

Cases of tetanus, and rabies contagiosa, or canine hydrophobia : with remarks chiefly intended to ascertain the characteristic symptoms of the latter disease in man and certain brutes, and to point out the most effectual means of prevention / by Caleb Hillier Parry.

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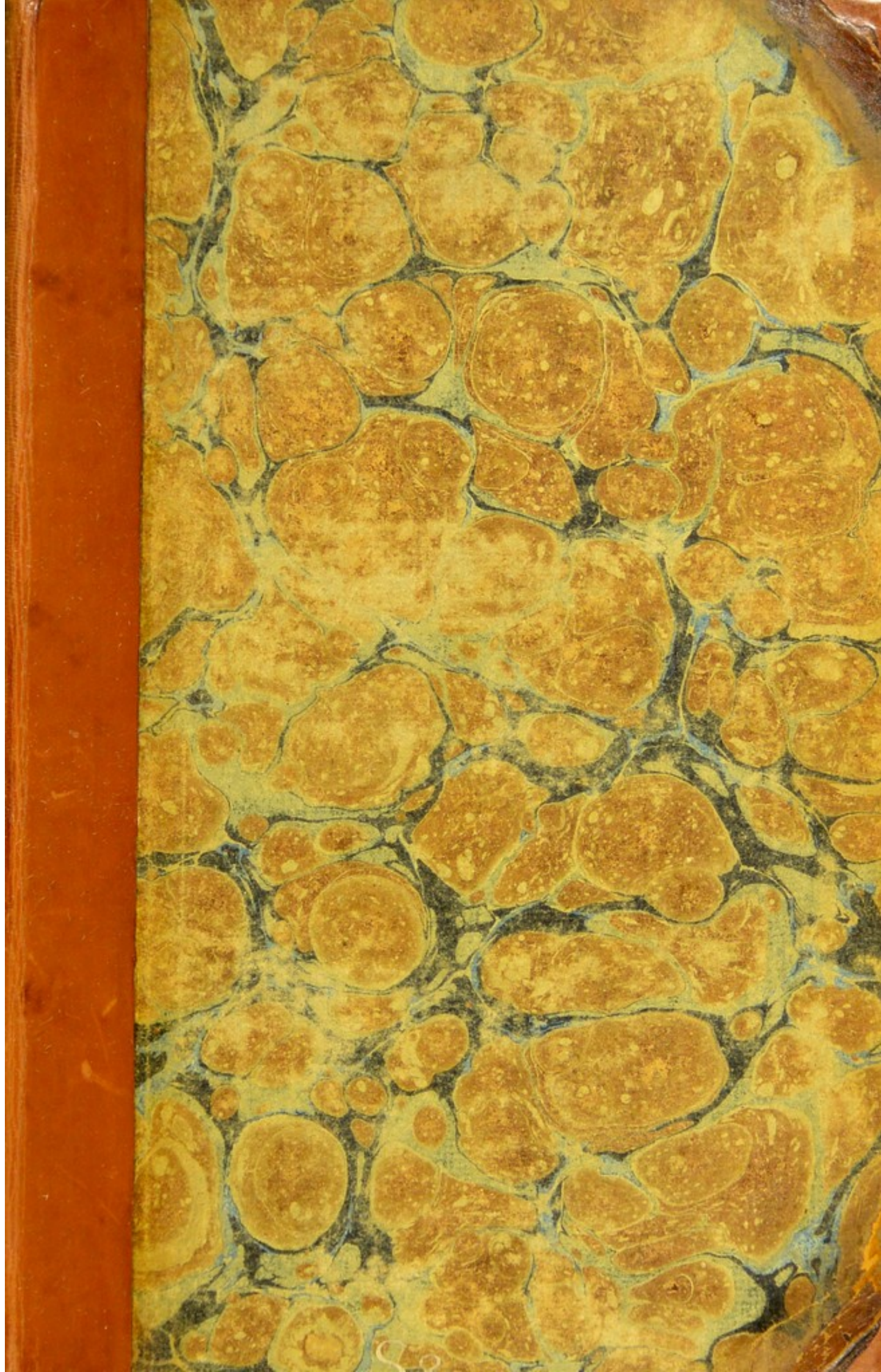
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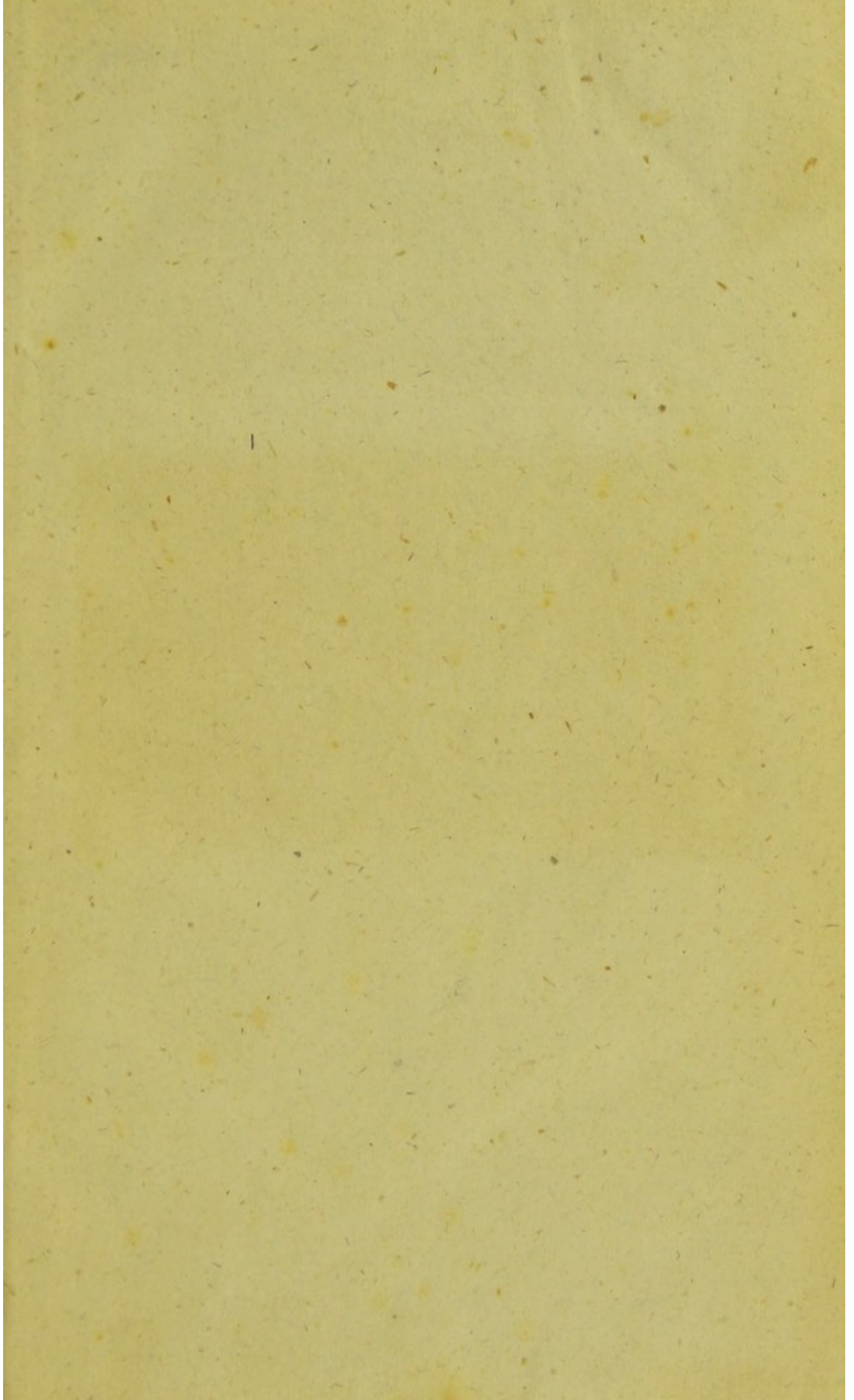
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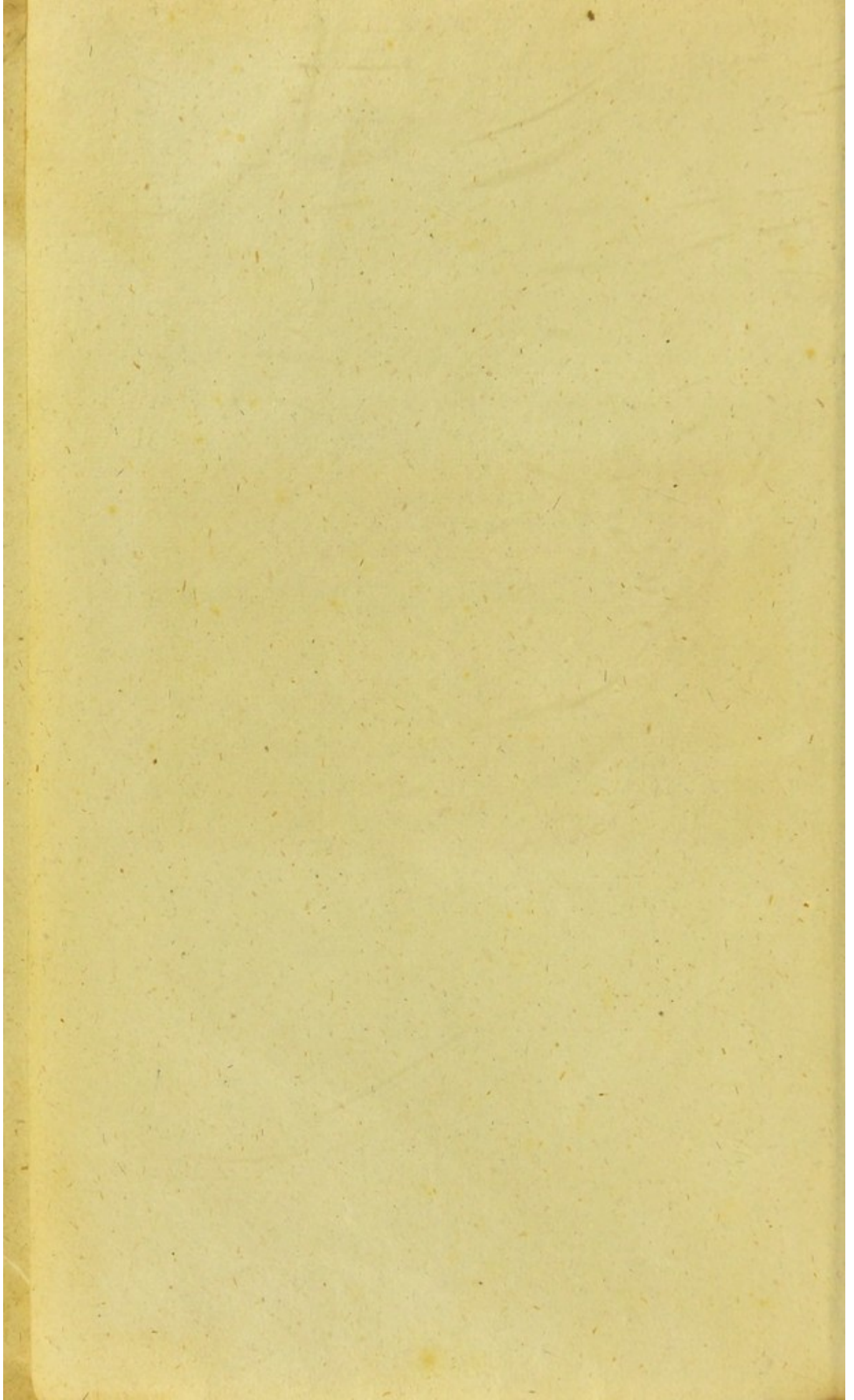
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From the Author

1872

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TETANUS;
AND
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OR
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WITH
REMARKS,

CHIEFLY INTENDED TO ASCERTAIN THE
CHARACTERISTIC SYMPTOMS OF THE LATTER DISEASE IN
MAN AND CERTAIN BRUTES,
AND TO POINT OUT THE MOST EFFECTUAL
MEANS OF PREVENTION.

BY
CALEB HILLIER PARRY, M. D. F. R. S.

Member of the College of Physicians of London; Fellow, and formerly President, of
the Royal Medical Society of Edinburgh; one of the Physicians of the
General Hospital at Bath; and Physician to the Casualty
Hospital and Puerperal Charity in that city.

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1814.

CASES

OF

TETANUS;

AND

RABIES COMMUNICATED

BY

CAVINE BYRORPHORA;

WITH

REMARKS.

BY

EDWARD HILLIER BARRY, M.D.

AND

AND TO POINT OUT THE MOST EFFECTUAL

MEANS OF PREVENTION.

BY

EDWARD HILLIER BARRY, M.D.

Author of the 'Essays on the Pathology of the Brain, Spinal Cord, and the Organs of the Sense, &c.' &c.

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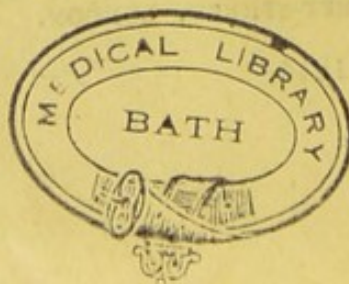
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GREENWOOD STREET




TO

EDWARD JENNER, M. D. F. R. S.

I Cannot better evince the gratification with which I contemplate our mutual friendship, uninterrupted during nearly fifty years, than by addressing a work closely connected with animal pathology to you, whose acutely distinguishing mind, long engaged in similar pursuits, has discovered, and carried to its ultimate perfection, a process more conducive to human safety and human health, than any, with which it has pleased Providence to favour us, since the earliest records of history.

That



That you may long enjoy the consciousness of having, in opposition to the prejudices of mankind, conferred on them important benefits, which promise to continue while the race itself shall endure,—a recompense, in your estimation, greater than the just applause of nations,—is the unfeigned wish of,

My dear and oldest friend,

Your's affectionately,

C. H. PARRY.

Bath, July 26th, 1814.

be gained, if I am able to shew its characteristic marks, and to ascertain its distinctions from certain other diseases, with which, by inexperienced persons, it has been often confounded. These diseases being chiefly Inflammation of the stomach and internal parts of the throat, Convulsions, and Tetanus, I shall begin with

SEVERAL cases of Canine Hydrophobia having within these few years occurred in this city, and much disagreement having taken place respecting the nature and symptoms of that disease; I think it will not be unprofitable to state to the public the histories of those cases, together with such remarks, as the quality and series of their symptoms may have suggested to me. And though it is not in my power to point out any better means than those which have been employed for its cure or prevention, some ground will
be

be gained, if I am able to shew its characteristic marks, and to ascertain its distinctions from certain other diseases, with which, by inexperienced persons, it has been often confounded. These diseases being chiefly Inflammation of the stomach and internal parts of the throat, Convulsions, and Tetanus, I shall begin with relating certain cases of the latter; immediately following them with a very few observations, and reserving others till the discussion on the Hydrophobia itself.

TETANUS.

CASE I.

JAMES SYDLING, aged 40, had the leg amputated, on the 28th of March 1801, at about one-third of its length below the knee. Every thing went on well till eleven o'clock at night on the second of April, when he began to have pain in his head and throat, and rigidity of his jaws, and passed the night without sleep. The next morning I found him with his head immovably fixed, and all the muscles of his face and neck quite rigid; so that he could neither open his mouth, nor swallow any thing. He had no head-ach or giddiness, and his senses were perfect. His face was flushed, and he was in a great sweat all over his body and limbs. Pulse 148, and full; and that in the carotids very strong. No stool for three days.

A glyster of a quart of water-gruel and an ounce of salt was injected, and twelve ounces of blood were taken from the arm.

At three o'clock in the afternoon he died very easily, having had no convulsions, and perfectly retaining his senses.

His blood was tough and hard throughout its whole substance, and covered with a cupped crust of coagulated lymph of considerable thickness.

On the 4th of April, at half-past nine in the morning, the head was opened, and the stump examined.

In the latter, every thing was going on well, without swelling, or any unfavourable appearance.

In the brain, the vessels of the pia mater were all over unusually distended with blood; but there was no preternatural quantity of fluid, or any other vestige of disease observable any where within the membranes.

CASE II.

WILLIAM GODBY, aged $5\frac{1}{4}$, on the 10th of October 1807, was thrown down by a cart, the wheel of which passed over his right foot, fracturing the great toe, and producing a large
lacerated

lacerated wound up the instep. The toe sloughed off, and the wound for some days made a favourable progress; none of the metatarsal bones seeming to have been fractured, and the remaining tendons not being exposed or injured. He was also free from fever, and in every respect going on well till the morning of the 18th, when he had a difficulty of opening his mouth, and a pain in his back. At eleven o'clock he was brought to the Casualty Hospital, where he complained to Mr. GEORGE NORMAN of a pain in the back of his neck, his cheeks, and about the masseter muscles. Mr. NORMAN ordered him large doses of tincture of opium.

At seven the same evening he was seized with a sudden contraction of the muscles of the back and neck, drawing his head violently and rigidly backwards, together with a strong contraction of his jaws, a choking in his throat, and a discharge of bloody saliva from his mouth.

On the 19th, at two in the afternoon, I visited him. He had taken two drachms of tincture of opium. The contractions had occurred four or five times, each attack for four or five minutes, and then ceasing; at which time, if he was lying down, the muscles appeared to be relaxed. If, however, he was taken out of bed, raised up, or even moved, the muscles, after the lapse of a few
B 2 seconds,

seconds, were again contracted, and the jaw locked. During one of these fits Mr. NORMAN was called up, and found his pulse 160 in a minute. He ordered cold affusion, which had been practised twice, but each time brought on fits of contraction.

At the time of my visit, his pulse was 140, and full; and he had a good deal of heat and sweating. He had no head-ach or giddiness, was perfectly sensible, answered questions well, said he was in no pain, and opened his mouth and swallowed easily. This had been always the case, except during the violence of the paroxysms. He had slept occasionally, and breathed well. His bowels had been slightly open; and his urine, according to the report of his attendants, was in considerable quantity, and natural as to colour.

The cold affusion was ordered to be frequently repeated.

7 P. M.

The cold affusion had been used twice, and each time produced a fit; so that his parents earnestly requested that it might not be repeated. The child was evidently worse; for though he answered questions well and rationally, his pulse was 180 in a minute, the contraction of all the affected muscles was more violent than before, and there was great labour of respiration, which
appeared

appeared to be carried on chiefly by the diaphragm, though at times the ribs were suddenly and preternaturally elevated.

He was ordered to take a grain of tartarized antimony every half-hour, till he vomited.

He took about three grains without vomiting, became more frequently and more violently convulsed, and died quietly at one o'clock in the morning.

A dissection was not permitted.

CASE III.

WILLIAM COLLINS, aged 30, was admitted into the Casualty Hospital on March 7, 1809, with a laceration of the integuments over the inner side of the left gastrocnemius muscle. The wound was about four inches in length. Mr. GEORGE NORMAN brought the edges together, in expectation that the part would heal by the first intention. There were also two small wounds, one on the external angle, the other below the inner angle.

When the dressings were removed two days afterwards, the skin round the upper wound, for six inches in length, and three in breadth, appeared

peared dead, and afterwards sloughed off in the usual time. The wound then had a healthy appearance; but the granulations rose very slowly.

About the 27th of March, he became unable to straiten the left knee, in consequence of some fixed contraction of the flexor muscles of the thigh. In the course of the two next days he had the additional symptoms of stiffness in his back, jaw, and forepart of the belly. These affections continue to-day, (March 30,) though he is able to raise himself in bed without assistance, and in some degree, though difficultly, to open his mouth, so as to eat and swallow food. Is free from giddiness, pain, and every other uncomfortable sensation about his head. Pulse 90, and soft. Skin cool.

He has taken since the day before yesterday twelve grains of calomel, and one hundred and thirty drops of tincture of opium.

MARCH 31.

Pulse 96, and full. He has had four stools to-day, but complains of great flatulency in his stomach. He has slept about an hour this morning. His skin is rather hot. His jaw and back are less stiff, and he has been able to swallow well, though he cannot open his mouth more than half an inch. His right leg is affected with
a good

a good deal of tremor, and, as well as the thigh and the other leg, is very stiff and rigid.

He has taken since yesterday twelve grains of calomel, and one hundred and eighty drops of tincture of opium; and his gums have been for these two days slightly sore.

APRIL 1.

Pulse 120, and full. Skin rather hot. He had little sleep till this morning. Had seven or eight motions after my visit yesterday. Mouth and throat more sore from the mercury. Head in no degree affected. His back and jaw are less stiff, and the left knee is now capable of being straitened. The cramp now chiefly affects the lower portion of the right rectus abdominis muscle, which is very hard, painful and sore to the touch, so however as not to draw his body forwards. The pain increases by fits, so as to make him frequently cry out. Leg of the same side rigid.

Has taken eight grains of calomel, and one hundred and eighty drops of tincture of opium.

APRIL 2.

Pulse 94, and soft. Skin cool. No motion since the night of the 31st. No head-ach. Has had very little sleep on account of the sharp
cramps

cramps in the side of the belly, which however are now less frequent. The stiffness of his back and jaw are lessened, but he cannot open his mouth sufficiently to put out his tongue. His mouth continues very sore.

He has taken fifty drops of tincture of opium every six hours, beginning at two yesterday afternoon; in all two hundred drops.

Let him take a strong dose of infusion of senna.

APRIL 3.

Pulse 84, and full. Had no stool from the senna yesterday; but a small one at two this afternoon. Skin cool. Appetite good. During the night had a good deal of the spasm in the belly, with great soreness there, which prevented him from readily making water. All his spasms are less to-day, but he is still unable to put out his tongue. The soreness of his mouth continues.

He has taken one hundred and fifty drops of the tincture of opium.

APRIL 4.

Pulse 84, and full. Had five or six motions after my visit, before bed-time yesterday. Slept tolerably well during the night. His leg is less stiff; and he has had little spasm in the belly. The jaw and back are also much better, though
still

still sore and slightly stiff. He has had some cramp this morning in his left shoulder. Feet warm.

Has taken one hundred and fifty drops of tincture of opium.

APRIL 5.

Slept last night still better than on the preceding. He has had a stool to-day from infusion of senna taken this morning. He is in every respect better, though his legs continue somewhat stiff.

Has taken only one hundred drops of tincture of opium.

APRIL 7.

Pulse 72, and soft. Had four motions after my visit of the 5th. Sleep good. Mouth still sore. Spasms gone.

He continued for several days to have stiffness, but no cramp, in the leg and rectus muscle. His pulse came down to 64, and he was otherwise well, except that his leg was not quite healed, when he left the house at his own desire.

It must be remarked, that, previously to the attack, this man was always fretting and discontented.

CASE IV.

Feb. 19, 1809. ANNE ALFORD, aged 22, during the late severe frost was out in the country keeping sheep; in consequence of which her toes became frost-bitten, and are sloughing, in the right foot only superficially; in the left foot, down to the bone of the three smaller toes, of all of which the first phalanx is coming off. She was brought into the Casualty Hospital yesterday morning, with some stiffness in the jaw, and her body bent rigidly forwards. She has not been able to eat since her dinner on the 17th, the evening before which she complained of some soreness in her throat.

