine.

THE END.





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