In the middle of last night she was seized with violent convulsions, in which she was black in the face, produced, as it was supposed, by attempting to swallow a teaspoonful of wine, which almost strangled her; since which she will take nothing, expressing great uneasiness when liquor is put between her teeth. In the night she cried out from pain in her back; and at eight o'clock this morning spoke, and complained of pain in her throat and jaws. She is now lying, not insensible, but unable to speak, with her head drawn rather stiffly backwards, and her jaw firmly fixed; but moving her hands well. Pulse 132, weak

weak and regular; respiration quick, sobbing and moaning. During each expiration there is a constant sputtering of saliva out through her teeth. Since her admission into the house, she has taken one hundred and forty drops of tincture of opium.

Let ten drachms of strong mercurial ointment be immediately well rubbed into her legs and thighs.

At half-past five p. m. there came on a violent fit of convulsions, in which, after half an hour, she died.

Her body was opened at nine o'clock on the following morning, February 20, in my presence, by Mr. GEORGE NORMAN.

She was fat, and strongly made. The blood was every where fluid. When the brain was cut through, there appeared in it, and in the base of the cranium, somewhat more than the usual quantity of fluid; but neither in the coverings, substance, nor cavities of the brain or cerebellum, nor in any other part of the body, was there the least appearance of disorder, except some slight inflammation within the trachea, beginning about an inch and a half below the upper edges of the aretenoid cartilages, and extending two inches downwards, covered with a little frothy fluid like saliva.

The two first phalanges of the two smaller toes of the left foot were nearly separated at the joints.

It must be acknowledged that the origin of the disease, which is exemplified in these four cases, is of most difficult investigation. A person, in apparently sound health, shall receive a wound, or some other injury, usually in the extremities. This wound shall be extremely slight, as the mere prick of a thorn in one finger; or, if more violent, shall proceed in the most favourable way towards recovery; when, on a sudden, in some instances within a few hours, the patient shall be seized with a stiffness of certain muscles, which shall vary in force at different times, and even occasionally, and for a short time, cease. This stiffness being owing to a rigid contraction or cramp of the affected muscles, is accompanied, like other cramps, with pain of a well-known kind, which is often extremely violent. I do not know that there are any of the voluntary muscles, which are not liable to be affected with these spasms; but I believe that, in human beings, they most usually and severely attack the muscles of the head, neck, back, and belly. I have however often seen lambs, whose ears, for the purpose of marking them, have been bored with a red hot iron too near the root, so rigid all over with Tetanus, alternating with convulsions, that their bodies would project in a right line with their hind legs, when one held them out horizontally

tally by the hind feet. When the spasms affect the temporal and masseter muscles, as is usually the case, the lower jaw is more or less rigidly drawn upwards against the upper jaw, and that modification of the disease is produced which is called Trismus, or locked jaw. It sometimes happens that these parts are chiefly or alone affected.* So also, conformably to the principal seat of the malady, there often occurs difficulty of swallowing, or irregularity or difficulty of respiration. The trunk of the body, also, will be drawn either backwards or forwards, accordingly as the spasm seizes the dorsal or abdominal muscles. These contractions may occur in a greater or less degree, or be more or less extensive; and may alternate with shorter or longer relaxations, occasioning in the first case what are called convulsions, and, in the second case, a state of rest. This rest is, however, of short duration, and is soon interrupted either spontaneously, or by some bodily or mental emotion, which almost immediately renews either the spasms or convulsions.

Notwithstanding the violence of these inordinate actions, and the extreme quickness of pulse, which usually accompanies them, there has been, in all the cases which I have seen, a perfect exemption from delirium, and from pain or giddiness of the

* According to SABATIER, the simple Trismus occasionally arises from dislocations or contusions.

head, until the last moment of life; which usually occurs within four days, and often within forty-eight hours, from the first symptoms of the disease.

What particular texture of the body requires to be wounded in order to produce this dreadful train of occurrences, no observations have hitherto enabled us to ascertain. That it is not necessarily connected with the fibrous texture, or that of tendons, is now I believe generally admitted. I have seen a long thorn driven entirely through the tendo Achillis, producing little soreness of the part, and a pain, not there, but immediately in the ham of the same leg; the patient continuing to walk, with no dressing but a bread and milk poultice, till, on the fifth day, the thorn, which had been before sought for in vain by three surgeons, approached by suppuration to the surface, so as to become visible, and was then easily extracted. A piece of common diachylon plaster was applied to the part, and the patient felt no farther inconvenience. This was certainly a fair case for observing what power the wound of a tendon possesses of inflicting serious injury on the constitution. In the various experiments on tendons made by HALLER, in order to investigate the sensibility and irritability of those parts, no bad consequences whatever ensued. I have mentioned also that I have seen several examples of Tetanus produced
in

in lambs by wounds near the root of the ear, in which the texture is very different from that of simple tendons. The disease also has sometimes supervened to castration.

It is indeed certain that this malady often arises from other causes besides wounds. Among the Negroes in the West-India Islands, it is no unusual occurrence; and is there generally attributed to exposure to cold and night air during sleep. I have seen a similar example, without a wound, in my own practice. The cause could never be discovered; but I deeply regret that the absence of the patient from Bath prevented my regular attendance, and thus incapacitated me from recording the history of a case so interesting, and which terminated fatally. There was no examination of the body after death.

At a certain period, a great mortality from this disease obtained among new-born Negro infants; but I am assured that the malady was, at last, in a great many instances traced to some circumstances attendant on the division of the navel-string; which being changed, the mortality was soon checked.

These circumstances lead us to no conclusion as to the point from which we set out, the origin of the malady. If we suppose it to be a poison *sui generis*, we must admit that it is capable of being produced in different parts, and without the necessity of a wound.

Nor

Nor is it easy to ascertain on what part of the frame, or on what particular function, it chiefly acts. The temporal and masseter muscles are supplied with nerves from the third or inferior maxillary branch of the fifth pair, and from the portio dura of the seventh pair, or the facial nerve. Both these are properly nerves of the medulla oblongata; but no part of that portion of the nervous system has appeared, in the dissections of tetanic patients, to labour under any disease. Neither, indeed, throughout the whole course of the malady is there any delirium, or other perversion of the mental faculties, so as to induce a suspicion of any disorder of the parts contained within the cranium. Conformably also to this conclusion, we observe in this disease none of that difficulty of breathing, which accompanies either apoplexy, or the stupor of epilepsy; in which latter malady, the brain, after having been overstimulated, appears to suffer a degree of torpor, inconsistent with the due performance of the associated process of respiration, by the voluntary muscles appropriated to that function.

If, however, the masseter and temporal muscles are supplied by what are commonly considered as cerebral nerves, the dorsal and abdominal muscles, which are usually affected in the Tetanus, are well known to derive their powers of voluntary motion

from

from the vertebral nerves. I do not know whether the spinal marrow has been ever examined with a view to discover its state in these cases ; but, from the analogy of the facial nerves just mentioned, I should not expect to find, in that part, any perceptible deviation from the healthy condition.

In reality, that system on which the cause of Tetanus, whatever it may be, is found to act, is evidently the muscular ; not only of voluntary motion, or what BICHÂT terms animal life, but also of automatic or involuntary motion, called by BICHÂT organic life. We see the first in the facial, cervical, dorsal, abdominal, and other voluntary muscles ; and the latter in the heart, the actions of which are preternaturally quick ; so that, in this malady, one may fairly estimate the danger of the disease, on one hand, or the probability of recovery, on the other, by the quickness or slowness of the pulse.

If, however, we look for this increased action of the heart in the origin of the cardiac nerves, which, according to LE GALLOIS and others, is in the medulla oblongata, about the roots of the par vagum, we shall there find no change from what appears to be the natural state.

It seems, therefore, as if the cause of this malady operated in some unknown manner on the *vis insita* of the muscles ; whether we judge that

power to depend on mere organization ; or to be a substance, like what has been supposed to be the principle of life in other parts, acting upon a structure fitted to receive its influence ; from the loss of which in the heart, that organ, finally exhausted, sinks, and the patient dies.

But whatever may be the mode in which it is acted on, the heart, in reality, seems to be that part of the frame, which, in Tetanus, first loses its vital powers.

On an observation of this fact, we may, as I have before hinted, form a just, or at least a highly probable, conclusion as to the event of the disease. If, in an adult, the pulse by the fourth or fifth day does not reach 100 or perhaps 110 beats in a minute, I believe the patient almost always recovers. If, on the other hand, the pulse on the first day is 120 or more in a minute, few instances will, I apprehend, be found, in which he will not die. In my patient COLLINS, the pulse on the fifth day reached 120 ; but I have little doubt that the increase of quickness arose from the increase of salivation, all the other symptoms of the disease being then on the decline.

It will, I greatly fear, be found, that the boasted success of means for the cure of Tetanus chiefly depends on the circumstances which I have just stated : that is, if the pulse remains for five or six days

days slow, the patient will recover, under any, and possibly, in many cases, without any remedies. If it is early quick, he will die, in spite of all the known remedies. The truth of this prognostic has been verified in six examples, which are all that have occurred in my practice. Within a few days also of this time,* the same thing has happened, in this city, to Mr. GEORGE GOLDSTONE, assisted by Mr. GEORGE NORMAN, in the case of a boy aged 12, the flexor muscles of whose little finger were torn by the bursting of a small cannon. In this case, the parts principally affected were the dorsal muscles; a power remaining of opening the mouth in a certain degree, and of swallowing a little. On the first day there was only slight stiffness, with a natural pulse; on the second day the pulse was 86; on the third 96; on the fourth 120; on the fifth 160, when the patient died. It is curious that, in this case, on the first day, and that only, touching the sore part would bring on a spasm of the dorsal muscles. Whether the mercury exhibited in the case of COLLINS was in any respect beneficial, I greatly doubt. It did, indeed, produce salivation; but in this instance, as in that of Yellow Fever, in which it has been so highly recommended, it must be remarked that salivation is a slow process, which requires for its

* July 1, 1814.

production a lapse of several days; and it is evident that this lapse, in a case either of Tetanus or Yellow Fever, implies such a mildness of disease, as might have admitted of recovery, by the native powers of the constitution, if neither that, nor any other remedy, had been employed. The same may be said with regard to the opium.

Opium, though given very liberally for his age to GODBY, was of no service whatever; nor was it more beneficial in the case of ANNE ALFORD, or of the Gentleman whom I have mentioned as dying of idiopathic Tetanus.

In the last of these patients bleeding was pretty largely tried; though not to the extent which has been of late recommended in Hydrophobia. It produced no sensible effect.

Cold, which certainly much relieves the cramps of the legs and feet which occur in Cholera, and in Gouty constitutions, was very fairly employed by affusion of cold water in the case of GODBY; but was evidently injurious. The lambs, to which I have before alluded, were long kept in cold water, without the smallest relaxation of the spasms. No better consequences resulted from bleeding them.

If we search the various medical journals, we shall find means proposed, and many cases recorded in proof of their efficacy in the cure of
Tetanus,

Tetanus, especially where it arises idiopathically, without any previous wound. That spasm of the lower jaw, which usually accompanies Tetanus, is no unusual occurrence in common Nervous affections. The same disorders are often attended with what is called Episthotonos, Opisthotonos, and Emprosthotonos; which are forcible contractions, of longer or shorter duration, of the muscles of the abdomen and back, so as to bend the whole body with great violence forwards or backwards, or to keep it perfectly rigid. All these symptoms are however transitory, often alternating with other nervous symptoms, and always, I believe, arising from excessive irritation of the brain or spinal marrow.

These, being disorders which have little tendency to a fatal termination, are capable of relief from remedies, and, in many instances, in a short space of time. He who cures them will scarcely, however, arrogate to himself the merit of having cured the Tetanus.

But even where there may be reason to conclude the cases to be of a genuine kind, they are often so loosely and compendiously narrated, that no one can form a just judgment as to their violence, or the degree of credit which is due to the various means employed for their relief. This is the defect in a paper by Mr. DICKINSON, in a
late

late Journal;* in which are related ten cases of idiopathic Tetanus, and thirteen arising from wounds. Not a word is said in any of them, except one, respecting the state of the pulse; and the histories of these twenty-three cases, together with the account of the means employed, and a summary of the events, are contained in less than ten octavo pages. The loss of this admirable opportunity of affording information as to the cure is the more to be regretted, as there appears no reason to doubt the authenticity of the facts, which occurred in Negroes in the West-Indies, and in the treatment of which, all the most accredited remedies seem to have been diligently tried.

Notwithstanding the inefficacy of measures hitherto employed in the Tetanus, when a case actually occurs, some curative means must be attempted. The quantities of opium which are said to have been taken with this view, are almost incredible. One has heard of an ounce of the tincture given at a dose, and several times repeated, without producing the smallest alleviation of the symptoms.

Hot and cold bathing have certainly, on the whole, done injury.

* London Medical, Surgical, and Pharmaceutical Repository, vol. i. p. 190. Of these cases of idiopathic Tetanus four recovered; and of those from wounds the same number.

Dr. CULLEN, whose history of the Tetanus is extremely comprehensive, but, I doubt, rather taken from authors than from his own observation, assures us that bleeding is mischievous.

Mercury, as I have before observed, can be beneficial, by its specific powers, only in those cases, which, being mild, run out into considerable length. If, however, as Dr. CULLEN asserts, the Tetanus is apt to be renewed after having been relieved, it will be well if this remedy shall be found to shorten the malady, or prevent relapses, even in the slighter cases.

Were an instance now to occur to me, I should be disposed to try the effects of large doses, frequently repeated, of calomel and jalap, as a purgative; so as to procure very copious evacuations during several days. It was chiefly with this view that the calomel was administered in the case of COLLINS; and a similar practice seems to have been the most successful in the cases of Mr. DICKINSON. If, however, the pulse were at the beginning of the malady 120 or more in a minute, I would add to these remedies friction with mercurial ointment, to the amount of one or two ounces in the twenty-four hours, successively or conjointly employed, on the legs, thighs, abdomen, and arms. This latter remedy, united with drastic purgatives, might be tried, where, from
the

the violence or situation of the disease, the patient was unable to swallow.

For the cure of this disease, wine and bark in large quantities have been recommended by Dr. RUSH, and cases have been published in proof of their efficacy. Since, however, these cases have been defective in that precise enumeration of symptoms, which would enable us to judge whether they were of the chronic or acute kind, we have no means of appreciating the powers of the proposed remedies.

On the whole, it appears to me that the cure of the acute Tetanus still remains to be sought; and, since we have so little analogy to direct our search, it will, I fear, not readily be found.

Tetanus is by no means an uncommon malady among brute animals, in which it occurs idiospathically and from wounds. I have mentioned lambs so affected from the latter cause; and Mr. SEWELL, an ingenious veterinary surgeon of this city, has given me the four following examples in horses, which have occurred in his practice within a short period.

Cases of Idiopathic Tetanus.

CASE I.

“ March 8, 1808. A grey mare belonging to
“ the Trumpeter of the Bath Volunteer Cavalry,
“ which had not been out that day, or otherwise
“ heated, and was to all appearance in perfect
“ health, had water given her by the groom in the
“ afternoon. I was present, and saw the animal
“ drink a bucket of water, which, as usual, was
“ drawn from the pump. In ten minutes she
“ shewed pain and stiffness in the near hind quar-
“ ter, and trembled very much.

“ I ordered her to be led out of the stable,
“ thinking that exercise would remove the com-
“ plaint. In five minutes the whole of the near
“ side was affected, so that it was with the greatest
“ difficulty we got her in.

“ I took blood, gave medicine, and ordered her
“ to be kept quiet.

“ In two hours the whole body became affected,
“ and the muscles along the neck. In twelve hours
“ the jaw was fixed; and in twenty-four hours
“ from the time she was taken, she died in the
“ greatest agonies.

“ Upon

“ Upon dissection, no inflammation or disease
“ whatever appeared in the thoracic or abdominal
“ viscera, or any other part of the body.”

CASE II.

“ November 8, 1811. I was called to a grey
“ horse, belonging to Messrs. SALMON and Co.
“ brewers. The man had observed that the horse
“ was a long time in eating his corn, and drank
“ with great difficulty. Upon examining him, I
“ found the jaw partially fixed, and the muscles
“ along the neck and back very rigid.

“ The disease could not be accounted for. I
“ took off his shoes, and carefully examined him
“ all over, thinking that some accidental wound
“ or puncture might have taken place; but I
“ could find none. Recollecting the former case
“ I thought the complaint might be owing to the
“ same cause; but I could not prove it.

“ I bled him, and returned home for some
“ medicine. On my return, which was in not
“ more than half an hour, his jaw was closed, so
“ that I could not get any thing down. The
“ symptoms became more violent every day till
“ the 26th, when he died.

“ No cause could be discovered on dissection.”

Tetanus

Tetanus from Wounds.

CASE I.

“ June 20, 1811. A black mare, belonging
“ to Mr. WARREN, at grass received a stake
“ wound, running up the inside of the off thigh,
“ tearing the fascia and muscles for upwards of
“ fourteen inches. I attended her till the 17th of
“ July, when the wound was so near healed, the
“ animal going quite sound, that I consented to
“ her being rode on the 18th and 19th. She was
“ rode short journies. On the 20th, upon going
“ up to her in the stable, I observed the membrana
“ nictitans thrown over the eye more than usual.
“ Upon moving the animal, I found that Tetanus
“ had taken place, the whole system appearing
“ affected. The wound, which was very trifling,
“ was perfectly healthy.

“ I immediately bled, and with difficulty got
“ down a little medicine, but not so much as
“ I intended.

“ The jaw in twenty-four hours became fixed,
“ and the symptoms increased every day, so that
“ the animal died on the 26th of July.

“ On

“ On dissection, the wound appeared to have
 “ granulated, and was free from inflammation, or
 “ unhealthy appearance. No cause appeared in
 “ the thorax or abdomen.”

CASE II.

“ April 3, 1813. A grey horse belong to T.
 “ G. LOWDER, esq; became lame in the off fore-
 “ leg. Upon examining, I could not find any
 “ thing in the foot, but thought that he had
 “ bruised the heel. On the 5th, not finding the
 “ animal better, I was convinced that there was a
 “ greater cause of lameness than we had disco-
 “ vered; consequently I began cutting the pos-
 “ terior part of the horny frog. After removing
 “ a portion, my knife came in contact with a nail,
 “ which was buried three parts of an inch in the
 “ fatty part of the frog; and the horn was quite
 “ closed over it, so that the orifice where it en-
 “ tered was not visible. It was taken out, the
 “ wound dressed, the foot put into a poultice, and
 “ the animal remained at rest.

“ On the 6th we considered the horse better.

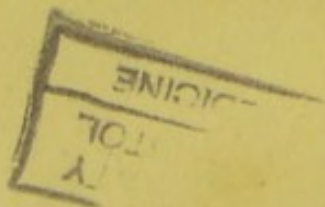
“ On the 7th, I ordered him out, to see him go.
 “ On his trotting, I observed a general stiffness
 “ in his action, the muscles of the neck and back
 “ being

“ being very rigid. I told Mr. LOWDER, who
“ was present, that Tetanus was coming on ; but
“ the wound was so trifling, that he could not
“ believe me. I called in the afternoon. The
“ symptoms were increasing very much, so that
“ Mr. L. was convinced that I was right. I
“ began to reduce the system, but the jaw became
“ fixed, and the symptoms so distressing, that as
“ there was no chance of recovery, Mr. L. shot
“ the horse on the 12th.

“ On dissection, no inflammation appeared
“ about the part ; and the nail had not touched
“ the tendon by half an inch.

“ I have had several cases of Tetanus brought
“ on by watering horses, when very hot, or allow-
“ ing them to drink cold water when they were
“ hot. In these cases, where the jaws have been
“ very partially affected, the animal has recovered ;
“ but never after the jaw has been closely fixed.”

The last but one of these cases appears to me particularly interesting, as it shews that there is no period of a wound, short of perfect union of parts, in which a patient can be considered as altogether safe from this dreadful malady.



"being very high. I told Mr. Leonard, who
 "was present, that I think was coming on; but
 "the wound was so tender, that he could not
 "believe me. I called in the afternoon. The
 "symptoms were increasing very much, so that
 "Mr. L. was convinced that I was right. I
 "began to reduce the system, but the jaw became
 "fixed and the symptoms so threatening, that as
 "there was no chance of recovery, Mr. L. that
 "the force of the jaw.

"On the 11th, no inflammation appeared
 "about the part; and the jaw had not opened
 "the tendon by half an inch.
 "I have had several cases of tetanus brought
 "on by wounds, but never with any success
 "my them to speak could not when they were
 "hot. In these cases, after the jaw has been
 "very partially affected, the animal has recovered;
 "but never after the jaw has been closely fixed.

The jaw in one of these cases appears to me
 "paralytically insensibility, as it appears that there is
 "no period of a wound, that is, period of
 "parts in which a patient can be considered as
 "altogether insensible for the whole length.



RABIES CANINA
CASES
OF
RABIES CONTAGIOSA,
OR
CANINE HYDROPHOBIA:
WITH
REMARKS.

RAEHLER'S

GRIDS

RADIIUS GONIA GLOSSA

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GAINING HYPOPHARYNX

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REPAIRERS

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RABIES CONTAGIOSA

IN MAN.

CASE I.

March 12, 1807. Master EDMUND ENGLISH, aged $3\frac{1}{2}$, had been subject to ear-achs, and, in December 1806, after considerable pain, which was always increased by coming near a fire, had suppuration, which continued for several days.

On the 17th of January last, while walking down his father's yard, led by a man, he met a strange dog, which was coming into the yard, and following a bitch of his father's. The little boy had a stick in his hand, with which it is probable that he struck the dog, who immediately bit him in the right cheek, without having, so far as appears, molested the other dog. The man immediately drove him away, apparently intimidated; and afterwards following him, saw him standing quietly at a neighbour's door. He then spoke to

the dog, who seemed to recognize him, and ran away, so that the man saw him no more; and the family were never after able to learn any thing of him.

The patient was attended by Mr. GEORGE NORMAN, who found in the cheek two lacerations, one above the other, apparently from the different rows of teeth; the upper wound being an inch long, the lower two inches. As there had been at this time no report of any mad dogs in Bath, Mr. NORMAN very properly attempted to heal both wounds in the most speedy way. The lips of each wound were therefore drawn together. The upper healed by the first intention, as did the greatest part of the lower; so that both were well in three weeks, leaving some hardness, but no soreness, between the two cicatrices.

The patient went to school, and remained well till the night of March the 10th, when he was in some degree restless.

On the 11th, he eat his breakfast well at school, but not his dinner; on seeing which he turned pale, though he had previously seemed to wish for it. It was consequently suspected that he was breeding the Measles; and he was therefore sent home about four o'clock in the afternoon.

At ten at night he complained of pain in his right ear and in the side of his head, both of which

which he himself attributed to a fall, which, according to the report of his school-mistress, he had stated himself to have had about a fortnight before; though, if it had really happened, no consequences had at the time appeared to result from it. He was also hot, and had a quick pulse. From the time he came home, food and drink had been repeatedly offered him, but constantly refused with a sort of horror.

He passed the night of the 11th without rest, frequently starting up after remaining a few minutes quiet, or on the verge of sleep, throwing off the bed-clothes from his neck and breast; and crying out violently, if any one attempted to touch his neck or head.

At half-past ten on the morning of the 12th, I saw him, with Mr. GEORGE NORMAN. His face and eyes were red and hot; his pulse 120, full, strong, and regular. He appeared altogether like a patient under the commencement of Scarlatina. We attempted to look into his throat; but he struggled so violently, that all our efforts were fruitless. He had no cough or hoarseness. He had frequent convulsive startings, which were of short duration. The horror on any attempt to give him food or drink continued as before, producing startings of unusual violence. He answered all questions well, and, when asked how

he did, said that his head and ear pained him. He lay in the lap of a female friend of the family, with his hand applied to his right ear; about which, as well as in the cheek, there was no external mark of disease. During the day, a good motion had been procured by a glyster.

A grain of tartarized antimony, dissolved in water, was ordered to be given him every quarter of an hour till it vomited him.

MARCH 12, 9 P. M.

The solution of tartarized antimony had been forced down his throat four times, in spite of the most vehement emotions, during which he once made water involuntarily. No nausea had been excited, but he had been several times purged. From four till half-past five, he appeared delirious. Pulse 140, and very strong. Flushing of his face violent. All other symptoms as before.

There being no possibility of administering remedies by the mouth, we agreed to try the effects of some sedative in the form of a glyster; and with this view ordered an infusion of a drachm of tobacco in eight ounces of boiling water, of which three ounces were to be thrown up as soon as possible, and repeated during the night.

MARCH

MARCH 13, 10 A. M.

About eleven at night he bled two ounces from the nose, and again half an ounce about half-past three this morning. The first glyster was given at eleven, and the second at two. Both immediately returned, the second with some fæces; but they produced no other sensible effect. He passed the night without the least sleep, talking incessantly and quickly of objects about him which did not exist; sometimes repeating in rapid succession the names of a great number of things which he would not eat or drink; at other times asking for liquids, and when they were brought, dashing them away with his hands with violent outcries; yet at the same time answering, with perfect rationality and calmness, any question which was asked him.

In the morning, the delirium ceased; but he was constantly restless, looking about him with great apparent anxiety and apprehension, and turning his head quickly in every direction; equally averse to food and drink, and also to be touched any where about his neck or head, while at the same time he expressed not the least uneasiness or objection while I pressed on any other part of his body, or felt his pulse. His face and eyes were less flushed and red; and during part of my visit he was sitting on a close-stool, saying

saying that he wanted a stool, and at the same time amusing himself with his play-things. When I asked him respecting his head, he told me that it did not ach, but that his right ear was still bad. The startings had continued as before ; and all his voluntary actions were performed with a convulsive quickness, so as often to defeat his own attempts. Pulse 118, and more soft.

The glysters of tobacco were ordered to be repeated.

MARCH 13, 6 $\frac{1}{2}$ P. M.

Pulse 140, and very irregular. An injection was given at two, which was retained a quarter of an hour, producing sickness and urging to vomit, with great convulsions, and an irregular, small, and quick pulse. About five o'clock, while sitting in the lap of his female friend, on being asked whether he would wash his hands, he desired to have a bason of water brought to him, and taking a piece of dry soap dipped his hands into the water ; on which he immediately sprung backwards, dashing the bason from him with vehemence, and, violently agitated, continued to rub his hands for some time afterwards quickly and wildly.

From the time when the glyster was given, he chiefly continued in bed, became more quiet after the convulsions, lay with clasped hands and rigid arms,

arms, and spoke seldom, only answering no or yes, when asked any simple question. He was, however, still much agitated, looking wildly from side to side, with frequent catchings in his breath, and crying out, with occasional choakings in his throat. He seemed, however, to swallow his saliva without much difficulty. His eyes were red, and running over with tears, and the pupils were preternaturally dilated, even when a candle was brought near them. Urine in very small quantity, and pale, with a white sediment in it like chalk. He bore, better than before, having his face or head touched. When liquids were brought to him, he appeared to see; and on my offering him a teaspoon full of water, his hands being held, he tried to avoid it by turning his face quickly on the other side, on the pillow.

An opiate glyster was ordered to be immediately injected, and repeated in the night, if he should be much agitated.

The glyster was not given. From five in the afternoon they were obliged to confine his hands, because he was always attempting to beat and tear his mouth and nose. About nine he began to slaver from his mouth, at first a clear liquor, in a quantity sufficient to make his bed-clothes very wet. He had frequent convulsions, accompanied with mental wandering, though not insensibility;

sibility ; as while he attempted to strike those who held his hands, he avoided doing so to the lady whom I have before mentioned, and who attended him with the most affectionate care. After this time he had frequent choakings, and his tongue remained much out of his mouth. He now appeared unable to see, and from eleven till half-past twelve, had frequent convulsions. His respiration then became rather stertorous ; the pulse in the radial arteries could not be felt ; and he died quietly about half-past one o'clock, answering questions rationally nearly till the last.

He was opened in the presence of Mr. GEORGE KITSON and myself, by Mr. GEORGE NORMAN, at eleven o'clock on the morning of the 14th.

Every part of the brain, medulla oblongata, larynx, trachea, lungs, heart, pericardium, pharynx, œsophagus, stomach, intestines, liver, gall bladder, pancreas, spleen, kidneys, and bladder, together with the meninges of the brain, and the pleura and peritonæum, was most carefully examined, both within and without ; but in no part was there the least preternatural effusion, discoloration, or any deviation whatever from the healthy state.

There having been no inflammation or pain in the wounded parts subsequently to the cicatrization, they were not opened.

It

It is proper for me to remark that the description of the above case is taken from the joint observations, recorded at the time, of Mr. NORMAN and myself.

CASE II.

June 10, 1810. Mr. TUCKER, aged 35, sheriff's officer, a well-made man, of middle size, rather a free liver, who has enjoyed good health, except from occasional sickness and flatulency after eating, and now and then a little oppression about the chest from mucus, relieved by expectoration, on the 10th ult. was out fishing in a very hot day, and being languid, lay down at different times, amounting to half an hour altogether, in the field under the shade of an oak, where he slept twice. While walking home, he was seized with head-ach, cold shivering, and vomiting, so as with difficulty to be able to reach his house. He was thirsty, and drank easily and freely a large bason of water-gruel. He went to bed, and slept till four in the morning, when he awoke, and finding himself thirsty, asked for another bason of gruel, which he attempted to swallow; but, before the spoon reached his mouth, was seized, according to his own description, with a spasmodic contraction in the gullet down to his breast bone, resembling

resembling a lump, which as the liquor reached his throat, produced, through an extent of four or five inches in length, a sensation of violent obstruction and pain. He has now a constant feeling of weight in that part, but his appetite is good, and he swallows solid food well. When he attempts to take liquids, I observe, that, whether I put the glass or spoon towards his lips, or he does it himself, before the liquor touches him he makes a kind of sobbing inspiration, previously to his admitting the liquid, which he does by suddenly catching at it with his mouth. He swallows it in the same quick manner, with a sense of choaking, a noise as if of strangulation, great distortion and contraction of the muscles of his face and throat, and subsequent general agitation. During the choaking it constantly seems as if air was coming up at intervals. He says that the liquid, while going down, seems to give him in some respects a pleasant sensation; notwithstanding which, the action of swallowing it is altogether so painful to him, that he is extremely averse to the attempt, which he often tells me he is absolutely unable to make. He slept ill last night, sighing constantly when the bed-clothes were moved, or when he was touched. Pulse 92, soft and regular. Skin cool. Tongue white. Appetite good. His throat is in no part externally sore, and there is

no disease to be seen in it. His head is free from pain and every other disorder ; and he is in other respects so well, as to have run after my carriage the length of a street, on finding that I had mistaken his house. From the commencement of his malady, he has had a sensation all over his extremities, as he says, like flies crawling on him.

He has been purged, bled at the arm to about twelve ounces, had leeches and a blister applied to his throat, and taken, since five o'clock yesterday afternoon, eight grains of dried squill and six of extract of hyoscyamus, under the care Mr. WHITE, surgeon.

Mitt'. sanguis ad $\text{ʒ} \text{x}$.

Pergat in usu pilularum.

JUNE 13.

Pulse 80, and soft. No sensible effect from the blood-letting. The blood drawn does not apparently differ from that of a healthy person. Tongue very white all over. Not only the attempt to drink, but dipping his finger into any liquid, whether warm or cold, and the air blowing on him, produce the convulsion of his throat. He can inspire deeply without inconvenience, and can draw in his breath through a tube in the action of sucking ; but the instant the tube is wetted, sucking at it produces a spasm. He has eaten
with

with a good relish, and without difficulty, lamb chops, egg, and rice pudding; and can swallow a little orange, by putting only a single quarter of it at once under his tongue.

℞ Hydrargyri submuriatis gr. xij.

Confectionis rosæ caninæ q. s. sit. Ft. pilulæ
iv æquales. Sumat unam 4tâ quâque horâ.

JUNE 14.

Pulse 108. He had a little sleep last night. Has had two good motions to-day. Urine small in quantity, high-coloured, and without sediment. Skin cool. Tongue white, as if covered with milk. He has a considerable disposition to tremor, especially of his hands; is much hurried in his spirits; walks constantly about his room; and appears to be losing the power of attention, faltering in his expressions, and rather wandering from any subject on which he is speaking. By putting a tea-spoonful at a time under his tongue, he has been able within the last twenty-four hours to swallow about a teacupful of peppermint water, but never without a disposition to spasms from the mere sight of the liquid, and always considerable spasm from swallowing it. Complains that his sight is somewhat dim, as if strings or cobwebs were floating before it.

Per gat sumere pilulas ex hydrargyri submuriate.

JUNE

JUNE 15, 10 A. M.

Pulse 124, regular, and rather hard. He has had a very bad night, without sleep, and constantly tossing from side to side, or getting in and out of bed, fancying that the pictures in his room were men, and that certain brownish objects in them, as hares and bay horses, were black. I find that he has been constantly reverting to some circumstances of real or imaginary danger, in which, about a fortnight before, he supposed himself to have been, of being attacked on the road while walking; in consequence of which he ran a great way, and was much heated and fatigued; and it has been believed by his wife as well as himself, that it was the continuance of weakness and disorder from that agitation and exertion, which made it necessary for him to repose himself beneath the oak while fishing, on the day of his present attack. His mind is otherwise more wandering, and his manner more hurried than before. The symptoms of convulsion continue; and now he appears to swallow even his saliva with difficulty, complaining that something rises in his throat, and that he seems as if he should be strangled unless he can get it out of his mouth, which he often does with his fingers. Once during my visit the effort to evacuate it has been partly
voluntary

voluntary and partly involuntary, and not very unlike the barking of a dog.

The phænomena of willing or attempting to swallow any liquid, taking it into his mouth, or putting his hand or one of his fingers into it, are, first, a convulsive and irregular inspiration, in which the diaphragm is apparently shaken, and the shoulders alternately raised and sunk; and immediately afterwards a sort of sudden and rapidly interrupted outcry, which is repeated for a few seconds with the other convulsions, and then subsides; but not till he has forcibly thrown out the liquid, if it had been in any considerable quantity in his mouth.

He has had two loose, greenish motions. Skin cool. Urine very small in quantity, high coloured, and with a pink sediment. Tongue all over extremely white, as if painted with a mixture of chalk and cream.

Mitt'. sanguis e brachio ad ℥x .

JUNE 15, 9 $\frac{1}{2}$ P. M.

Pulse 140, moderately strong, and regular. Blood with a moderately thick and cupped crust of coagulated fibrine. Tongue and urine as before. He has drank this afternoon a teacupful of peppermint water, by putting it, as before, under his tongue. Still brings up his saliva with
great

difficulty, and often with the barking noise already mentioned. The fits of convulsion have now frequently come on from putting any thing into his mouth, and occasionally without any apparent exciting cause. He is almost constantly up, and walking with great agitation about the room, fancying and raving of a thousand things that do not exist, and more especially occupied with the delinquency of certain persons, and the means of capturing them. In order to accomplish this supposed point, he has been very violent, and has once driven his fist through the window. Hands tremulous.

Sumat statim pulveris Jacobi gr. iij. et repetat quartâ quâque hotâ.

JUNE 16. 10 A. M.

Pulse 150, and very weak, but regular. He has not had a moment's sleep, having been constantly either moving in and out of bed, or walking about the room. Has swallowed scarcely any thing since last report, and has taken only one pill; but at this moment, at the desire of his wife, he has swallowed a second without difficulty. Delirium, hurry, and agitation, continue as before; and he has frequent twitchings of his eyelids and eyebrows, and slight convulsions of his face, especially

cially on the right side. He has now, at my desire, washed his hands in water, which has immediately produced spasms in the throat and chest, and a contraction of the right side of his face. He nevertheless perseveres in a hurried manner, and says that he likes it. Washing his face has the same effects. He knows every one, and answers questions; but immediately roves, when left to himself.

In the course of the day he took two other doses of James's Powder, and became sick and vomited a little. About one o'clock in the afternoon he went to bed, and rose no more. His respiration became difficult, and at length stertorous; but he knew persons, and called them by their name till after three; from which time he ceased to speak, and, the difficulty of breathing increasing, died quietly at six o'clock.

I have omitted to mention, that, at one of my visits, either on the 14th or 15th, I desired him to look at himself in a looking-glass, which he did; but immediately started back in great agitation, and on my asking him the reason, replied, that he looked like a man who had been hanged. By this expression he alluded to the mark of the blister round his neck; but he did not appear to suffer any disposition to spasms from that impression.

He

He was opened at seven o'clock on the following morning, June 17th, by Mr. CRUTTWELL and Mr. WHITE, in my presence.

There was no appearance of disease in the fauces, or in the upper part of the pharynx or trachea. At the commencement of the œsophagus, for about two inches downwards, there was, in its substance, a greater degree of lividness, than through the rest of its tract; and the cellular membrane behind that portion had in it a small quantity of blood, which might *possibly* have been extravasated before death; though not *probably*, as a small branch of the carotid near the part was cut through in the dissection, and did actually bleed into the adjoining cellular membrane.

The cardiac portion of the stomach had its villous coat, and that only, of a more florid red colour than what is supposed to be usual, as if from preternatural fulness of the minute arteries; and the large venous trunks were unusually distended with blood. The redness did not extend up into the œsophagus, nor did it affect any other part of the stomach, except a small portion immediately about the pylorus. The stomach was rather larger than common, and in a lax state; and had in it about three-quarters of a pint of fluid, similar to what it usually contains. There

was no appearance of disease in any other of the abdominal viscera.

The lungs, and all the rest of the thoracic viscera, were in the natural state, except that the internal membrane of the trachea, for some inches upwards from its bifurcation, was redder than common, as if its minute arteries were injected with blood. It was not covered with any preternatural secretion.

The medulla oblongata, and all the parts within the cranium, were of the usual appearance. The blood was every where fluid.

Many of the friends of this patient, who was very fond of dogs and horses, asserted, after his death, some of them from their own knowledge, that he had been bitten by a strange dog in the month of November preceding. He himself never expressed a suspicion of the cause of his malady. We, therefore, judged it right to ask of him no questions on the subject.

CASE III.

JUNE 16, 1814, MERIDIÉ.

FREDERIC SELWAY, aged $5\frac{3}{4}$, at about three in the afternoon of the 22d of May last, was sitting reading a book in the street, when a small strange bitch, apparently the mother of puppies, bit a dog of his which was a favourite, and, on his attempting to drive him away, bit the little boy in the upper lip, near the left angle of the mouth, and then ran away, and has not since been heard of. The wound bled a good deal. His mother washed it with spirits of wine; and nothing further being done, it healed in a week. The boy continued well till June the 14th, at five o'clock in the afternoon, when he came home from school, and complained of being very hot, and of having a pain in his head. He, however, eat bread and butter, drank tea without difficulty, and went out to play. Nothing was afterwards observable till twelve at night, when he waked his mother, had a stool, and vomited; still complaining of his head. He went to sleep, but in less than two hours woke again, said he was thirsty, and drank a good draught of cold water, which remained on his stomach. Nothing further occurred till between six and seven yesterday morning,

morning, when he was again sick and vomited. Afterwards, however, he eat, and drank broth, which he again threw up; and thus continued at various times to eat, drink, and vomit, through the day.

At two o'clock yesterday, Mr. GEORGE KITSON saw him. He still complained of pain, which was on the left side of his head. His tongue was slightly furred, his skin very hot, and his pulse about 130 in a minute, and rather hard. He eat pickled pork and cabbage, ravenously, and with a hurried motion. He was thirsty, and when cold water was brought to him, he seized the cup with both hands, and drank with avidity, and largely. Mr. KITSON, however, thought that the action of swallowing was performed somewhat unnaturally. In the evening he had two stools, the last of which, according to the report of his mother, was light coloured and frothy. Since that time he has not vomited.

At 10 p. m. he drank one third of half-a-pint of porter, eating with it some bread and cold meat. He slept through the night; but previously to one this morning, June 16, when his mother went to bed, his sleep was unquiet, being mingled with crying out, and sudden startings. From that time till between five and six, nothing farther was observed of him; but then he suddenly woke, crying

crying out that his head was very bad, and that he could not stand. He was then very hot, got out of bed without assistance, again complained of thirst, and helped himself to water. He then returned to bed, and soon afterwards eat and drank, in a hurried manner as before. About nine this morning he desired his usual breakfast of broth, of which his mother does not know that he took any; but when his little brother tried to take the spoon from him, he jumped some distance, cried out violently, and fell down on his face, greatly agitated, and, apparently to her, little sensible. He has since eaten half a cake with great quickness, but has drank nothing.

About 10 a. m. Mr. G. KITSON saw him, and afterwards Mr. G. NORMAN. He refused to eat or drink, and was disposed to lie on his face, or on the left side, which was from the light. He then cried when he was pressed to get up, and was impatient when food or drink was offered to him. With difficulty he was prevailed on to wash his hands; but nothing would tempt him to wash his face.

While going to the hospital in his father's arms, at eleven o'clock, as the wind met him, he shrieked out, and became so violent, that his father could scarcely carry him; and he kept his mouth continually covered with his hand, to prevent the
wind

wind from affecting it, till he came into the house, when he took his hand away. At eleven o'clock, pulse 138, and small. Respiration 40, and somewhat irregular as to depth.

Ever since that time he has been in bed; lying on his left side, from the light. He has a wild look, rolling his eyes about quickly, as if from suspicion, and having the upper eyelids preternaturally elevated. Pupils natural. He has almost constant tremors and startings. His skin is very hot, and there is considerable sweating of the hands and head. His pain is somewhat less than it was. Pulse 132, and somewhat small. Respiration 36, both by the diaphragm and intercostals. Intellects perfectly clear. Tongue moist, and clean. On being asked to drink water, he positively refuses; but being long pressed to do so, raises himself up on his elbows in his bed, trembling much. No sooner is the glass put to his lips, than, without tasting the water, he is seized with a violent sobbing, suddenly turns himself away, lies down on his left side, partly hiding his face, and saying quietly, "I can't drink it." An orange is given him. He puts it greedily to his lips, but is immediately seized with a convulsive inspiration, accompanied with strong tremors of his shoulders and arms, on which he is supporting himself; and draws away the orange.

Two

Two or three more efforts of the same kind are made, with the same effects; after which he relinquishes the orange in despair. With considerable difficulty he is prevailed on to attempt again. He raises himself on one elbow, snatches the orange in the other hand, puts it with eager haste into his mouth, as if determined to succeed. An effect similar to that before described is produced on his respiration, and the muscles of his shoulders and arms; the belly being at each inspiration greatly protruded by the forcible descent of the diaphragm. But he perseveres, and, in a very hurried manner, eats half the orange, the convulsive movements diminishing as he proceeds. After a short interval, he eats the other part of the orange, throwing away the kernels; still not without the convulsive respirations, or sobbings, which cease as soon as he lies down. No intreaty will, however, induce him to attempt drinking the water. I shew him his face in a looking-glass. He betrays no mental or bodily emotion; and when I ask him how he likes himself, he coolly answers, "Very well, Sir." He experiences no uneasiness from having his face, neck, or head, touched.

Six ounces of blood were taken from the right temporal artery; but the flow then suddenly ceased; and it was directed that his head should

should be frequently washed with spirit of wine and æther.

JUNE 16, 4 P. M.

The blood has in its appearance nothing peculiar. He was not averse to the bleeding, and thought his head somewhat relieved by it. The cold washing of his head was agreeable to his feelings. He has not slept, complaining that he cannot shut his eyes; but he has now, at our desire, done so with apparent difficulty. He however tells us that he prefers the shutters being open, and is now lying towards the light. The general appearance of the eyes is much as before, except that some of the vessels of the conjunctiva are preternaturally injected with blood. There is an increase of general heat and of redness about his face, and he now complains most of pain on the right side of his head. The convulsive twitchings of his arms and head are more frequent and strong. He has several times drank water with eagerness, and with an appearance of a steady resolution to overcome the inconvenience which he feels from the attempt. At this time he has done so in our presence, bringing it up hastily to his mouth, and swallowing it with a strong effort to counteract the sobbing inspiration, which precedes the act, and the choaking which for a moment

moment seems to accompany it, and which instantly ceases when the deglutition is accomplished. He has eaten some bread and meat, which his mother brought him without our knowledge; and he appears to swallow solids with little difficulty. On my asking him, whether, in consequence of the great heat about his head, he should like to be fanned, he readily assented; but it was observable that he kept a handkerchief before his mouth, as if from recollection of what he had suffered from the air, in coming to the hospital. At my desire he removed the handkerchief, but, at the very first impulse of air on him, cried out, suddenly turned himself round to the other side of the bed, and was violently agitated all over, and out of breath; so that, though we assured him that the act should not be repeated, he seemed terrified at the very sight of the fan, while I was using it to myself, at a distance from him. His mother had previously remarked, that the waving of the bed-clothes had produced a similar paroxysm of agitation and convulsion. Pulse 136, and more full. That of the carotids strong. Respiration 44, with occasional sighings and sobbings. Tongue clean, and with a great deal of clear saliva on it; which latter circumstance should have been remarked, as having been observable at the former report. No stool since
seven

seven last night. Urine not saved. No delirium whatever.

It was now agreed that he should be bled from the jugular vein or the arm, until he fainted. This was done from the left jugular, as long as the blood would flow, which was not to the amount of more than one or two ounces, and then from the arm, to the amount, in all, of full nine ounces; when he became quite faint and pale. Drink taken at this time produced the same effect as before, but in a somewhat less degree.

8. P. M.

The blood was taken in teacups; and though the first cup flowed very freely, there was in neither the least appearance of inflammatory crust on the crassamentum, which was firm and copious. He has had no sleep; has eaten some cake and orange, and now and then drunk some tea, with the same effect as at the former reports. Ever since the bleeding, he has had less of the tremors, and convulsive twitchings; and is now, while he lies still, evidently freer from them than at 4 o'clock. But then it must be observed that there were then six or seven medical men in the room; whereas now there is only myself, besides his mother. At present there is no preternatural redness of his face or eyes, but the latter are still
wild

wild and staring. He complains also that he cannot bear to shut them; but after my having closed his eyelids, the pupils contract rather inadequately and unequally when they are opened; and there is evidently an irregular direction of their axes, when he looks at any object. On being asked, he says his head is still bad. He has now swallowed two or three gulps of tea, with great difficulty, putting the cup eagerly to his mouth, then taking a deep convulsive inspiration, and immediately afterwards, during deglutition, appearing as if he was suffering strangulation. He has also, of his own accord, eaten, from time to time, some cake which lies on his pillow; but there is always the previous sobbing or convulsive inspiration, and the food seems to stick in his throat, producing convulsive efforts to get rid of it; attended, like swallowing liquids, with frequent involuntary elevations of the shoulders and arms. These efforts to eject the food as it passes, and now occasionally after it should seem to have passed, are sometimes accompanied with a noise, which might be easily compared to that of barking. The ordinary sobbing inspirations, and the subsequent choaking, occur at longer intervals than before, but are more strongly marked.

After I had written this report, he shut his eyes, and I sat by him for some minutes, while he
was

was asleep. In a short time I observed some slight twitchings of his upper lip, about the place where he was bitten; then an extension of the same twitchings to the shoulders and neck, in consequence of which his head shook; then moanings; immediately after which, he started up with a sudden and deep inspiration, on which it seemed as if his powers were arrested, so that he could not expire; but remained with an appearance of a spasmodic stricture in his larynx for some seconds, when it suddenly relaxed, and he threw himself down on his pillow like a person out of breath, suffering for several seconds a frequent succession of sobbing inspirations, and rolling about his eyes with unusual wildness. Although, however, I examined with the greatest attention, I could perceive none of that rising of the larynx which I have so often noted, and mechanically counteracted, in Hysteria. At my desire he was put on the pot, and made with ease about half a pint of pale, straw coloured urine. His pulse was 168, and somewhat full, but soft. His respiration 44. His tongue clean and moist.

Soon after this, the Medical Gentlemen, who had seen him before with me, came in. Mr. NORMAN, sen. having once slightly blown on his face, produced an immediate and strong convulsive inspiration. Washing his face with a cloth dipped

dipped in cold water had now somewhat of the same effect.

He had not in any degree resisted, or been alarmed at the operation of blood-letting; answered all questions calmly, though sometimes reluctantly; and was wholly free from delirium. We left him at a quarter before ten, apparently much disposed to sleep.

JUNE 17, 11. A. M.

After our visit, an aloecic glyster was thrown up, producing no inconvenience as a liquid; but has not been returned. He slept occasionally till four o'clock in the morning, frequently starting out of his sleep in the manner which I witnessed. From four to six he was extremely violent, throwing himself continually about, attempting to get out of bed, and seeming to catch at objects before him. Since that time he has been almost constantly talking and laughing, and now says that he is a great deal better than he was, though the pain still continues on the left side of his head. On my offering to him the looking-glass, he sits up in bed, takes it in his hand, and views himself without emotion; but when I repeat the question of yesterday, how he likes himself, he smiles, and calmly says, "why rather better, Sir." Every other question he answers with similar intelligence.

It

It is with great difficulty that we have prevailed on him to drink. He has, however, at length taken, at three different times, a gulp of milk and water; with the same eagerness in the act, and the same consequences, as before; the muscles of respiration about the thorax and abdomen, the supra scapular muscles, and those of the glottis, together with the diaphragm, appearing to be chiefly affected by swallowing; and these irregular actions continuing for a short time after the swallowing seems to have ceased. Mr. GEORGE NORMAN compared the general appearances to those of a child of the same age, on whose head and body a pail of cold water was suddenly thrown.* The staring of the eyes continues, and the pupils are occasionally much dilated; but there is no strabismus. A blast of cold air still continues to bring on the deep and convulsive inspirations, but they seem not to arise from the coldness; because he expresses a wish for every thing cold, and immediately shrinks from the touch of a warm hand, but will sometimes bear the application of cloths dipped in cold water to his face. Touching him any where about the head appears, however, now to distress him, increasing the wild appearance in his eyes, and threatening the usual affection of the respiratory organs. The applica-

* This comparison has been made by various authors:

tion of the cold water to every part of his skin, which has just been practiced, seems very grateful to him, except when his face or head are touched. There is no preternatural heat of his skin, or flushing of the face. Pulse 156, and somewhat more weak.

During his incessant talking this morning, he voluntarily mentioned the dog which bit him, saying that he should not again bite the white dog; and he has now again spoken of him, giving an accurate account of the circumstances of his bite.

8. P. M.

After my visit, a glyster of salt and water was injected, without any effect on the respiratory organs. It produced one stool. He remained in the state described, till between two and three o'clock in the afternoon, when he became suddenly restless, and has continued so till now. He talks incessantly, and is in a constant state of jactation, throwing himself about to all appearance voluntarily, so as to be with difficulty kept in his bed. When, however, his attention is roused by any one whom he has often seen, he talks as calmly and connectedly as a person in perfect health, not only answering questions, but relating particulars of his adventure with the dog. He has once or twice durnk, and now, in the presence of DR.

CRAWFORD,

CRAWFORD, has taken, not without great persuasion, three teaspoonfuls of milk, catching with his mouth at each spoonful violently, and swallowing it with great effort. The local affection of the organs of respiration seems less strongly marked, as if lost in the general agitation. The staring and rolling of the eyes continue; the pupils are considerably dilated; and there is frequent strabismus. Blowing on him still produces immediate spasmodic inspiration; and otherwise so greatly agitates and distresses him, that he begs that it may not be repeated, and expresses continual apprehension that those near him intend doing it. Pulse 138, and soft. Skin cool. Tongue clean and moist. Hands slightly perspiring. Urine as before.

He continued with similar but increasing symptoms till four o'clock in the morning of the 18th, talking incessantly, and with perfect coherence repeating events which had occurred to him, and sometimes answering when he was spoken to. The jactation was constant, and the convulsive respiration occasional. At four he began to have convulsive fits all over, slavered very much at the mouth, and was with difficulty kept in bed. Fits of a similar kind were repeated, with intervals of from twenty minutes to half an hour, till about nine in the morning, when there occurred one
more

more violent than the rest, accompanied with vomiting. After this he remained nearly quiet and insensible till a quarter before 10 a. m. when he died, with his eyes open, lying on his right side, towards the light.

Throughout the whole of his complaint, he positively denied having any pain or soreness in the throat.

He was opened at half past five o'clock the same evening by Mr. GEORGE NORMAN, in the presence of Mr. NORMAN, sen. Mr. DAY, surgeon, Mr. GEORGE KITSON, surgeon, Mr. GOLDSTONE, jun. apothecary, four or five young gentlemen, pupils of Mr. GEORGE NORMAN, and myself.

The cellular membrane of the abdomen was so distended with air, that the epidermis seemed, when pressed on, to be in some places distant two inches or more from the muscular substance within.

The head was unusually large. The dura mater adhered firmly to the cranium. The pia mater, and general substance of the brain, were every where somewhat more vascular and watery than is commonly observable in adults; but we doubted whether in a greater degree than is common to the age of this patient. Every part of the brain and medulla oblongata, together with the

great arterial circle, was carefully examined, and was found free from disease. The ventricles were void of lymph, and the pineal gland of any thing gritty. The only observable deviation from health was in the fourth ventricle, on the anterior paries of which, at the upper part, there was a dark spotted patch as from ecchymosis, or black extravasated blood. As the ventricle was opened longitudinally from behind, this discoloured part seemed to include a space nearly as large as a silver fourpence.

In the thorax, there was emphysema under different parts of the pleura pulmonalis, on both sides. On the right side, there was an extravasation of about two ounces of bloody fluid, but none on the left. Both lungs had in them a good deal of dark blood, but could not be said in any respect to labour under disease, except from the appearance of one small tubercle in the left lobe. The pleura costalis was every where in the usual condition. The heart was extremely hard, and strongly contracted; having in its cavities a very little clotted blood, and no disease in the valves or coronary arteries. The tongue, pharynx, larynx, trachea, and œsophagus as low as the diaphragm, were taken out of the body; but after the closest examination, not the smallest redness could be detected in any part of them.

A little thin mucus bedewed the inside of the trachea. The œsophagus was traced to the stomach, and was perfectly pale. In the stomach there was a similar appearance, except that there were two or three faint stripes of pale red about the cardiac portion, which by no means amounted to disease. The stomach contained about a spoonful of a pale pulpy liquid. The liver and all other parts were in a sound state. The bladder was full of urine.

This dissection, therefore, shewed no disease whatever, except the extravasation in the right side of the thorax, which could not have produced death, and was probably mere transudation by gravity after it; and the ecchymosis in the fourth ventricle.

In the course of this disease the patient was visited not only by Mr. GEORGE NORMAN and myself, under whose more immediate care he was; but by Dr. CRAWFORD, Mr. NORMAN, sen. Mr. CROOK, Messrs. KITSON, Mr. DAY, Mr. GEO. GOLDSTONE, Mr. STROUD, and the several pupils of Mr. GEORGE NORMAN.

It was formerly doubted whether any such disease as Canine Hydrophobia existed; and I have heard that the question was once solemnly debated in a society, which, after a long discussion, determined it in the negative by a majority

of voices. The existence of the Giraffa, or Camelopardalis, was long denied by the moderns, not only notwithstanding the accounts given of it by the antients, and its delineation on the Prænestine pavement, but after its skin was actually to be seen dried and stuffed in a Dutch museum. We are told of a king of Siam, who, after he had heard with patient attention certain wonders from an European ambassador, and was at last informed by him, that, in his country, at certain seasons of the year, water became solid, and was capable, not only of being cut or broken, but of admitting his Majesty and his whole Court to walk over it without wetting their feet, flew into a violent passion, exclaiming, “For a long while, notwithstanding the prodigies you have related to me, I thought you an honest man; but now I am sure that you are an impudent liar.”

These sceptics would have us believe, that the symptoms of this supposed malady, like those formerly produced by animal magnetism, are the mere effect of terror, acting on weak minds and irritable nerves.

That much disorder may be produced by that cause, I am not disposed to deny; and the following case may be adduced in exemplification of the truth of the assertion.

CASE.

CASE.

In the night of the 23d of March 1807, I was called up in order to visit Miss POWE, a mantua-maker, aged 21, of a full habit, subject to hysterical affections, menstruating copiously, sometimes ten or fourteen days together, often at the interval of only two or three weeks; who had more than once vomited up a full pint of blood, and had now for three months complained of a pain in the region of the heart.

On the 16th of March, she had been bitten in the leg by a terrier dog, as she was walking in the street. Some men were pursuing him, suspecting him to be mad; and, after he had bitten her, stunned him by a blow on the head, from which however he recovered, and attacking her a second time, while she was running away, was instantly killed. The part which was bitten, was immediately cut out by Mr. GOLDSTONE, surgeon, and the wound dressed with strong mercurial ointment.

On the night of the 18th, she was seized with head-ach and frequent convulsive motions of the muscles of respiration, which affected her especially when she was falling into sleep, which they wholly prevented. They consisted of a frequent cough,
quickly

quickly repeated, of a hoarse kind, and attended with a laborious and somewhat sonorous inspiration, as though from sudden contraction of the glottis.

These symptoms existed at the time of my visit, so as almost wholly to preclude sleep, though she was very drowsy; and she had occasionally a sense of choking, as from a ball rising in her throat, but without soreness. She drank without reluctance, but with difficulty, and an increase of the sense of choking. She complained of much head-ach. No stool for four days. Face flushed; and eyes red and heavy. Urine pale. Pulse full, strong, and varying in frequency from 80 to upwards of 100.

She was ordered to take immediately a draught with three drachms of sulphate of magnesia, and manna, and tincture of senna, of each two drachms; to be repeated in three hours, if there were no previous motion.

9 A. M.

No motion. Pulse irregular, from 90 to 96, and full. She complained of sickness, and was very averse to taking liquids; but, being asked the reason, said that it was on account of the sickness. She, however, swallowed in my presence a teaspoonful of gruel, without any apparent difficulty.

difficulty. She had slept at times, though with frequent convulsive startings, and almost constant delirium; complaining to me that "she had been all night greatly fatigued with running about, but that she could not run so fast as they did." By these expressions it was evident that her imagination had dwelt on the circumstances attending her bite. She frequently turned her eyes wildly from side to side, without moving her head; her inspiration was laborious, especially by fits; and she spoke with difficulty, and only in a whisper.

While I was with her, there came on a tremor in her thighs and legs, which was followed by a sudden contraction of the sterno-mastoid muscles, and a quick hiccup or sonorous inspiration, during which her face, which was before pale, became suddenly flushed. On being asked how she felt, she said that her head ached. Skin rather hot and perspiring. Tongue somewhat furred.

She was ordered to lose from the arm six ounces of blood, and to repeat the draught every four hours till it operated.

7 $\frac{1}{2}$ P. M.

The bleeding immediately eased her head and the convulsive respiration. The draughts were thrown up without effect; but a glyster given at

at four o'clock had operated twice, and afforded her still farther relief. She had slept some hours, but subsequently suffered some returns of the affection of her head, and the convulsive movements of the organs of respiration, together with occasional twitchings of the muscles of the face, neck, and head, and some degree of the wildness of her looks.

Leeches were ordered to be applied to her temples, and the aperient draughts to be continued.

MARCH 24, 11 A. M.

The leeches had drawn well; but the draughts had not operated. The convulsive twitchings had occasionally returned, though in a less degree; and were sometimes interrupted by stiffness in the jaws, which varied as to its force, and made it difficult for her to open her mouth. There was, however, no swelling, inflammation, or pain any where about the fauces. She had complained of thirst, and drank a great deal of gruel, eagerly biting at the cup. She had also suffered occasional mental wanderings; but at my visit answered well, and with a stronger voice than before. Her pulse was 72, but irregular; her urine high-coloured. She was affected with occasional fits of choking and spasmodic coughing, from
which

which she sometimes suddenly fell into a state of apparent insensibility.

Eight ounces of blood were ordered to be taken from the arm; and a strong mixture of senna to be given every three hours till it operated.

It is unnecessary to continue this case any farther. Evacuations, refrigerant medicines, and low diet were continued; and the patient soon recovered.

This case is certainly an interesting one, because it tends to shew, not only what effects may be produced on certain constitutions by terror; but also the great resemblance, and yet essential difference, between those effects and the genuine Hydrophobia, caused by the canine poison.

It is however certain, that no suspicion of the operation of terror can attach to either of the three patients, whose histories I have related; because in the two first there was no recollection whatever of any bite; and in the third, the patient spoke of the accident with precisely the same indifference as he did of the looking-glass, or any other object respecting which he was totally unconcerned.

All those, who carefully peruse these cases, must be struck with their close coincidence as to certain symptoms; which may, therefore,

fore, be considered as the characteristics of the disease.

In the first place, the part which is primarily affected, so as to give occasion to the symptom called Hydrophobia, is not the pharynx, œsophagus, or stomach, but the upper portion of the trachea, together with other parts of the apparatus concerned in the function of respiration. The truth of this position is evident from the following circumstances.

1st. At certain periods of the disease, when it was marked with sufficient strength, two out of three of these patients swallowed solids without difficulty, or any tendency to the production of the convulsion.

2dly. The local convulsions were brought on, not only by swallowing, but by a quick impulse of air, such as is actually known to put out of breath, in a slighter degree, young persons, whose respiratory organs may readily be supposed to be in an irritable state.

3dly. The spontaneous attacks of the convulsions, whether during sleep or waking, always began with a violent sobbing inspiration, in which the shoulders were generally preternaturally elevated, as in asthma, and the abdomen strongly protruded by the forcible depression of the diaphragm.

4thly.

4thly. This state was still more strongly marked, when the convulsion was brought on by the attempt to swallow liquids, by the mere contact of them with the fauces, before any attempt to swallow them, by the apprehension of them, or by the strong impulse of air; in either of which cases the power of respiration seemed suspended, or very irregularly performed, and the patient experienced a sense of strangulation, which shewed itself by an apparent constriction of the rima glottidis, and in the corresponding gestures of the patient. In the case of Master ENGLISH, these symptoms are not so strongly expressed; but the case being then new to me, I did not so accurately note them, although from some circumstances mentioned in that case, I have no doubt that they existed. It may be added also, that from the period of the emetic, nothing could induce this child to attempt swallowing. In the cases of TUCKER and SELWAY, the affection of the respiratory organs is strongly marked, and it appears that, in both, that important part of the system of respiration, the diaphragm, was preternaturally affected. In the two first cases, nothing is said of the frequency of the respiration relatively to the pulse; but in that of SELWAY, it is expressly stated, that while the pulse was only 138, the respirations were 40, and also irregular

as to depth; and again the same day the pulse was 132, and the respirations 36. Through the whole disease, there was more or less of a similar disproportion.*

It is no real objection to this conclusion as to the seat of the primary symptom of the disease, that there was occasionally a forcible and a sort of barking effort to expel saliva, or liquids, which therefore must have arisen from the œsophagus; because, though the effect really takes place from the contact of liquids, the very act itself, which is thus described, is nothing more than a strong and sonorous expiration, intended to relieve from annoyance those very organs, by which that expiration was produced. It may be added that in the case of TUCKER, this effort was made in order to expel liquids, while they were still only in his mouth. If at any time, during these spasms, the pharynx or œsophagus was affected, that effect might be reasonably expected from the proximity of parts.

In all these cases, however, the affection of the respiratory organs, though occasionally frequent, was so short, occupying in reality only a few seconds, that there was no time for the

* Quickness of respiration is not, however, a constant concomitant of the whole course of the disease. In Dr. MARCET'S patient, the respiration was slow.

production of the lividness of countenance, which often attends the long suspension of breathing in Epilepsy.

Another circumstance, characteristic, as it should seem to me, of this disease, is an inordinate action of the voluntary muscles; whether from a perverted function of the brain, or a want of power in the muscles themselves precisely to obey the will, it may be hard to determine. The muscles seem always to over-act the intention of the mind. With regard to Master ENGLISH, it is a fact, not however sufficiently enforced in the description of his case, that every thing which he did in compliance with the wishes of his friends, was performed with an excessive hurry and agitation; so that in rising up to put on a clean bed-gown, he actually jumped through it, and, having entangled his arms in it, tore it down in order to disengage himself. This tendency was more strongly marked, in the cases of TUCKER and SELWAY, in connection with the act of swallowing. Whatever for this purpose they took, they seized eagerly with their hands, and then snapped at with their mouth, just as a dog snaps at the food you throw to him. In the example of SELWAY, this was witnessed by a great number of persons.

Perhaps to the head of this extraordinary irritability, and incapacity of accurate controul, of
the

the voluntary muscles, may be referred the constant rolling of the eyes, the elevation of the eyelids, and that incessant and violent jactation, which, on a cursory view, would lead the observer to conclude that the movements were wholly automatic, when they truly originated in what is called volition.

A third characteristic circumstance is the peculiar nature of the delirium; different, certainly, from that which occurs in any other malady, with which I am conversant. The patient shall go on talking with vehemence, and for many successive hours, of past events, as if they were actually present; shall fancy objects to be different from what they really are, and shall even act on those delusions; and yet no sooner is his attention excited by questions put to him by his friends, than he shall answer them, and continue for a considerable time to converse, with a calmness of manner, and a coherency of ideas, precisely similar to those of a person in perfect health. This more or less occurred with regard to all three patients nearly to the last; and it is stated in the case of Master ENGLISH, that fourteen hours before his death, in the intervals of his convulsions, he was amusing himself with his playthings.

From an attention to these circumstances, which, though they were observable in different degrees

in

in the different patients, still always occurred, it will be easy to see how the Rabies Canina differs from the Tetanus; in which, with no delirium or other affection of the head, there are always rigid spasms of certain parts, to which the Rabies Canina is a stranger. This happened in all the examples of that disease which I have recited. They were, however, particularly extensive and violent in the case of ANNE ALFORD, whose jaws were rigidly contracted, and all the muscles about the throat in such a state of stiffness and insubordination to the will, that liquids passing into the pharynx might naturally be expected to go, according to vulgar language, the "wrong way," and, violently irritating the larynx and other parts concerned in respiration, convulse the whole frame. To this effect the soreness of the throat, which the dissection shewed to have existed in the trachea, might also naturally conduce; and, co-operating with the former circumstances, might occasion the dread of swallowing liquor, which is recorded in ALFORD's case. The same cause might have led to the constant rejection of the saliva through her teeth. In this and other cases of Tetanus, there is, however, no convulsion of the respiratory organs, excited either by the mere touch or apprehension of liquids, or by a current of air about the mouth.

While,

While, also, in Tetanus, the rigid spasm of certain muscles occurs, with little intermission, from the commencement of the disease, these spasms, as I have before observed, are not at all observable in the Rabies Canina; and even the convulsions do not take place in this last malady, till long after the dread of liquids has been distinctly marked, and till the disease is nearly terminated.

In another case of Tetanus, which I have recorded, that of GODBY, it has been seen that spasms were aggravated, and even produced, by the affusion of cold water,—that remedy, from which medical writings flatter us with so much benefit. Here, however, the spasms were not about the glottis, but in the other muscles, which had been previously and spontaneously affected.

With regard to the poison, which is the cause of Rabies Canina, it seems, so far as we know, always to originate in the salivary secretion of dogs, or at least to be mixed with it. Whether the disease now ever begins *de novo*, may be greatly doubted; since we know of no such origin of the Variolæ, Vaccina, Morbilli, and many other diseases, of a febrile kind, which experience has shewn us to be capable of communication by certain modes of contact. In confirmation of this opinion, it is well known that in some insular situations, as the
Island

Island of Antigua, nay, even on the great Continent of South America, canine madness has never been observed to exist. We may readily understand the cause of deception in this instance, when we consider how long the poison has been, on the very best grounds of probability, acknowledged to lie dormant in the part into which it was first inserted; so that a dog, travelling as that animal often does, to great distances, and consequently associating with other dogs, might easily receive from the envenomed tooth of one which was rabid, a scratch so slight, as to produce no immediate inconvenience, and therefore attract no early attention from those persons with whom he lived. It is, therefore, I think, highly probable that the disease is always communicated by contact, even where such contact cannot certainly be traced. This was probably true of TUCKER, whose case has been described above.

It is not, however, from dogs only that the malady can be communicated. There is sufficient authority for the conclusion, that it may be inflicted by the bite of foxes, wolves, and cats. Various other animals are, indeed, said to be liable to the infection, as horses, neat cattle, pigs, several other quadrupeds, and even fowls;* and

* Stalpart Vander Wiel, collecting from authors, ancient and modern, the names of the various animals liable to spontaneous

to all of them, as well as to dogs and human beings, the disease, when it once appears, universally proves fatal. I have had several sheep so bitten by a dog, the bite of which produced Rabies in other dogs, one of which was wounded by him immediately before, and another immediately after, the sheep: yet neither of these sheep became affected with madness. Whether the saliva of any of these animals besides dogs, wolves, foxes, and cats, has infected others, I know not. The act of biting for the purpose of annoyance is confined to certain animals, and therefore the effects of the saliva of others cannot be justly appreciated. Some experiments have indeed been made in this country and elsewhere, by inoculating various animals with the saliva of rabid men, cows, and horses; but I believe that no disease followed this inoculation.

It was formerly thought that the application of the canine virus to the parts covered only with an epithelion was sufficient to communicate the Rabies. Thus CÆLIUS AURELIANUS: “Sartrix
 “ quædam, cum chlamydem scissam rabidis mor-
 “ sibus sarcendam sumeret, atque ore stamina
 “ componeret, tertiâ die in rabiem venisse memo-

Hydrophobia, enumerates “ equos, lupos, camelos, porcos,
 “ boves, vulpes, ursos, pardos, simias, viverras, mustelas, imo et
 “ gallos gallinaceos.”—Observat. rarior. Cent. i. p. 402.

“ ratur.”

“ ratur.”* This case, in which the Rabies occurred in three days after the application of the poison to the inside of the mouth, would certainly gain little credit, were not similar consequences said to have followed examples better authenticated. Some of these are quoted by Dr. BARDSLEY, who tells us, from Dr. PERCIVAL, of “ a man residing at Worrall in Cheshire, who “ during his being asleep, and lying on the ground, “ was licked about the mouth by an infected “ dog; but suffered no bite, nor the slightest “ apparent injury of the skin. He was, how- “ ever, seized about the usual period with “ symptoms of Hydrophobia, and died of the “ disease, notwithstanding the usual preventive “ means had been adopted previous to its attack.”†

In all the other more recent cases, of which I have read or heard, the poison has been inserted by wounds in which the cutis has more or less suffered. A deep or wide wound is, however, no more necessary in this case, than in the production of the Vaccine disease, or Small-pox; for which it is well known that the slightest scratch of the cutis is sufficient.

Of persons bitten by dogs really mad, it is probable that only a small proportion becomes Hydrophobous. Between twenty and thirty per-

* De Hydrophobia, cap. ix. fol. 195. † Med. Reports, p. 266.

sons were bitten by the dog, from whom Dr. VAUGHAN's first patient contracted the Hydrophobia; and though several of these persons used no remedy, and others employed only remedies, which were no better than none, such as the Ormskirk medicine, and sea-bathing, yet no one but this unfortunate youth had any symptoms of the disease. Mr. J. HUNTER, also, tells us that he knew of twenty-one persons bitten by one dog; and that nothing was done for them, notwithstanding which only one was taken ill.*

Those who are inoculated for the Small-Pox, &c. do not always take the infection. But there is another very plausible reason for this exemption from Hydrophobia. The bite is often inflicted through clothes. The late Dr. INGENHOUSZ was about to make experiments upon animals with one of the South-American poisons; for which purpose he had dissolved a certain portion of it, according to the method directed by the skilful among the natives. A knife, dipped in this fluid poison, fell out of his hand, and immediately pierced his foot. The Doctor, after exclaiming, "In five minutes I shall be a dead man," continued calmly in his chair, expecting the fatal event. Upwards of five minutes having, however, elapsed without his experiencing any

* HAMILTON on Hydrophobia, vol. ii. p. 351.

symptoms of approaching dissolution, he ventured to remove the knife, and to wash the wound. It is evident, that, in this case, the clothing interposed between the knife and the flesh had wiped off the fluid poison, with which the knife had been imbued. The same effect is probably produced by clothes, and the wool of sheep, on the teeth of dogs moistened with the infectious saliva. This, perhaps, may be a reason why persons have been more apt to suffer the disease from bites in the hands or face, than in other parts. It will have been remarked that two out of three of my patients were bitten in the face; as it was also probable that TUCKER was bitten in the hand.

I have already remarked that the poison sometimes lies long in the part without any apparent action on the constitution. If TUCKER really owed his disease to the supposed bite in the month of November 1809, seven months must have elapsed before the disease shewed itself. GALEN asserts that he saw a case after a year; AVICENNA speaks of six months as a possible interval; and Dr. MEAD remembered one example after eleven months. The case of STEPHEN BELLASS, by Mr. NOURSE, which is a probable example of the disease, exhibits an interval of the extraordinary length of nineteen months.* Master

* Philosoph. Transact. No. 445.

ENGLISH was taken ill fifty-two days, and SELWAY twenty-three days, after the bite. This last is the shortest interval which I have been able to find in any well-defined example of the disease; and exactly accords with that in the case of JOHN DYKE, by Dr. BEDDOES.* The period commonly assumed is about forty days; and a mastiff of mine, which died rabid, became ill forty days after he was seen to have been bitten by a small terrier, which, within a quarter of an hour after, bit another dog, who also died, with similar symptoms, within twenty-four hours before or after the death of my mastiff. The shortest interval, according to MEAD, is fifteen or sixteen days.

The duration of the disease is also different in different patients. If we suppose it to have begun in Master ENGLISH about one in the morning of March 11th, the whole duration was seventy-two hours. If we reckon merely from the time when the dread of swallowing began, which was about one o'clock in the afternoon, the period will be sixty hours. From the appearance of the first indisposition in SELWAY, at about five o'clock in the afternoon of June the 14th, till his death, eighty-nine hours had elapsed. From the time when Mr. KITSON first observed the peculiarity in his swallowing till his death,

* London Med. and Phys. Journal, vol. xx. p. 195.

there

there were only sixty-eight hours. In TUCKER'S case, five days and fourteen hours intervened between the first appearance of Hydrophobia and death. This length of time is certainly very rare; and it will be found that, in a great majority of cases, the disease terminates in death within four days from the first affection of the organs of respiration.

It is extremely difficult to find any analogy by which to explain the *modus operandi* of this fatal poison. Experience has fully proved that the notions formerly entertained, even by the most respectable writers, of a secondary inflammation, in the bitten part, previously to the constitutional symptoms, as in the case of the inoculated Small-Pox, are for the most part visionary. It is, however, certain, that some pain, if not in the part itself, at least in the course of the nerves supplying it, has usually attended the commencement, and a considerable part of the course, of the constitutional malady. Thus in Master ENGLISH, bitten in the right cheek, a pain in the same ear and side of the head accompanied the first appearance of Hydrophobia; and that in the former part continued till within twelve or fourteen hours of his death. In SELWAY, who was bitten on the left side of the upper lip, a pain on the left side of his head preceded the Hydrophobia, as it should seem, by more than twenty-four hours, and con-

tinued

tinued more or less through great part of the disease. In both these cases, therefore, although there was no remnant of disease about the cicatrices, nor any appearance of local, or lymphatic, inflammation, the affection seemed to have been propagated from the parts injured, upwards in the course of the inferior maxillary branch of the fifth nerve, and of the facial or eighth nerve, which were the nerves by which the bitten parts were supplied. From its evident effects on the function of respiration, we might at first view suppose the poison, when affecting the constitution, to act primarily and chiefly on the organs subservient to that function. We find, however, that the first symptoms are those of fever, evinced by a quick pulse and hot skin, accompanied, even in TUCKER, with pain of the head, and both in him and SELWAY, with vomiting. A general morbid irritability in the whole nervous system also occurs, at a period at least as early as the Hydrophobia; and continues through the chief course of the malady. Of this excessive irritability the whole muscular system conspicuously partakes. SELWAY died with the heart in a state of rigid contraction. Hence it appears that all the vital functions are alike disordered.

It has been remarked by authors, that the bodies of patients dying of this disease very soon
putrefy.

putrefy. The truth of the remark cannot be more strongly proved than by the example of SELWAY, in whom an almost universal and excessive emphysema shewed that most parts of the body were in a very advanced state of decomposition, notwithstanding only eight hours had elapsed between his death and dissection. To the general laxity attendant on this cause may doubtless be attributed the transudation of bloody serum in the right side of the thorax, which was that on which he lay when he died. This speedy decomposition generally accompanies other cases, in which the blood continues fluid after death, as in those of Syncope Angens, and other instances of sudden dissolution.

There cannot, however, be a greater mistake than to suppose either that the Fever of Hydrophobia is of the inflammatory kind, or that its peculiar symptom arises from local inflammation of the fauces, the cardia, or any other part. In SELWAY, notwithstanding the great heat of the skin, and the quickness of the pulse, the tongue was always clean and moist, the urine pale and clear, and the blood perfectly free from all appearance of inflammatory crust. The dissection also shewed no disease of an inflammatory kind, either in the organs of respiration, or the alimentary canal; and after the curious and important communication

munication of Dr. YELLOWLY to the Medico-Chirurgical Society,* no one will infer the few faint red striæ about the cardiac portion of the stomach to be equal to those, which often occur in the stomachs of persons dying without the smallest symptom of indisposition in that organ. If this case, however, be not satisfactory, what shall we say to that of Master ENGLISH, in whose body, though every part was examined with the most sedulous scrutiny, not one vestige of inflammation or other disease was any where to be found? In TUCKER, the blood drawn the two first times did not in any respect differ in appearance from healthy blood; and if, from the time when I first saw him, the tongue was white, the urine afterwards high coloured, and the blood exhibited an inflammatory crust; we may easily attribute those circumstances to the duration of the disease, and the long and almost total abstinence from drink. The redness of the villous coat of his stomach must now be considered as at best an ambiguous symptom; and if we find some preternatural redness of the trachea, we shall not be disposed to admit this circumstance as a cause, when we recollect the great susceptibility of the mucous membrane, and how easily inflammation itself might be excited by the irritation on

* Transactions, vol. iv.

that

that part continued during many days. The nature of the slight lividness at the lower part of the œsophagus, and the occasion of the blood in the cellular membrane behind it, are neither of them so capable of being ascertained, nor the appearances themselves so important, as to justify our admitting them as causes of the malady.

All these appearances are merely accidental coincidences or effects; for it is evident that they are not essential to Canine Hydrophobia either as causes or adjuncts; since, as I have before observed, neither of them existed in the case of Master ENGLISH, in which the symptoms of the disease were clear beyond all possibility of doubt. I observe that the same absence of all local inflammation is stated in the first case of Canine Hydrophobia by Dr. VAUGHAN,* in one by Dr. BARDSLEY;† and in that of ROGERS, by Dr. PINCKARD;‡ and a total exemption from redness in the stomach, in a fourth case, by Dr. BABINGTON.§

There is no error of judgment more frequent not only in medicine, but in common life, than that of erecting into causes, or necessary conditions, accidental occurrences, or coincident

* Two cases of Hydrophobia, by J. VAUGHAN, M. D.

† London Med. and Phys. Journ. xiii. 155. ‡ Ib. xxviii. 449.

§ Medical Communications i. 215.

effects. Thus in medicine, palpitation of the heart, or difficulty of breathing, are, even to this day, by many persons considered as necessary symptoms of the Syncope Angens, or Angina Pectoris. As, however, I have known many patients so affected, who have had neither palpitation, nor difficulty of breathing, it is evident that those symptoms cannot be essential to that disease; though from the coincidence of the causes producing them, with those which produce the characteristic symptoms of the Syncope Angens, they may more or less coexist with it, and produce their own specific phænomena.

So also, if, in any case, inflammation should casually concur with Hydrophobia, it may doubtless produce some corresponding modification of the symptoms.

Let me, however, here ask, not of those who speak from mere theory, of persons like those who deny the existence of Hydrophobia altogether, but of those, who, allowing no guide but experience, have actually seen examples of inflammation in the trachea, or in the pharynx, œsophagus or stomach, whether, in such cases, there is any real resemblance to the phænomena of Canine Hydrophobia?

With regard more particularly to the first of those parts, is there any such symptom as a convulsive

vulsive affection of the respiratory organs, from the mere contact of tasteless or inodorous liquid with the inside of the mouth, or from a current of air, in Whooping Cough, in inflammation, even to ulceration, of the mucous membrane of the glottis, in Croup, or in Bronchitis?

With regard to the second set of organs, does the symptom, which I have stated, occur in inflammation of the pharynx, in which it is sufficiently observable by the eye; or in that of the œsophagus, or any part of the stomach, where dissection proves the existence of inflammation, by actual ulceration?

These questions I ask of those who are competent to answer them; not of those, who would better consult their own reputation and the interests of mankind by silence, than by hasty and dogmatical decisions on subjects, on which it is evident that they have had no experience.

From these circumstances we see the futility of the confident *à priori* conclusions of certain modern writers as to the cure of this malady by means adapted to the removal of inflammation; conclusions which, indeed, have received no confirmation in point of fact from the actual exhibition of such means, in genuine cases of Canine Hydrophobia.

In reality, it is painful to observe the credulity with which all manner of maladies, in which there is a difficulty, and, therefore, a dislike of swallowing, whether they arise from mere local inflammation of the throat, or from a state of disease accompanied with general convulsions, are daily published and received as examples of the Rabies Canina. To particularize all the instances of this description would be endless; but I may be permitted to advert to a few; of which two demand attention from being recent, and from having generally afforded hopes of success from a remedy, which, I greatly fear, future experience will shew to be altogether delusive.

The first of these cases is that by Mr. TYMON,* which occurred at Calcutta. Mr. TYMON, who visited the patient, MASON, on the day on which the symptoms began, describes him as violently agitated and screaming loudly; so that eight of the strongest soldiers were required to hold him, which at last they were unable to effect, and were obliged to bind him to his cot with several yards of tape. He was also delirious, fancying that carriages, &c. were floating before him in the air. He called for drink, but the instant he heard them pouring water into a tumbler, his wildness increased. He then beckoned for it. When it

* London Med. and Phys. Journal, vol. xxviii. p. 352.

came

came nigh him, he shook his hands, and trembled, and shivered. After he was confined, he attempted to bite Mr. TYMON; and subsequently to his having lost blood to such an extent, that no pulse was to be felt in either arm, they were able by force to make him, very much against his inclination, swallow one hundred drops of laudanum in mint water.

Is there in this case any thing like Canine Hydrophobia? I see nothing in it but Phrenitis.

But the patient had been bitten in the thumb by a dog in the beginning of August, about two months before. The dog, for aught that appears, was not mad; and certainly a man might become phrenetic, notwithstanding he had been bitten two months before by a sound dog. It will be objected that another man, IRWIN,* who had been bitten a day or two before MASON by the same dog, died of the Hydrophobia the day before MASON was taken ill. Of this fact, however, we have only the evidence of another person; while IRWIN himself asserted his bite to have taken place on the 15th of July; and his wife, an European as well as himself, corroborated the fact.

But was this case of IRWIN himself a case of Canine Hydrophobia? That point is by no means proved by the description of the symptoms; and if

* London Med. and Phys. Journal, vol. xviii. p. 351.

it really exhibited, not merely a simple aversion to liquids, but that peculiarity of effect from their touch or sometimes idea, in the midst of the greatest desire for drinking, which obtains in the true Canine Hydrophobia, the evidence of the patient and his wife as to the period of the bite was surely more credible than that of one of his companions. The probability therefore is, that they were not bitten by the same dog; which greatly diminishes the chance of either being mad. This man died, and MASON recovered.

I may here enlarge on what I have before hinted, that the dread of drinking in Canine Hydrophobia is far from arising from an aversion to liquids as such. There is in reality a strong desire for drink, and the dread appears to originate solely from the recollection of the great sufferings produced by the attempt. It cannot be denied that dogs will often lap, while under this disease. This was the case with my mastiff, before-mentioned. Besides which, it should be continually borne in mind, that what is called Hydrophobia, or the dread of water, is not the disease itself, but only one symptom of the disease; which differs in degree in different patients, and without the existence of which the patient would as certainly, and probably as soon die, as when it exists in the greatest degree.

This

This was the case with SELWAY, who swallowed liquids in quantities fully sufficient to preserve life, were that condition alone adequate to the purpose. When, however, this symptom is more slight, or the resolution of the patient strong, as in SELWAY, the thirst will counteract the suffering and the apprehension of it, and the patient, in spite of both, will gratify his thirst. Towards the conclusion of the disease, the spasm from liquids somewhat abates, but, while sense remains, never wholly ceases. Whether, however, the patient drinks or not, the same event, with no apparent difference of period from that cause, is common to all.

It is not, however, as I have before repeatedly observed, the mere expression of horror or the existence of agitation or tremor, from the attempt to take liquids, or from their sight, which constitutes Canine Rabies. This horror may readily occur, and produce resistance, and various other marks of aversion, on the part of the patient, from a recollection of great inconvenience in the act of swallowing, attendant on any malady; especially if reiterated importunity, or force, have been employed, with a view to compel the attempt. In order to ascertain the existence of the disease in question, the distinguishing effect of the attempt to swallow liquids, or their contact with the

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mouth,

mouth, must be, not mere dread, or resistance, or agitation, or even general spasms or convulsions, the last of which never occur in the Rabies Canina till a very short time before death; but that peculiar strangulation, or affection of the respiratory organs, which has been before fully described. Unless this occurs, the characteristic symptom of Hydrophobia Canina is absolutely wanting.

Conformably to these principles, I would examine the case, also from Bengal, related by Dr. SHOOLBRED.* The patient was taken ill on the day before that on which the chief symptoms are described. The first symptom of the Hydrophobia was a curious one. We hear of no difficulty of swallowing liquids; but, unfortunately, whenever the patient attempted to look on or to touch water, he was constantly harassed with the horrible appearance of different animals ready to devour him. Then, for the first time, he connected his indisposition with the bite, and had all the horrors of certain death before him. It is said that the next day, when Dr. SHOOLBRED first saw him, his skin was not hot, and that though he was in a constant state of universal convulsions, with a savage contortion of countenance, and

* London Med. and Phys. Journal, vol. xxix. p. 24, et seq.
unable

unable or unwilling to answer any questions which were put to him, he had so much sense as to be impatient of restraint. At the mention of water, he started with increased horror and agitation. When he attempted to take a cup containing drink, before he could reach the cup, his hand was suddenly drawn back by a convulsive motion. At the same instant he turned away his head, and writhed himself round on the bed, in an agony of terror and despair. These symptoms, together with a striking of his hand on his stomach, in order to point it out as the seat of undescribable uneasiness, the forcible expulsion of viscid saliva, and a total want of sleep, are all from which we are, with the author, to infer that this was an unequivocal case of Hydrophobia; of which he states himself to have seen, in the Calcutta Hospital, in eighteen years, seventeen or eighteen cases.

Now it does appear to me, who confess myself to have seen only three cases of Canine Hydrophobia, that, unless the nature and series of symptoms in this disease in India differ most essentially from those of the same disease in England, this was not at all a case of that malady.

In England, patients do not rave, at the beginning, of injury from animals; and never, at any period, either in connection with the sight of

water, or without it, except from recollection of a bite, and apprehension of its consequences.

In England, the disease, for the most part, if not always, begins with a hot skin, and certain other symptoms of fever, which are anterior, by several hours, to the dread of liquids, and which, with the other circumstances usually connected with fever, have a tendency to an evening exacerbation.

In England, patients sometimes sleep, after the commencement of the Hydrophobia.

In England, there are rarely, in that disease, any savage contortions of countenance, except temporarily during the local spasm of respiration, or till the last general convulsions take place.

In England, the general convulsions do not occur till a late period of the disease, when all the powers of the constitution begin to fail, and the sufferer is little able to exhibit any great impatience of restraint, or to point out the seat of his sufferings. Sometimes these general convulsions do not occur at all; but when they do exist, they have usually perfect intermissions, of longer or shorter duration.

Lastly, in England, the characteristic of Canine Hydrophobia in man is a local spasm of the respiratory organs only, very short as to duration, and having long and perfect intervals; but, while it lasts, threatening suffocation; occurring, some-
times

times spontaneously, whether during sleep or watching, and always from the contact of liquids with the inside of the fauces.

This last symptom is nowhere glanced at in Dr. SHOOLBRED'S case. Why also did not that gentleman, so experienced in these maladies, try the test of a current of air in bringing on spasms; though he tells us that, immediately after a large blood-letting, that test was employed without any annoyance to the patient?

To my reasonings on this subject it may perhaps be objected, that, in India, all the symptoms follow each other in a more rapid succession than in England. Accordingly, Dr. BERRY, who also has seen several unsuccessful cases, tells us that "the Hydrophobia from the bite of a rabid animal is of short duration; all those that he has seen having died within twenty-four or thirty-six hours, at farthest, from the appearance of the disease."* This is somewhat remarkable; because the same gentleman informs us, only two paragraphs before, that two men contracted the Hydrophobia from a bite on the same day, and a third from a bite of the same dog a day or two afterwards. In this dog, then, the progress of disease was not so rapid; and it may be remarked, by the way, that his being mad at all was not

* London Med. and Phys. Journal, vol. xxviii. p. 354.

proved, though from the length of time that the malady existed in him, and the repeated bites which he is said to have inflicted, apprehension must have been roused, and full opportunity afforded to ascertain the fact.

As to the duration of the malady in the human race in India, we have, however, farther evidence even from Dr. SHOOLBRED himself; who is so far from limiting that period to thirty-six hours at farthest, that he asserts with regard to blood-letting, that “if it fails in many of these cases when
 “used in the manner proposed, within twenty-
 “four, or, to speak with more latitude, thirty,
 “hours of the commencement of the symptoms,
 “he confesses he shall feel much disappointed,
 “and greatly mortified.”* In Dr. SHOOLBRED’S experience, therefore, thirty hours are so far from being near the close of the malady, that they are a sufficiently early period of the disease even to justify a strong confidence of recovery from the use of active means. But of this gentleman’s experience of the duration of the disease we have another proof in a case mentioned by him,† in which the patient lived fifty-six hours and a half. How to reconcile these discordant accounts of the medical practitioners of India, I know not; but, for aught that appears to the contrary from this

* Lond. Med. and Phys. Jour. xxix. p. 36. † Ib. xxix. p. 35.
 evidence,

evidence, we have fair reason to conclude that the climate of India makes no difference as to the quickness of succession of the symptoms of Hydrophobia; and we are at liberty to try these cases by the same tests that we should employ with the same view in our own country.

Let me, however, reverting to the interesting case of Miss P. which I have above described, ask, whether, if it had been combined either with some accidental soreness of the pharynx or larynx, or with that degree of difficult deglutition, which often occurs in mere Hysteria, so as, on either of these accounts, to have made her averse to the inconvenience of taking liquids,—whether, I say, this case would not, with some persons, have passed for one of true Canine Hydrophobia, which they might have usurped and obtained the full credit of having completely cured?

In this case the patient was bitten by a dog, which had in reality some appearance of being mad. Master ENGLISH had died rabid, from a bite, ten days before. During her indisposition, she raved of running away, and of being pursued; from which authors infer a great deal as to the genuineness of the malady.

It is true that the symptoms began at a rather early period; within three days from the bite. But there is authority for this early influence of the canine

canine poison. A patient of Mr. WRIGHTSON, of the county of Durham, was bitten on a Sunday, and was taken ill on the Wednesday following.* Nay, an instance is given us by Mr. TURNBULL, of a man named DIXON, who was taken ill on the day on which he was bitten.† It will be readily anticipated that both these patients recovered; and, from the symptoms recorded in the cases, no one can doubt that they were just as rabid as Miss POWE.

Whether in certain constitutions, in a climate like that of India, the bite of a sound dog may produce convulsive affections, just as disorders not very dissimilar are caused, in all countries, by various other wounds, I have no means of ascertaining.

It is, however, certain that neither in India, nor in any other country, the having been bitten by a dog in perfect health will prevent convulsions, phrenitis, or any other of those diseases which are confounded with true Rabies. Nay, it is obvious that a man may have any of these disorders, and not the Rabies, who has been bitten by a dog truly rabid: and if the operation of fear, as in the instance of Miss POWE, in the various others which I have quoted, and in that

* London Medical Transactions, vol. ii. p 192.

† London Med. and Chirurg. Journal, vol. xix. p 118.

which

which is adduced by Dr. JENNER from Mr. HUNTER,* is capable of producing symptoms much resembling those of Canine Rabies, it may reasonably be expected that these symptoms will be most violent in those cases, in which the fear would naturally be most vehement; that is, where the patient was bitten by an animal actually mad.

It is, indeed, difficult to conceive of any situation, in which a man could be placed, more apt to excite all the horrors of despair, than the consciousness of having been bitten by an animal, by whose poisoned tooth a fellow-creature had, perhaps only a few days before, been deprived of life. This is a predicament, from which the mind could scarcely picture to itself one avenue for escape.

In reality, so many of the maladies, which have been mistaken for Canine Rabies, have arisen from extreme fear of the consequences of a bite, that this circumstance alone has given occasion to the scepticism of ignorant persons as to the existence of such a disease. When, however, we examine these supposed cases, we shall always see some essential circumstances, in which they differ from the true Rabies. The disease either begins prematurely, or is attended with

* *Medico-Chirurgical Transactions*, vol. i. p. 267.

too early delirium, and general convulsions, or has no characteristic spasm of the respiratory organs, or arises from evident topical disorder of the parts about the throat; or, if spasms are produced by the act of swallowing, those spasms are the evident consequence of the local disease; or the spasms are not confined to those parts, but are a part of general convulsion, as in Tetanus; or if there is horror from a recollection of the inconveniences of swallowing liquids, that horror shews itself by general, more than by local, effects, &c. These circumstances are more or less common to all the cases of Hydrophobia, which are adduced as having been cured, whether they have arisen from fear, or any other cause.

Such was evidently the state of circumstances in the noted case of Dr. NUGENT, in which the mind was long tortured with the apprehension of death from the bite. The pain of the adjacent parts having produced a fit of hysterics, the difficulty of swallowing liquids immediately supervened; and the symptoms were so clearly those of Hysteria, that Dr. NUGENT himself acknowledges the difficulty of swallowing to be "not unlike the effects of the "Globus Hystericus in some hysteric paroxysms." From these attacks, this patient, as is not uncommon in such maladies, soon lost her voice.

What

What, however, proves the origin of this malady to have been mental, and not the canine virus, is, not only the want of the pathognomonic symptom, on which I have so much insisted, but this curious series of facts; that the difficulty of swallowing ceased, while the horror of liquids and dogs continued; was renewed some days afterwards with regard to water, but not tea; and again, at a greater distance of time, by circumstances recalling the cause of her terror. To this may be added, that with the renewed attention to this cause, there was a return of the pain in the neighbourhood of the bitten part.

I must here observe that *Globus Hystericus*, when it reaches the throat, is not, according to the common opinion of authors, a mere sensation. There is, often at least, an actual rising up of the whole larynx, and with it, probably, the pharynx, to such a degree as to produce a feeling of immediate suffocation. This I have seen more than fifty times, and have nearly as often removed the sensation, and the consequent suffocation, by putting my thumb and finger on each side of the upper edge of the cricoid cartilage, and mechanically depressing the larynx. I have already remarked that in SELWAY I paid particular attention to the affections about the throat during an attack of the spasm which occurred

occurred spontaneously, waking him out of sleep; but that I could perceive nothing like the rising of the larynx, which I had before so often witnessed in Hysteria.

If these circumstances shall be verified by future observations, they will afford a very important criterion by which to distinguish the laryngeal spasm in Hysteria, from that in true Rabies.

When I read of the extreme irritability of a patient supposed to be rabid, so that the mere sight of certain colours, or of liquids, slight noises, and various other trifling irritations, are highly distressing, and even productive of convulsions, I own I consider these as very suspicious circumstances. Neither of them occurred in either of the patients whom I attended. But they are very common concomitants of high degrees of what is called Nervous affection. A Lady, whom I knew, could not endure to look at any thing of a scarlet colour. Another could bear the sight of no light colour whatever; in consequence of which, the papers and wainscoat of her rooms were all tinged of a deep blue or green, and the light was modified by green blinds. If, also, at any time, I visited her in white stockings, I was always, at my entrance, presented with a black silk apron, with which I was requested to cover these offensive garments. I have seen a third patient, of
this

this description, repeatedly thrown into violent convulsions by the noise produced by the falling of a pill-box, or even a black pin, on the floor.*

So, also, with regard to the convulsions about the throat, very commonly occurring to such patients from attempts to drink, it must be remarked, that the convulsion in Hysteria does not arise from the mere circumstance of taking liquids into the mouth, unless these liquids contain ether, or some other volatile ingredient, which catches the breath, but requires for its production the absolute act of swallowing, or the voluntary exertion of the muscles necessary for the performance of that act.

The same criterion with regard to the effect of swallowing is applicable to those cases of difficulty from various local diseases about the pharynx, larynx, œsophagus, and cardia, which have been erroneously adduced as examples of true Rabies Canina.

The foregoing observations seem to me explanatory, so far as Dr. BARDSLEY'S relation of the facts goes, of all the cases of spontaneous Hydrophobia narrated by him,† whether from his own experience, or from the authority of others. Neither are they inapplicable to the case related

* London Medical Memoirs, vol. iii. p. 80.

† Medical Reports.

by him as being one of true Canine Hydrophobia, in which there was difficulty of swallowing, with consequent convulsions about the throat from the attempt, but nothing of disordered respiration either spontaneously, or from the contact of liquids, or of a stream of air, with the mouth; except when the “ whole body was writhed with convulsions.” To me then it seems, that the question is not, as that ingenious Physician states it, whether his patient owed the “ Hydrophobia, “ with all the pathognomonic symptoms of Rabies “ Canina,” to the bite of a rabid animal twelve years before, but whether the pathognomonic symptoms did actually exist. It appears to me that they did not; yet he who shall seek for them in the cases by the Doctors JOHNSTONE, † VAUGHAN,* MARCET, †† BEDDOES, § SATTERLEY, † and a few others, will not be disappointed in his search. Even Dr. VAUGHAN, whose cases are otherwise too loosely narrated, in his commentary on the two first, especially remarks the “ sympathy “ between the fauces and the diaphragm; the latter “ being drawn into a most severe spasm, as

† Memoirs of the Med. Soc. of London, vol. i. p. 243, 255.

* Two cases of Hydrophobia, loc. cit.

†† Medico-Chirurg. Transact. vol. i. p. 156.

§ London Med. and Phys. Journal, vol. xx. p. 195.

† London Medical Transactions, vol. iv. p. 348.

“often as any offending cause operated on the former.”*

With regard to the case of Hydrophobia, that of HANNAH SPRINGTHORPE, given by Dr. ARNOLD, there is in its commencement, progress, and termination, so total a dissimilitude to Rabies Canina, that one only wonders on what ground it could have been presented to the public as an example of that disease. The whole history of the case proves it to have been a nervous affection, in a strongly pre-disposed subject, produced by the extreme dread of the consequences of a bite by a dog which was, possibly, rabid.†

In the last volume of Dr. HAMILTON’S comprehensive work, cases, to the amount perhaps of a hundred, are quoted, in which there seems to be no attempt whatever to enumerate pathognomonic symptoms. When, however, on a subject so involved in obscurity, I see authors calmly contenting themselves with telling us of such an animal, whether human or brute, that he was “plainly,” or “clearly,” or “decidedly rabid,” or that he laboured under “unequivocal symptoms of Rabies Canina,” I own that I cannot regard those authors with that

* Two cases of Hydrophobia, p. 37.

† A case of Hydrophobia, &c. successfully treated by THOMAS ARNOLD, M. D.

degree of respect which I should most unfeignedly wish to entertain.

While engaged in ascertaining the symptoms of this disease, I must beg leave to advert to a few other cases, which appear to me to have been confounded with Rabies Canina.

The first is that by Mr. OLDKNOW,† of the identity of which with that malady I doubt, because the constriction about the upper part of the throat, together with the shortness of breathing, appear to have constantly existed; because the spasms are said to have resembled what happens in hysteric paroxysms; because, in the beginning, solids were as difficultly swallowed as fluids; because in the course of the disease fluids were more easily swallowed than solids, and, at length, swallowed without any difficulty; because no inconvenience, but, on the contrary, much gratification, was produced by air from an open window; because he had neither delirium nor general convulsions; because he appears to have died of increased secretion of mucus from the larynx and bronchia; and lastly, because the dissection shewed the existence of an inflammation producing that secretion, which was quite sufficient to account for the symptoms and fatal termination, without the interposition of Rabies.

† Edin. Med. and Surg. Journ. vol. v. p. 277.

To recount similar cases is by no means difficult. The following is that of a patient not long ago attended by Mr. GEORGE NORMAN and myself.

A young man, servant to a fishmonger, about two months before my visit began to be affected with soreness low down in the throat, aggravated by swallowing, accompanied with frequent coughing, and with a sense of stricture, impeding in some degree his respiration. When I saw him, his breathing was very difficult. He was extremely hoarse; and during my second visit to him, there was occasionally such a struggle, in order to cough or breathe up a little thickened mucus, that I expected every moment the man would be strangled. His pulse was 120 in a minute, and he was hot at night, though his face was generally pale. His breathing was alike in all postures; and I could discover nothing morbid within or without his throat, except some soreness when hard pressure was made below the cricoid cartilage. On the third day, having at my desire swallowed some liquid, before it could well have reached the stomach, he was seized with a fit of strangulating cough, in which the whole of the upper part of his body, and his arms, were for some time affected with the most violent contortions, as if he was struggling to prevent im-

mediate

mediate suffocation. This was more or less the constant effect of similar attempts; to which, therefore, he was very averse. He suffered almost constant pain about the scrobiculus cordis.

This case being evidently one of inflammation of the trachea, leeches were repeatedly applied, and he was ordered to take frequently a teaspoonful of a mixture consisting of six drachms of syrup of squills, and two drachms of syrup of poppies.

By these means the patient lost his fever, and the symptoms of local inflammation; became able to drink with ease, and regained his flesh; although at this time, four months subsequently to our attendance on him, he has not in any degree recovered his voice.

The case of ANNE CHANDLER, by Dr. POWELL,* appears to me to be evidently Œsophagitis, and not Rabies; and that of WILLIAM WATERS, by Dr. PINCKARD,† Laryngitis mixed with Œsophagitis: that of WILLIAM MILES, by Mr. HICKS,§ Mania from fear; and that of ELIZABETH KIRK, by Mr. BORRETT,‡ Gastritis with ulceration.

Respecting this last case I must observe, that various disorders in the stomach, and more especially that state, in which large quantities of

* London Med. and Phy. Journ. vol. xx. p. 201.

† Ibid. vol. xxi. p. 58. § Ibid. vol. xvii. p. 272.

‡ Ibid. vol. xxi. p. 268. blood

blood are ejected by vomiting, are, in females, often accompanied with Singultus, aversion to swallowing, great inconvenience from it, and frequent paroxysms of Hysteria.

I may also advert to two other cases, by Dr. O'DONNELL, supposed, I think erroneously, to be Rabies. The first, that of WILLIAM HONEY, was a clear example of acute inflammation of the larynx and pharynx, attended with a similar state of the brain, and consequent extravasation in the ventricles. The second, that of JOSEPH WATSON, was also one of Sore Throat. No dissection of this patient is, however, given in the London Medical and Physical Journal,* from which I quote.

In all these instances there was dread of water, from the inconveniences attendant on swallowing it. But though the patients were bitten by dogs, there was no evidence of Canine Rabies; in which, as I have before observed, the spasm of the respiratory organs accompanies the contact of liquids with the inside of the fauces, before any attempt whatever is made to swallow them.

In order to shew the possibility of Hydrophobia without the bite of a rabid animal, the case by Dr. INNES† has often been triumphantly quoted. This case, however, was that of a spasmodic or

* Vol. xxix. p. 485 et seq.

† Edinburgh Med. Essays and Observ. vol. i. art. xxix.

inflammatory state of the cardia, to which the patient had been subject, attended with Pyrosis or water-brash, delirium, and a great degree of thirst; but, at the same time, such a difficulty or pain in attempting to swallow liquids, as made the very thought of doing so, in his state of extreme excitement, highly agitating to him. Such is the case, which, on account of a single symptom, common to a great variety of disorders, medical men, aspiring to a reputation for discernment, have assumed as similar to Rabies Canina.

The case, which, of any that I have read, comes the nearest to Rabies Canina, and yet much differs from it, is that of FRANCIS STANIER, by Mr. RUSSEL.* The following are the chief points of difference.

On the first day, the patient was excessively agitated by the administration of a glyster. On the second day, he reluctantly swallowed several spoonfuls of a cordial mixture, without any recorded inconvenience. On the same day, “a spasm at the upper part of his throat” is said to have “attacked him whenever he attempted to lay his head low, and obliged him frequently “to raise it;” and he declared that it would be “impossible to swallow” any more of his mixture, “unless he got out of bed. A bason filled with

* Medical Journal, vol. ix. p. 256.

“ water

“ water was brought to him, but the moment his
“ hand touched the water, he snatched it back,
“ with marks of much horror;” which, however,
“ he afterwards explained by saying, it had felt to
“ him colder than common, and had thrown in-
“ stantly a sensation of cold over his whole body,
“ which seemed to fly to the upper part of his
“ throat.” He said that the approach of warm
liquid, for the purpose of drinking, was more
offensive to him than that of cold, on account of
the steam, which “ would bring on the uneasiness
“ in his throat, before he wetted his lips.” The
act of swallowing even solids, he observed, brought
on “ a horrid sensation he was unable to de-
“ scribe.” Speaking produced the same effect.
On the third day he drank at least three
quarters of a pint of purl, “ not without some
difficulty;” and voluntarily “ put his hands into
“ cold water;” the only inconvenience from which
is said to have been, that “ he did not seem to be
“ perfectly at his ease.”

Through the whole disease, the symptoms
consisted merely in uneasiness in the throat,
general agitation, and horror, from the attempt to
swallow solids or liquids, but more especially the
latter; and even from the thought of doing so;
but there were no convulsions, whether local or
general, and no delirium.

These

These are not the characteristic marks of true Rabies Canina.

What then, it may be said, do not such examples as these exist; and are they not entitled to the appellation of Hydrophobia, as much as those which arise from the poison of a rabid animal? They certainly do exist; but the error lies in considering various diseases to be the same, because they happen to exhibit some agreement in one symptom; and in thus, by the "cheat of words," associating effects, which arise from causes in their own nature widely different.

From this false analogy, it has happened, that persons, seeing remedies effectual in the cure of such idiopathic diseases as I have mentioned, have deceived themselves and others by expecting similar effects in the genuine Rabies Canina; and, having eventually failed, have entailed opprobrium on the profession by the rashness of the professors.

Nay, what is still worse, it were easy, from the descriptions of the authors themselves, to shew examples, in which fatal consequences have arisen from the converse of this error; persons having been suffered to die of reputed Rabies, under the use of hypothetical remedies for that disease, which have aggravated the malady actually existing, and have totally superseded measures, that,

that, in all probability, would have saved the lives of the unfortunate patients.

I have, however, attempted to shew that even the difficulty with regard to fluids, though a mere symptom, is totally different in the Rabies from that which occurs in those other diseases; and that this difference of quality in that symptom will serve as an accurate pathognomonic mark of the Rabies in human beings.

In order, however, to avoid the confusion attendant on the use of an abstract term, which includes many varieties of phænomena, arising from as many different causes, it might be proper altogether to annul the term Hydrophobia, as the expression of a genus, and to call the disease Rabies. Since, also, this malady is neither peculiar to dogs, nor communicable only by them, some objection may be justly made to the use of the adjunct, Canina. For these reasons, nearly forty years ago, I proposed, in a treatise now deservedly forgotten, to designate the disease by the appellation of Rabies Contagiosa; thus preserving the old generic term, and adding another, expressive of its mode of production.

If I have extended to some length this inquiry into the characteristic symptoms of the Rabies Contagiosa in human beings, I trust that the reader has seen sufficient reason for justifying the discussion;

discussion; and if the test, which I have attempted to establish, shall appear, from future experience, to be accurate, we may, by it, safely try the various cases imposed upon us as of Canine Hydrophobia, whether following the bite of a dog supposed to be rabid, or being really so, or occurring in connection with any other malady.

If, also, from such a test cautiously applied in a considerable number of cases, we see no example of an exactly similar symptom without a previous bite of a rabid animal; we have just right to infer, *è converso*, that any new case, with such a characteristic symptom, must have been derived from such a bite, though it cannot be certainly traced to that cause.

By the same mode of reasoning, when true Rabies occurs within a given period, as for example eight or nine months,* after a bite inflicted by a strange dog, and the patient is certain of having suffered no other similar injury, we have a right to presume that dog to have been mad, although it be not in our power to prove him so.

The first of these conclusions is applicable to the case of TUCKER; the origin of whose malady was also confirmed by the testimony of various of his friends. The second applies to the greater number of cases of genuine Rabies, which arise from the bite of dogs, that are either unknown,

* Or, perhaps, longer.

or are killed before the existence of the disease in them can be ascertained.

The patient of Dr. SHOOLBRED, whose case I have before cited, was so relieved by a single bleeding of from thirty to forty ounces, that before the blood had ceased to flow, the pain about the præcordia, a very common symptom of Hysteria, Convulsions, and Tetanus, together with the general convulsive startings, contortions of his countenance, &c. had ceased; and neither drinking water, nor being fanned, produced any other effect than the highest gratification to him. He even slept. In one word, he was cured by blood-letting in the space of two hours. In this effect there was nothing extraordinary; the man's disease being evidently convulsions from fear, concurring, probably, with some slight accidental malady.

On the same principle, we may easily understand the salutary effect of the same remedy in the case by Dr. INNES.

The true Canine Hydrophobia being the effect of a poison introduced into the constitution, we have no analogy to support us in the conclusion, that it is capable of being cured, in two hours, by blood-letting, or any other remedy. On the contrary, in the cases most analogous, whether the operation of a poison be constitutional or merely local,

local, long processes are necessary in order to produce that happy effect. I have shewn above, that the argument in favour of this remedy, deduced from the analogy of inflammation, is merely hypothetical, and directly contradicted by facts.

With regard to actual experience, blood-letting was long ago largely, though ineffectually, tried. But, according to the modern advocates for this practice, it was not employed to a sufficient extent. The patient must be bled *ad deliquium*, in order to afford any reasonable expectation of success from the remedy.

In the case of POLLOCK, quoted by Dr. SHOOLBRED from Dr. JOHNSTONE,* who relates it as having seen it treated in the Clinical Ward at Edinburgh by Professor RUTHERFORD, in the year 1750, the patient, “ who had been bled
“ in the morning, lost gradually in the afternoon
“ the large quantity of sixty-six ounces more;
“ from which evacuation he became sick, and a
“ little faint, &c.” Doctor SHOOLBRED is at a loss to tell how such an evacuation of blood, amounting probably in the whole to eighty ounces, should not have cured Dr. RUTHERFORD’S patient, when his own was cured of the Hydrophobia by the abstraction of forty. It is worthy of remark, that, in this case of the Professor, though

* Memoirs of the Med. Soc. of London, vol. i. p. 243.

the pulse became somewhat smaller and slower, and certain concomitant incidental symptoms were lessened, the patient's "aversion and horror of liquids were undiminished." Dr. SHOOLBRED, however, sees an avenue for escape from the bold, but fruitless administration of this remedy, in the word *gradually*; as if the blood-letting had been performed either at intervals, or from a hair-like orifice. For the former suggestion there is not the least shadow of reason; and with regard to the latter, small as the orifice might have been, the man was made faint by the discharge, which, if produced to the same extent from a large orifice, might have cured the disease by killing the patient. There is too much reason to believe that future experience will demonstrate the reason of the difference of success in the two disorders; which is, that the case of Dr. RUTHERFORD was one of true Rabies, while that of Dr. SHOOLBRED was generically different.

In the instance of TUCKER, bleeding was certainly not carried to the extent recommended. But it was carried so far as to produce delirium in that of SELWAY. What was the result? To lessen the head-ach and febrile heat, and to diminish the spasms, for a while, precisely in proportion as it diminished the vital powers. A still greater effect would doubtless have been produced, in proportion

portion as the patient was nearer to being killed by the remedy. But in this case, as in that of Dr. RUTHERFORD, the disease, of which the spasms were the symptom, was not arrested, but held on its equal and unrelenting progress to the termination of life. So I have seen the convulsions of Epilepsy repressed by immense doses of opium; which, nevertheless, has not appeared to prolong the patient's existence a single hour.

On the whole, I believe that few of my readers will deny the experiment of blood-letting to have been fully, though unsuccessfully, made in the cases of POLLOCK and SELWAY.

That bleeding, or any other means should be found a cure for this dreadful malady, were a consummation devoutly to be wished. While, however, it is to be apprehended that the remedy is yet to be discovered, and it is absolutely necessary that mankind should not be deceived by false expectations, I see no reason why blood-letting should not be employed in this disease. The absolute failure leaves us, as to the event, precisely where we were; and if we can merely alleviate certain symptoms, and smooth the avenues of death, some good is doubtless attained.

There is one remedy for Hydrophobia, which, if it had not been proposed by such a man as Dr. RUSH, one should scarcely have thought
worthy

worthy of being mentioned. This is Tracheotomy; which, probably, would not have occurred to that gentleman himself, if he had not strangely mistaken a case of Inflammation of the Trachea for one of Rabies Canina.* Rabid patients do not die of any mechanical or spasmodic constriction of the glottis. Their breath fails, because the other powers of the constitution fail; and it would be just as absurd to attempt curing Rabies Canina by an aperture in the trachea, as to expect a pair of bellows, which was not worked, to act, by making a hole on the side of the nozzle.

Various other more promising means have been tried. Among these may be reckoned bleeding from the arm, jugulars, temporal artery, and by leeches; purging; emollient glysters; scarification and blistering of the cicatrices; blisters to the throat and other parts; oil, by the mouth and glysters, by unctio and by bathing; Cajaputi oil by friction; warm and cold bathing, the latter so far as to produce a temporary suspension of the senses; galvanism; electricity; vinegar; ammonia, pure and sub-carbonated; cinchona; snake root; ipecacoanha; camphor; musk; asafoetida; tobacco externally and in glysters; hellebore; opium to an astonishing extent; mercury in all forms; antimony; copper; zinc; iron; arsenic;

* London Med. and Phys. Journal, vol. xx. p. 359.

and

and perhaps others. Several of these seem to have aggravated the disease, or combined with it their own specific noxious effects; but no one has gone any way towards producing a cure.

In reality, those internal remedies which cannot be administered in a solid form, or which are not equally efficacious in that of glysters, are inapplicable in this malady; and with regard to others, the course of the disease is so rapid, and the patient usually, at an early period, becomes so suspicious of the approach of other persons, that scarcely any thing will admit of a fair trial.*

A fact, stated by Dr. SATTERLEY, renders worthy of a fair trial a process, hitherto ineffectually attempted in Rabies. We are told by that gentleman that his patient, GEORGIANA JAMES, whose case is most accurately noted,† was able during the third day of the disease to swallow warm liquids in considerable quantities with ease, and without spasm. This ability continued for

* I cannot help suspecting, that this fear of being approached, and the occasional objection to the approximation of a looking-glass, or the opening or shutting of a door, arises in some degree from the mere current of air, which near motion of any kind produces; for I observed that the first of these apprehensions was, at least, much increased in SELWAY, after he had been fanned, and had two or three times been blown upon.

† Medical Transactions, vol. iv. p. 348.

several hours, in the intervals of violent vomiting, during which she also slept, quietly and soundly. As the vomiting abated, these favourable circumstances proportionably disappeared. From perusal of the cases, in which different emetic medicines have been designedly given, it will be seen, that they have in a great measure failed to produce their intended effect; but the facts, which I have stated from Dr. SATTERLEY, seem to intitle them to a more efficacious exhibition than has hitherto been made. Few means are indeed better fitted, *à priori*, to remove excessive irritability, than those which produce long and considerable nausea. For this purpose squill and tartarized antimony seem best suited; but, unfortunately, both, when largely given, are apt to lose their effect by acting as purgatives. On the other hand, no medicines, with which I am acquainted, produce full vomiting so certainly as ipecacoanha, sulphate of zinc, and sulphate of copper.

Convinced of the inefficacy of opium not only for the cure, but even for the relief of this disease, Dr. MEASE recommends, at the very commencement, the stramonium, either in the form of powdered leaves, or their extract, in doses of two grains for an adult; and, if this medicine should produce any remission, the immediate use of bark and wine, in as large doses as can be borne.

He

He also suggests a trial of tincture of cantharides, exhibited internally, so as to excite and maintain strangury.*

Notwithstanding, however, we have hitherto discovered no method of curing Canine Madness, after it has actually commenced, we are happily in possession of measures, which afford us better prospects of preventing that malady.

It would be frivolous to particularize all the means, which have been with this view recommended, and have duped mankind. Of those, which had existed before the writings of BOERHAAVE, we have that justly-celebrated author's judgment in the following words. "Haftenus
 " vero nullius ea comperta fides, cui credi queat
 " salus miserrime periclitantis hominis, quum
 " nullum sit notum, cujus experimenta certa;
 " sed vel speculationi ortum debent, vel descriptis
 " ex alio confisum fuit: Nec Æschrionis apud
 " Galenum et Oribasium arcano de cancris com-
 " bustis; nec Scribonii Largi famigerata opiata
 " ad Rabiem Sicularum; nec Peregrini consilio de
 " pelle hyænæ; nec Ætiii, Rufi, Possidonii, cinere
 " cancrorum cum theriaca; nec jactata Palmario
 " medela; vel nimis laudato Mayerno, Grew, et

* Observations on the arguments of Professor RUSH, by JAMES MEASE, M. D. p. 56, et seq. Cantharides were long ago recommended in this disease by RHAZES.

" venatoribus,

“ venatoribus, stanno cum Mithridatio ; nec in
 “ somniis sacris revelata radice cynorrhodonis ;
 “ aliisve in cœlum elato lichene cinereo terrestri,
 “ pimpinella, jecore rabiosi canis exusto, et
 “ similibus, exceptis.”*

Of dogs which are reputed mad, not one in ten, perhaps not one in a hundred, is really so ; and just as when a genuine case of Rabies has occurred, twenty spurious ones suddenly spring up and take root in our journals, so mad dogs abound most in the near atmosphere of some vaunted empirical remedy. This was the case with that of Ormskisk, formerly so celebrated for the prevention of Canine Madness, but now long fallen into merited contempt.

I have also already remarked, that of persons bitten by dogs really mad, only a small proportion is infected. Hence we may understand that blind confidence, with which mankind trust their lives to measures, which have no analogy to recommend their use, and which are sure preventives of diseases, that would never have occurred, if they had not been employed.

While, however, I omit to discuss the several prophylactics of this malady, which, having had their hour upon the stage, are now heard of no more, I cannot avoid adverting to one, recom-

* Aphorism 1147.

mended by great authority. This is Mercury; which was spoken of in such terms of eulogy by DESSAULT,* SIR GEORGE COBB,† HILLARY,‡ DARLUE,§ SAULQUIN,|| ROSE,¶ HAGG,** STRUVE,†† JAMES,‡‡ TISSOT,§§ MACBRIDE,||| SAUVAGES,¶¶ and others, that one could hardly deny a power, asserted by authors so worthy of credit. The most extraordinary testimony in its favour is, however, that of CLAUDE DU CHOISEL, apothecary of the Society of Jesuits at Pondicherry, about and after the middle of the last century. From his publication it appears, that India has always been fertile in mad animals; for he declares, that of persons bitten by them he has treated with the same success men, women, children, Indians, Portuguese, French, Moors, Mulattos, and Armenians, more than three hundred persons, without one of them having had the smallest subsequent symptom of the disease. “ Je puis assurer avoir traité avec le même succès
“ hommes, femmes, enfans, Indiens, Portugais,

* Journal de Medicine, tom. v. p. 181. † Loco citato.

‡ Diseases of the West-Indies, p. 259, 260, 264.

§ Journal de Medicine, tom. ii. || Ib. tom. xxx. ¶ Ib. tom. v.

** Sylloge selectiorum opuscul. &c. tom. i. p. 269. †† Ib. p. 289.

‡‡ On Canine Madness, p. 254 ad 256.

§§ Avis au Peuple, tom. i. p. 156.

||| Introduction to the Theory and Practice, &c. p. 553.

¶¶ Nosologia, tom. ii.

“ François

“ François, Maures, Metifs, et Armeniens, plus
 “ de trois cens personnes, sans qu’un seul ait été
 “ affligé du plus petit symptôme de Rage, &c.”*

It is scarcely necessary to specify either the particular examples of success detailed by these authors, or their different modes of exhibiting the remedy. By some it was given in form of the Tonquin medicine, which consisted of Musk and native and factitious Cinnabar; but by the greater number in form of pills or frictions, or both; so as to excite some degree of purging, and to act on the constitution in a degree just short of that which should be sufficient to excite salivation.

Of the inefficacy of this remedy too many instances have, however, subsequently occurred, to intitle it to confidence. I shall, therefore, omit any farther notice of it, in order to advert to one, which comes better recommended by the claims both of analogy and experience.

This is Excision of the part bitten; the mode of effecting which is the province of surgery, and not of medicine. It is evident, however, that the operation should be completely performed, so that no part of the internal surface of the wound, which has been in contact with the envenomed teeth, should be suffered to remain. When this has been done, I know of no well-authenticated

* Nouvelle methode pour le traitement de Rage, p. 21.

instance in which the measure has been unsuccessful.

Many medical writers, who have admitted the propriety of this remedy, have, however, despaired of its utility, unless it is employed within a few hours, and perhaps even a few minutes, of the wound. Their conclusions have been founded on a supposition, that after a very short time the poison must have so mingled itself with the blood of the bitten animal, that the whole constitution must have been infected; and therefore that the disease, being no longer local, must cease to be an object of local remedies.

There being little direct experience on this subject, we are obliged to have recourse to analogy as our guide.

With regard to various other cases of the introduction of animal poisons into the human frame by wounds, it is well known that the poison lies long dormant and inactive in the part to which it was at first applied; and it has been asserted, that if, at any period previously to the appearance of renewed local disease, as of the secondary inflammation in the Small-Pox, the inoculated part be completely cut out, the constitution will not be infected. From the experiments of FONTANA also it appears, that if, after the bite of a viper, excision of the wounded part be at a certain period

period made, the local and constitutional effects are intirely prevented.

It must, however, be acknowledged, that the analogy between these cases and that of a wound made by the bite of a rabid animal is imperfect and defective, because, as I have before observed, notwithstanding the almost universal concurrence of authors of a certain æra in the opinion, that some local pain or secondary inflammation of the bitten part always immediately precedes the constitutional symptoms of Hydrophobia, there is too much reason to believe that this is far from being generally true.

We must, however, on all occasions, avail ourselves of the best analogy that we can; and, on this ground, conformably to the sentiments of Sir GEORGE BAKER* and Mr. JOHN HUNTER, it would certainly be proper to perform excision, where it was otherwise practicable, in any case attended with just cause of suspicion, not only before the wound is healed, but even, when its seat can be exactly ascertained, at any period before the constitutional symptoms have commenced.

Considering also the inevitably fatal consequences of the disease in our present state of knowledge, and the local affection of the

* Medical Transactions, vol. ii.—According to FOTHERGILL, excision was long before proposed by FALCK, London Medical Observations, vol. v.

adjacent nerves, which has already been described as accompanying the febrile symptoms usually preceding the Hydrophobia, I fully agree with Dr. MARCET† in the propriety of trying the effects of excision, even at that late period, if the existence of a cicatrix points out the exact seat of the bite. This measure, when practicable, should, I think, not be omitted under such circumstances; especially if there be any ground of suspicion that the dog was rabid; because I do not know that such a propagation, or translation of pain to the nervous trunks, accompanied with fever, ever occurs to human beings whose minds are tolerably firm, after the complete healing of a slight wound, except from the effect of the canine poison.

We should be still farther induced to make this trial, by our ignorance of the processes which are going on in the part affected, previously to the action of the virus on the general habit. The poison, for aught we know, may be increased by a process equivalent to fermentation; and the part may be the reservoir, from which the constitution is successively imbibing, even until death, the *materies morbi*. We are equally ignorant of the quantity which may be necessary in order to produce death. It was found by FONTANA, that the effects of the poison of the viper depended

† Medico-Chirurgical Transactions, vol. i. p. 156.

on this circumstance; so that the bite of one viper would kill a small animal, such as a fowl or a rabbit, but was insufficient to destroy a man, or even a middle-sized dog. A larger quantity killed a dog; and a still larger would, probably, have produced the same effect on a man. Perhaps, therefore, the excision of the part, even after the pains in the course of the nerves have begun, may so cut off the supply of virus, as to make that, which has been already received, inadequate to the destruction of life. I offer this merely as an hypothesis; on which, however, I would certainly act, should an opportunity, in which the operation was admissible, hereafter present itself.

Cases may however occur, in which, either on account of the timidity or aversion of the patient, or the nature of the part itself, excision is impracticable. Such might be the state of things, if the wound were deep, or in the neck or face, or in the close neighbourhood of tendons, or of important arteries or nerves. In such instances, there is still some guide from analogy. It has been found, or at least presumed, that when poisons have been inserted into deep wounds, their action has generally not been so injurious, as in those which are more superficial; the effusion of blood in the former case washing away the whole, or a considerable part, of the poison.

In

In pursuance of this principle, it seems reasonable in all cases, before surgical assistance can be obtained, to begin with washing the wound to its utmost depth, either by steeping the part, or by throwing a current of liquid on it by means of a pump, a common tea-kettle, or a syringe. For this purpose nothing seems so proper as water, which should be long and assiduously employed. Dr. HAYGARTH, to whom we are indebted for the first recommendation of this measure, advises that, in order to prevent absorption, the water in the beginning should be cold, and should afterwards be followed by the free use of that which is warm.

After a long employment of this measure, a cupping glass should, if possible, be applied to the wounded part, in order to excite from it a copious evacuation of blood. Some persons, with this view, have advised suction with the mouth. But if it be true that the Rabies has been produced by the mere contact of the poison with parts covered only with an epithelion, this practice cannot be pursued without hazard; more especially as, by the very act of sucking, small superficial vessels of the gums or lips might be ruptured, and thus a broken surface exposed to the action of the virus. For this purpose, however, where the wound is small, and its position
and

and surface such as to admit of the remedy, suction with the mouth might be very advantageously applied by the intervention of the bole and tube of a tobacco pipe, or by the glass instrument usually employed for the purpose of emptying the female breast.

Cupping itself may indeed be easily performed, where surgical assistance cannot be readily obtained, by placing a globular drinking glass, of a smaller or larger size, according to the part, near to the bitten spot; which should be previously wiped dry. The air in the glass should then be rarified, by placing in it for a few seconds a lighted wax candle, or paper dipped in spirits of wine and then lighted. Either of these must then be suddenly withdrawn, and the glass as suddenly pressed down, so that the rim shall all round accurately touch the skin. In this way, a small quantity of blood may probably be drawn; after which the ablution with warm water should be renewed.

When this has been done, it would, in all practicable cases, be prudent completely to cut out the bitten part, taking care that the knife extend in every direction beyond the bitten surfaces. Afterwards, cupping and ablution should be again performed.

To these means of ablution, and even of excision, it has been proposed to add the application of Escharotics, so as to produce ulceration of the whole surface. With this view, Dr. FOTHERGILL recommended for timid patients the explosion of gunpowder in the wound.* We have, however, no just reason to flatter ourselves with success from measures of this kind, since in all such processes the parts are stimulated to extraordinary absorption as well as extraordinary exhalation, and since the application of caustic was fairly tried in the case related by Mr. HUNTER; notwithstanding which, the patient died hydrophobous in fifty-six hours from the first appearance of the symptoms.†

In the third volume of Dr. FERRIAR's Medical Histories,|| we are told by Mr. SIMMONS, that forty persons bitten by mad dogs applied within a fortnight at the Manchester Infirmary; and that, being treated by the application of the *kali purum* to the wounded parts, they all escaped the disease. He adds, that the same success has attended the application of this remedy in his practice during twenty years; and recommends its use to the parts which have even been treated with excision. This application must doubtless act as a powerful escharotic.

* London Medical Observations, vol. v. p. 296.

† Hamilton, vol. ii. 351.

|| Page 221.

Since

Since, however, various other febrile diseases, giving dogs a disposition to bite, have been so often mistaken for Rabies, and since, according to the testimony already stated, where the dog has been truly rabid, a great majority of the persons bitten, though using no precautions, has escaped the disease, these relations of extraordinary success must be received with that reserve which they merit; and we are still too much obliged to pursue analogy, in default of direct experience. The means, which I have recommended, seem, in both views, the best which the nature of the case will admit.

I doubt whether, after a due employment of ablution and excision soon after the bite, I should consider myself as warranted in recommending any others. If, however, the fears of the patient compelled me to have recourse to precarious means of prevention, it may be questioned whether some additional security might not, conformably to the opinion of Mr. SIMMONS, be derived from keeping up a discharge from the wounded part by some gentle escharotics. If this were judged to be expedient, it would probably be thought prudent to continue the discharge for at least three months. I know not whether there are any facts to prove the accession of Rabies, before the wound has been completely healed.

The

The circumstances, which I have stated, shew how necessary both to the security and peace of mind of the patient, it is, to obtain all possible information as to the health of the dog, which has inflicted the bite. Where the dog is known, such information might partly be procured, by merely having him chained up for twelve or fourteen days; when, if he lives, we may assure ourselves that he was not mad.

It usually, however, happens, that bites of this kind are inflicted by strange dogs, whose very disorder itself makes them more or less restless, disposed to wander from their homes, and to attack other dogs, or persons, with little, or perhaps no, provocation. Animals so wandering are generally of small species; but it is greatly to be lamented, that, of whatever kind, they are capable of inflicting this dreadful malady at a period of their disease, when their general powers of recollection seem perfect, and nothing in their appearance or manner excites any suspicion that they are rabid. This is strongly illustrated in the case of the dog which bit Master ENGLISH.

In reality, if the symptoms of Canine Madness have been grossly misunderstood in the human race, the same error seems to have occurred in a still greater degree with regard to dogs.

To

To whom indeed are we to look for information on this subject? Mr. MEYNELL is often quoted; and, doubtless, his opportunities of observing the differences between a dog which was ill and one which was well, were comparatively great. Let us hear his characteristics of Canine Rabies, nearly according to the order, in which, as it should seem from his account, they appear.

1st. An indisposition in the dog to eat his common food, though an occasional greediness as to that which is new.

2dly. Nearly about the same time, a disposition to quarrel with, or bite, other dogs. At this early period, dogs are capable of communicating the disease. In the course of it, they are incapable of fear, and when provoked will fly at any thing which annoys them. If not provoked, they usually only attack what stands in their way.

3dly. Mad dogs never bark; but occasionally utter a most dismal and plaintive howl, expressive of extreme distress. This howl is stated as being peculiar, so that dogs may be known to be going mad without being seen, when only this dismal howl is heard.

4thly. Their eyes are not fierce or red, but dull; and have a particular and indescribable appearance, which is easily distinguishable by those who are accustomed to observe it.

5thly.

5thly. They do not always foam or froth at the mouth.

6thly. In the progress of the disease, which continues from seven to ten days after the first symptom has appeared, they have a total loss of appetite; though mad dogs have no abhorrence or dread of water, and will sometimes eat, and eagerly lap water, the day before their death. “But it is remarkable that though they lap water
“for a long time, and eagerly, and do not seem
“to experience any uneasiness from it; yet they
“do not appear to swallow a single drop of it;
“for however long they may continue lapping it,
“no diminution of quantity can be perceived.”

7thly. Though a mad dog will not, he believes, either shew fear on being threatened, or cry out on being struck; yet, very late in the disease, he will appear sensible of kind treatment.

These symptoms, according to Mr. MEYNELL, never appeared in any instance, in whatever season, or however the dog was fed, without their being traceable to a bite of another dog similarly affected.

A bite from the same dog has, however, produced in some dogs, what the huntsmen call *raging* madness, in others *dumb* madness. In the latter,
“the nether jaw drops and is fixed; the tongue
“hangs out of the mouth, and slaver drops from
“it.

“ it. In raging madness, the mouth is shut,
“ except when the dog snaps or howls, and no
“ moisture drops from it.”

These are in the opinion of Mr. MEYNELL, the leading circumstances of madness in dogs; of whom he farther observes, that their hair does not stand more erect than in others; that they have no particular manner of holding their heads or tails; and that sound dogs are not more afraid of them than of others, that seem disposed to attack them.

Now it is evident, that, among all these particulars, there is not one, except the howl, and perhaps the appearance of the eyes, which can be considered as at all peculiar to dogs suffering Rabies; and both of those characteristics are of so indefinable a nature, that they cannot possibly be distinguished, except by those who are already learned on this subject.

But how, let me ask, is this learning to be attained? How was it attained by Mr. MEYNELL himself? He tells us that dogs have no Hydrophobia, or dread of water. That may easily be; because dread is a process of reasoning, an exertion of a faculty, in which brute animals are infinitely below the human race, and in which, under the supposed disease, they are, in other respects, peculiarly and unnaturally defective. But Mr.

MEYNELL

MEYNELL goes farther, and assures us that though, when they lap, they do not drink, they do not appear to experience any uneasiness from the act of lapping. That is indeed extraordinary; because it is, I think, evident, that the peculiar spasm of the respiratory organs in the human race does by no means originate in any mental association, or hallucination, though in the progress of the disease it may happen to occur from the former cause. It takes place from the attempt to swallow liquids, and even, perhaps, from their contact with the patient's mouth, before he has formed to himself the least conception of the consequences which are to arise from the attempt. The mind, therefore, in the first instance, can be no farther concerned in these consequences, than through the medium of that sensation, which the contact of liquids may produce. TUCKER more than once assured me, that the first spasm occurred before the spoon with the gruel touched his lips. This effect, if, from forgetfulness or any other cause, it was not misrepresented, is so extraordinary, that it will scarcely admit of being reasoned on. It is, however, certain, that when Master ENGLISH attempted to wash his hands, he had no dread whatever of the effects, till after a spasm had actually been produced by the contact of the water. Afterwards, spasms might readily

readily be excited by a recollection of their original cause.

Although, therefore, we can readily understand why in mad dogs the Hydrophobia, or moral dread of water, should be little apparent, or wholly wanting, it does, I own, seem to me most extraordinary, that, under such an eagerness for lapping, and such an inability of swallowing liquids, as occur in these dogs, no inconvenience should be found attendant on the attempt; so that I cannot help attributing the silence respecting this symptom to some incuriousness on the part of the observer.

How also, if no inconvenience actually accompanies the attempt to swallow liquids by mad dogs, does it happen, that the disease, in them as well as in the human race, should actually, in all ages, have been designated by a name taken from a symptom, that never exists in them? This is to me inexplicable.

In reality, it must be apparent to every one who compares the cases of this malady in dogs and the human race, that if more or less of spasm about the organs of respiration, from the attempt to swallow liquids, does not accompany some period or other of madness in the former animal, there is no circumstance in common in the two subjects of the disease.

But we are told by Mr. MEYNELL, that the symptoms which he relates never occur, except to dogs that have been bitten by others labouring under a similar disorder; *ergo*, these dogs are mad.

It is evident, however, that in this chain of reasoning, certain links are wanting in order to make a complete series: for,

First, there are various other diseases, in which dogs are disposed to bite each other; and if these diseases are of an infectious nature, the disease might be communicated from that cause, while the bite was only a casual coincidence. In order, therefore, to form an accurate judgment as to the probability of this cause, we ought to know the number of the cases in which the coincidence occurred. That number, it may be presumed, could have been but small in the experience of any individual person.

Next, in this chain there is the want of another most important link; that these dogs, which are mad, without spasms from the attempt to swallow water, are capable of communicating, by a bite, Rabies to human beings. If they are not, this disease of Mr. MEYNELL's, though it really exists in dogs, and may be ever so accurately described by him, is not that, the distinctive marks of which we are seeking.

On this point it would be highly desirable to receive information from those, whose opportunities and talents for observation render them competent to afford it.

In the *Medical and Physical Journal** we are presented with several examples of what we are told are mad dogs, by Mr. YOUATT. This gentleman is completely at issue with Mr. MEYNELL on various points. In his first case, the dog on the first day bit another dog. On the third, he bit his master, and on the same day barked, though the madness was so established, that the dog bitten on the first day died rabid five weeks after. On the fourth day, there was the "characteristic howl;" and, on that day, he not only "eagerly lapped milk and water, but readily "swallowed it."

In the second case, the dog "at no time gave "the characteristic howl:" yet he died rabid.

In the third case, the terrier on the second day bit the gardener, and almost worried the cat to death. On the third day, though his thirst was excessive, and he plunged his whole face in the water, yet he could not swallow. His eyes were fierce. His bark not changed. Mr. YOUATT decided that he was rabid.

In case the fourth, a pug dog, after having been for three days unusually peevish, flew with-

out provocation at his mistress, whom he had much loved; then, having worried the cat, was seen to bite several dogs. On the fourth day, the water shut up with him was all gone. He neither barked nor howled.

In the fifth case, a terrier had for two days been unable to shut his mouth; and, though eager to eat, attempted it in vain. Two servants, trying to give him medicines, scratched their hands against his teeth. The lower jaw was completely paralytic, and the tongue hung out. The thirst extreme. Buried his nose in the water, but could not swallow. Flew furiously at the writer, but was unable to bite. No howl.

I will not trouble the reader with any abstract from the sixth case; because it is only a variety of the fifth, and, like it, had nothing in common with Canine Madness; being evidently, as well as the former, a case of pure inflammation of the fauces or other parts, accompanied with delirium, and followed by death. The nature of the disease, and the cause of the supposed paralysis, are sufficiently explained by the dissections.

A similar exclusion will, I think, be admitted as to the second case; which the dissection shewed to be Pneumonia, and not Rabies.

In the periodical publication, which I have before quoted on the Tetanus, Mr. YOUATT has
 given

given us two other histories of what he supposes to be Rabies in dogs ; of which the first appears, from the symptoms and dissection, to have been Bronchitis. The second dog eat and drank heartily the day before his death ; and, almost immediately before he died, barked two or three times loudly, and in the common tone. §

What resemblance, let me ask, is there between these cases and the description given us by Mr. MEYNELL ? None occurs to me ; but for the purpose of more accurate investigation, let us, referring to the histories of the several cases, place the chief circumstances in more immediate comparison.

According to Mr. MEYNELL, though a mad dog will lap, he never swallows any liquid.

According to Mr. YOUATT, a mad dog laps it eagerly ; * plunges his whole face into the water, but cannot swallow ; † eagerly laps milk and water, and readily swallows it ; ‡ drinks heartily ; § is so fond of drinking, that he laps his own urine. ||

Mr. MEYNELL says that a mad dog never barks, and has a certain characteristic howl.

§ London Medical Repository, vol. i. p. 187.

* London Med. and Phys. Journ. cases 2 and 3.

† Ib. cases 3, 5 ; and London Repos. case 1.

‡ Med. and Phys. Journ. case 1. § Lon. Repos. case 2.

|| Ib. case 2 ; Med. and Phys. Journ. case 1.

We are, however, assured by Mr. YOUATT, that a mad dog, though he has a characteristic howl, has a bark mixed with a howl;* that he has no howl;† that he has a natural bark without a howl;‡ and that he has neither a bark nor a howl.||

It would, I conceive, be unprofitable to carry this examination any farther, except to observe, that, notwithstanding the argument employed by various authors, that such a dog was rabid, because he was bitten by one which was so, or bit another which became so, I should not be disposed to attach much authority to the genuineness of a case not described, when I have every reason to doubt the nosological accuracy of those which are described.

In Dr. HAMILTON'S very copious work on Hydrophobia, he gives us the following symptoms as peculiar to and forming this malady in dogs.

A disinclination for his food. A state of melancholy. His eyes appear mixed and dull. Though he will obey the call of his master, follow him, nay fawn on him when he approaches, his memory is less accurate, and he occasionally forgets him. He is irregularly peevish, and is

* London Med. and Phys. Journ. case 1. † Ib. cases 4, 5.

‡ Ib. case 3; Lon. Repos. cases 1, 2.

|| London Medical and Phys. Journ. case 4.

apt to snarl. This state Dr. HAMILTON gives as the first stage of the disease.

In the second stage, his appetite is still worse ; but he refuses neither victuals nor drink. He now shuns other dogs, and is equally shunned by them.

In the third stage, he entirely loses his recollection, quits his master's house, runs forwards he knows not where, and without any particular design, rushes in his fury, and without barking, at every animal that comes in his way, but turns not aside to bite any. If he is tied up, he bites at his chain, and is furious when approached. The symptom of a drooping tail is more remarkable in this than in the former stage; and is conjoined with a convexity of the back, formed by drawing his hinder towards his fore legs. He never avoids water, having no fear of it ; and as it would seem, feeling no inconvenience either from drinking or touching it. He laps whatever liquid food is set before him, long after the poison can be communicated by his bite. In two days or less from the commencement of this stage, he dies convulsed.

This account, given nearly in Dr. HAMILTON'S own words, and taken, as it appears, partly from authors, and partly from his own observation, is a description of “ the common progress of the sufferings

“ferings of a rabid dog, and of the chief
“symptoms that distinguish it.”*

Here, then, there is the same silence respecting the convulsive respiration, which so uniformly occurs in man when rabid, and the same denial of the pathognomonic effect of liquids, as are to be found in other authors. The symptoms are, in reality, so far from being characteristic, that they are common to many other febrile diseases accompanied with delirium.

My late friend, Dr. JOHN HUNTER, in his excellent report on Canine Madness, follows the trite opinions on this part of the subject. According to him, a mad dog “can swallow solids and
“liquids through the whole disease, and readily
“eats what is offered him.”†

The remark which I have made above as to the improbability that even Mr. MEYNELL himself, with all his opportunities for observation, had seen many cases of the true Rabies Canina, is fully confirmed by that accurate observer of natural phænomena, Dr. JENNER. His immediate vicinity, during forty years of medical practice, to the numerous kennel of Lord BERKELEY, who well knew his zeal and talents, must have afforded

* Remarks on Hydrophobia, vol. i. p. 13—16.

† Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge, p. 296.

him

him means of information at least equal to those of Mr. MEYNELL; notwithstanding which, he asserts that he has never with certainty seen a dog with Hydrophobia. This assertion he makes in an excellent memoir, detailing the symptoms of the "Distemper" in dogs; which he speaks of as frequently mistaken for the Hydrophobia. Persons of ardent minds, prompt in deciding as to the nature of maladies, would do well to study this memoir; which may also be profitably perused by the most experienced.*

* Medico-Chirurgical Transactions, vol. i. p. 263.

Among the symptoms of this disease are the following.
 "The dog commonly refuses food, but his thirst is insatiable.
 "The brain is often affected as early as the second day after the
 "attack. The animal becomes stupid, and his general habits
 "are changed. In this state, if not prevented by loss of strength,
 "he sometimes wanders from his home. During the progress
 "of the disease, especially in its advanced stages, he is disposed
 "to bite and gnaw any thing within his reach. He has some-
 "times epileptic fits, or quick successions of general though
 "slight convulsive spasms of the muscles. He is often attacked
 "with fits of a different description. He first staggers,
 "then tumbles, rolls, cries as if whipped, and tears up the
 "ground with his teeth and fore feet. He then lies down sense-
 "less and exhausted. On recovering, he gets up, moves his
 "tail, looks pleased, comes to a whistle, and appears in every
 "respect much better than before the attack. He totters from
 "feebleness in attempting to walk, or from a partial paralysis
 "of the hind legs."

This is an infectious disease, consisting of inflammation of the lungs, and the membrane of the nose, fauces, and bronchia, from which blood is often extravasated. The dog frequently dies on the third day, and Dr. JENNER has known one instance of death within 24 hours. Sometimes the animal lingers on to the third or fourth week. It

It is well known that there are few counties in England which abound so much in game, and therefore in sporting dogs of all descriptions, as that of Norfolk: notwithstanding which, in a letter from Mr. STEVENSON, veterinary surgeon of Norwich, to my excellent friend Dr. REEVE of that city, with the perusal of which the latter has just favoured me, Mr. STEVENSON says, “for my own part I have never seen a true, genuine, rabid animal; and Mr. CLOVER,” (well known for a most extensive practice among diseased animals for between fifty and sixty years) “from what I can recollect, in the course of his life never saw above three or four cases in dogs, and about the same number in horses.” Mr. STEVENSON has practised in a very comprehensive circle, for at least twenty-five years subsequently to the death of Mr. CLOVER; so that the time, of which I speak, includes a period of between seventy and eighty years. Dr. REEVE adds, that he doubts whether any medical man, now living in Norfolk, has ever, in his own practice, seen a rabid human being.

Other persons have been more fortunate, with regard to brute animals. We are told by the writer of the article “dog”, in REES’S new Cyclopædia, that he has treated more than two hundred, of whom he has examined nearly one hundred by dissection. According

According to this writer, Hydrophobia is a “palpable misnomer” with regard to dogs, “for in no instance does there ever exist any dread of water; on the contrary, dogs” (I suppose he means mad dogs) “are in general very greedy after it.”

To analyze and arrange under definite heads the characteristic points in the description by this author, is no easy task. It must, however, be attempted. From him we learn that, in mad dogs, there is

1st. “An early peculiarity; a peculiar characteristic;” almost invariable, and a never-failing criterion of the complaint.”

2dly. “A very strong sign.”

3dly. A sign “almost invariable.”

4thly. “A very strong symptom, and almost a certain criterion.”

5thly. A circumstance “forming the truest character of the disease, and affording a mark subject to the fewest varieties.”

6thly. “A very remarkable trait.”

How happy is it, that from among this great number of characteristic marks, some invariable diagnostics of Canine Rabies may at length be obtained.

Under the first head, we are told that there is, at the very beginning of the disease, “a certain

“peculiarity

“peculiarity in the manner of the dog; some
 “strange departure from his usual habits; and
 “this peculiarity cannot be laid too much stress
 “on, for it is almost invariable, and a never-
 “failing criterion of the complaint. In a very
 “great number of instances the peculiarity con-
 “sists in a disposition to pick up straws, bits of
 “paper, rag, threads, or the smallest objects that
 “may lie on a floor; and this is industriously per-
 “sisted in till the floor or carpet is actually cleared
 “of every small object. This peculiar charac-
 “teristic is very common in smaller dogs. Others
 “again shew an early peculiarity by licking the
 “parts of another dog. In one instance the
 “approach of the disease was foretold by our
 “observing a very uncommon attachment in a
 “pug puppy towards a kitten, which he was con-
 “stantly licking; and likewise the cold nose of
 “a healthy pug that was with him. An attach-
 “ment to the sensation of cold appears in many
 “cases, it being very common to observe them
 “licking the cold iron, cold stones, &c.”

2dly. “Some dogs, early in the disease, will eat
 “their own excrement, and lap their own urine.
 “This is by no means uncommon, and is a very
 “strong sign of madness.”

3dly. That which is almost invariable, is “an
 “early antipathy to dogs and cats, but particu-
 larly

“ larly to cats. Cats are the first objects of their
“ anger, next strange dogs. As the disease ad-
“ vances, they do not spare the dogs they are do-
“ mesticated with, and lastly the persons around.”

4thly. “ In the majority of domesticated dogs, the
“ same gentleness, attachment, and obedience, are
“ observed during the first days of the disease.
“ By degrees, however, he gently snaps at them,
“ or runs at their feet, as though in play, and will
“ not bite, but will take their hand or foot in his
“ mouth. But a stick held even in this stage is
“ sure to excite his anger to a violent degree, even
“ against those he is most fond of.” This is
the “ very strong symptom and almost certain
“ criterion.”

5thly. “ Where any noise is made, which oc-
“ curs in two-thirds of the cases that happen, this
“ very noise forms the truest character of the
“ disease, and affords a mark subject to the fewest
“ varieties. It consists in a very remarkable short
“ howl, or lengthened bark; for it partakes of
“ both, and is so totally unlike any thing besides,
“ that when once heard, it can never be forgotten
“ or mistaken. It more nearly resembles the
“ giving tongue of a heavy slow hound, and is
“ commonly made with the head held up in the air.”

6thly. “ In many mad dogs, the attempt to
“ escape is very great. This anxiety to escape

is

“is a very remarkable trait in the disease.” A very remarkable one indeed! for “it is not the effect of delirium, nor of pain—but it is, as it were, a peculiar anxiety to propagate the disease; for he travels, industriously seeking objects to bite. Horses, cows, sheep, but particularly dogs he anxiously seeks; much less frequently does he attack human persons.” Wondrous effect of this singular poison, which can so exalt the faculties of a dog, as to impart to him all the malice afore thought of a human murderer!

In all this perversion of habits, these unnatural tastes and antipathies, this oblivion of past fears and of past benefits, this sudden rage producing unprovoked annoyance, and this desire of escape, dictated by the sole lust of inflicting indiscriminate injury—in all this, there is, according to our author, nothing of “wildness,” and much less of “delirium.” It is mere “irritability.” If, also, dogs snap “at objects they fancy they perceive;” this arises from “their sight being deceptive” from inflammation of the eyes. Therefore the term Madness, as well as Hydrophobia, is a palpable misnomer.

Is it however true, that all, or any, of these signs form a certain diagnostic of Rabies in dogs? The author himself shall answer this question.

“The

“ The varieties of the disease are immense.
“ It is hard to say what is the first symptom that
“ appears.” “ Throughout the disease here is a
“ wonderful impatience of controul.” “ In some
“ instances,” though “ the animal is with great
“ difficulty frightened, we have observed the
“ meekness of the temper last wholly through
“ the disease. In most cases there is a very
“ treacherous disposition observed. A dog
“ labouring under Rabies, if called, comes, wags
“ his tail, shews every mark of fondness, permits
“ himself to be noticed, and seems pleased with
“ attention ; but on a sudden turns and snaps.
“ It is not every dog that makes any noise under
“ Rabies.” “ In dumb madness” “ there is sel-
“ dom much mischievous tendency. On the
“ contrary, some are to the full as mild and as
“ tractable as at any other time, and shew not the
“ smallest disposition to bite throughout. We
“ have seen the most tender offices performed in
“ many instances of this kind not only with im-
“ punity, but with great expressions of gratitude
“ from the manner of the suffering animal.”
“ In the *wild* kind” the appearances on dis-
section are somewhat different from those in
the former.
What now shall we say of the “ certain
“ criteria” &c. &c. of Canine Madness?

The

The dissection, by the author, “ of nearly one hundred cases, in every stage of the complaint and under every variety of the disease,” has rewarded his pains, by shewing “ some appearances common to all. More or less every instance shews inflammation in the stomach and bowels, together with the lungs.”

I am far from wishing to attempt a refutation of this writer’s nosological statements by a mere *argumentum ad hominem*; and I would, therefore, ask any man conversant with the study of pathology, whether his entire delineation of the symptoms of the disease is not that of an animal labouring under febrile delirium; and whether all these peculiarities, infallible criteria, &c. &c. are not easily accounted for by that cause, and by the local morbid appearances which the author himself assumes as being common to all dogs dying under the symptoms which he mentions?

For my own part, when I contemplate the works of nature, and observe that all animals of the same class are regulated by the same physiological laws; or, in other words, that the phænomena constituting the same functions are, in all, similar both in quality and order, differing only in their degree, conformably to the known structure of the animal, and the ends of his existence; I cannot avoid concluding that, in
them,

them, the pathology, or phænomena of deviation from the healthy performance of the different functions, must also be regulated agreeably to the same invariable principles.

To suppose, therefore, that the characteristic marks of disease in brute animals are either continually varying among themselves, or essentially different from those in man, is to deny that uniformity of the laws of nature, and to assume a new set of principles, according either to our own blindness or the workings of our own distempered imaginations.

We may, however, go an important step farther, and assert, that the nosology of brute animals with regard to those diseases, with which we are truly conversant, is tolerably well understood; and that such diseases are discoverable by more or fewer of the same characteristic marks, as those which distinguish the same diseases in the human race.

Conformably to this just analogy, we have a right to presume, that if there be any signs, by which the Rabies Contagiosa is capable of being ascertained in man, the same pathognomics also exist, under certain modifications, in brute animals.

It is not, therefore, the bare assertion by any author of a mere negative, of the non-existence of such pathognomonic signs in dogs, that will satisfy an accurate investigator. It must be pre-

viously ascertained that he has diligently sought for them; that he has had adequate opportunities of finding them, if they did exist; and that he actually found them not to exist in dogs, which had bitten one or more human beings, who afterwards, within a reasonable period from the bite, became truly rabid, in the estimation of discriminating observers, such for example, among others, as Dr. BABINGTON, Dr. MARCET, or Dr. SATTERLEY.

It cannot be doubted, that the same analogy holds good with regard to the appearances on dissection; so that if any one morbid state, as of the alimentary canal, which is merely accidental in man, occurs in every one of nearly a hundred examples in dogs, we may reasonably conclude that the fatal disease was not Rabies.

To the examination which I have thus made of the authority of these writers I have been impelled, not by any fondness for criticism, but by an ardent desire of establishing some just, and therefore permanent, principles, on a subject intimately connected with the happiness of mankind.

Enough, however, has been said to shew, that these principles are hitherto wanting, and that we are yet to seek the real marks of Rabies in dogs; and I fear that we cannot expect to obtain them except from those, who, having studied the
genuine

genuine cases of the malady, in the human race, know what to look for in other animals, and what to note, when seen.

The following case, by my friend Mr. GEORGE NORMAN, who had attended Master ENGLISH with me, and was therefore more competent to catch the distinctive symptoms of the Rabies, comes much nearer to the appearance of the disease in the human race, than any which I have related.

“ On the 26th of December 1813, I was
“ called to see two waiters at York-House, who
“ had been bitten the same morning by a small
“ terrier dog, belonging to Mr. REILLY. This
“ dog had been observed on the preceding day to
“ have been, contrary to his usual habits, very
“ quarrelsome with other dogs, with whom he
“ had had several battles. At night, he was
“ locked up in the coach-office, where he was
“ usually kept as a guard. When the door was
“ opened in the morning, the leaves of a large
“ account-book were found gnawed and torn, and
“ a great part of the window frame bitten off, as
“ far as the dog could reach from the writing-desk.
“ One of the waiters, with whom he had been in
“ the habit of playing, went in to catch him; but
“ while he was attempting to take hold of him,
“ the dog bit him between the little and ring
“ finger of the left hand; and he soon after bit,

“ in the fore finger of the right hand, another
“ waiter, with whom he had always before been
“ very friendly.

“ Previously to my visiting these patients I saw
“ the dog. He was tied up, but had in his ap-
“ pearance nothing remarkable, except a kind of
“ dulness. Some water was brought to him; but
“ he was not inclined to take any of it. One of
“ the men belonging to the stable then put his
“ head a little way within the bucket, so that his
“ nose touched the water; on which he gave a
“ sudden start out of the man’s hand, and hid
“ himself in the straw. I desired that he might
“ be kept tied up, and some milk set near him.

“ On the 27th, I heard that he had drank the
“ milk, and had eaten meat, some of it out of a
“ man’s hand. I saw him take some, which he
“ snapped at violently, so that I thought he would
“ bite the hand of the man who gave it him. He
“ swallowed it in a quick hurried manner. In
“ consequence of his taking food, the men in the
“ yard thought him well; but I then observed
“ that, when left to himself, he had frequently a
“ sudden start, with a drawing in of the flanks,
“ and that at the same time he uttered a faint and
“ momentary cry. I therefore desired that he
“ might still be kept tied up. This night he
“ broke loose; eat away the bottom of an oaken
“ stable

“ stable door, so as very nearly to have effected
“ his escape; and howled so as to disturb the
“ people in the house.

“ In the morning of the 28th, he was, therefore,
“ removed to a greater distance, and chained.
“ That day I found his startings more frequent;
“ and he sprang at us several times with such
“ violence, as to be thrown backwards a con-
“ siderable distance by the shock which he had
“ given himself by bounding to the extent of his
“ chain. He would not touch meat or drink
“ when offered to him, but if they were left with
“ him, a part of both was generally found to have
“ been consumed. He occasionally seemed pleased,
“ when noticed by those who knew him.

“ On the 29th, I found him in continued con-
“ vulsions, the action of the limbs being very
“ violent, and the saliva foaming from his mouth.
“ He lay on one side; appeared to be insensible;
“ and did not change his position when touched.

“ On the morning of the 30th, he was found
“ dead.

“ On that day I opened him, and carefully ex-
“ amined the brain, fauces, larynx, trachea, lungs,
“ heart, œsophagus, stomach, and alimentary
“ canal. There was not in either of them the
“ least trace of inflammation. The only devi-
“ ations from the natural state were a quantity of
“ froth

“ froth in the larynx and trachea, and a considerable patch of inflammation on the pleura lining the superior lobe of the left lung.

“ Neither of the wounds in the persons bitten had reached completely through the cutis. I therefore immediately removed from each a portion of skin, including all the bitten parts.”

Mr. NORMAN, not having seen the dog at any time attempt to drink, had no opportunity of observing any other instance of the effect of the contact of liquids with his mouth, except that at his first visit, above related.

I have since had some farther information on this subject from Mr. WHALE, of the household of Messrs. LUCAS and REILLY. It was he, who, being the person to whom the dog was most attached, on the 28th removed him in the chain to another place; and I learn from him, that while he was attempting to lead him back, the dog seeing another near him, flew at him with such force, that Mr. WHALE could with difficulty hold the chain. Mr. W. then, for the first time, became afraid of him, and threw him by a kind of jerk into the place where he was confined, and afterwards fastened him, keeping him at a distance by means of a prong run through one of the links of the chain. The dog, however, did not attempt to molest him, but, as long as he continued sensible,

sible, seemed always pleased to be noticed by him. Mr. W. never saw him eat; but observed him take food, and drop it out of his mouth. He also doubted whether he had ever drank any thing, supposing the milk to have been thrown down; as he more than once found the saucers overturned, and the dog's paws wet.

Mr. WHALE, however, goes farther, and positively asserts, that at the various times when he offered the dog water, he always started away from it; but that on one occasion after the dog had done so, he coaxed him to come again. The dog then lapped twice, but did it "in a very odd way, and the water visibly ran out of his mouth." On my enquiring what he meant by an odd way, he replied that "the dog started and reeled on one side; and his ribs shook, as if he was convulsed." Mr. WHALE also described to me the extension of the dog's limbs by the violence of the convulsions, which took place when he last saw him at seven o'clock in the evening of the 29th, in the stable, of which he kept the key. The dog appeared to him to be then dying.

This account of Mr. WHALE is in no respect inconsistent with the former by Mr. NORMAN, because the milk might have been either lapped and wasted, or a part of it might have been swallowed; exactly as happens in human beings under
the

the same disease. I would not lay much stress on the starting of the dog from the water, when his nose was made to touch it in the bucket, because the same thing might have happened to a sound dog urged to drink against his will, or afraid of some trick.

But there is in other respects a close coincidence of symptoms. Among these may be reckoned the frequent starting observable in the dog, consisting chiefly of a forcible expiration, in which the flanks were suddenly tucked in, and a faint outcry uttered. Here then is a spasmodic affection of the organs of respiration, unmentioned in the publications which I have quoted, and very nearly approaching to the symptoms in TUCKER, and other rabid human beings. In the latter, the circumstances respecting respiration, indicated by the movements of the thorax and abdomen, are generally hidden, because those parts are covered; and the more apparent symptoms are those which affect the head, neck, and scapulæ. Precisely the contrary takes place with regard to dogs, in whom, as in other quadrupeds, on account of the position, the scapulæ cannot be drawn forwards in inspiration, and the process of respiration must be observable chiefly in the diaphragm, abdominal and intercostal muscles. In Mr. YOUATT'S two last cases we are indeed told of spasms

spasms about the head, which in the last are said to extend to the neck ; but nothing of any spasms of the organs of respiration. On that subject Mr. MEYNELL also is wholly silent.

In the example, however, of Mr. REILLY's dog, we have not only a dread of water, but the actual convulsive motions of the respiratory organs, of the thorax certainly, and even of the abdominal muscles; sometimes occurring spontaneously, but more violently excited by the contact of water with his mouth. The resemblance of the chief characteristic symptom in man and dogs is, therefore, perhaps as great as the nature and construction of the two animals will admit.

So with regard to general convulsions, which, towards the conclusion of the disease, usually occur in the human race; the observations of Mr. NORMAN and Mr. WHALE both agree as to their existence in the dog of which I am speaking. Here is a second coincidence, omitted in the authors whom I have quoted.

At this period also, conformably to what happened in the cases of ENGLISH and SELWAY, the saliva flowed in great abundance from the mouth of the dog.

Lastly, in this case, as in those of the three patients whom I attended, the dissection shewed the want of all morbid affections, to which the
 symptoms

symptoms and death of the animal could, in any view of analogy, be attributed.

If, therefore, the symptoms and appearances in this case are truly stated, of which there cannot be the smallest shadow of doubt, we are fully justified in concluding, that the true characteristic symptoms of the Rabies in the human race exist also in dogs, conformably to their structure, and, if I may be allowed the expression, their mental powers. Whence we may infer, either,

First, that the histories of the symptoms in those animals, hitherto detailed, are grossly defective; or,

Secondly, that none of the descriptions given us are those of the genuine Rabies.

Since writing the preceding remarks, I have perused the "Dissertation on the Bite of a Rabid Animal," by Mr. GILLMAN. In that part of this work which respects the symptoms of Rabies in dogs, I observe the same defect of nosological precision, and the same tendency to begging the question, which I have remarked in other writers on this subject. He denies Mr. MEYNELL's assertion that rabid animals rarely go out of their way, unless provoked, to bite other animals; asserts that dogs in this state will lap freely and without dread, though at an advanced stage of the disease they are unable to swallow fluids;

lays

lays much stress upon the howl, which however does not always take place; says that they have often the appearance of being paralytic behind; but confides most in “some marked deviation from accustomed habits—a symptom which ought to be particularly regarded, and is most frequently not only a leading feature, but *often* an *infallible* proof of approaching Rabies.”

In this description of the malady in dogs,* as in those of other writers, nothing is said of local or general convulsions, sometimes spontaneous, and, at other times, more especially excited by the contact of liquids with the fauces, all of which occurred in the case of Mr. REILLY'S dog. The great criterion is a mere change of mental habits; which is asserted by Dr. JENNER, almost in the words of Mr. GILLMAN, to occur in the “Dis-temper,” and which in all animals is observable under every state of febrile disease, more especially when accompanied with any degree of delirium.

In this author's histories of dogs which he assumes to be mad, we have an enumeration of all the deviations from a state of apparent health, which are found, on dissection, in various parts of the several animals.

Writers on this subject seem not aware of the difficulty in which they are inevitably placed by

* Evidently taken from the article *dog* in REES'S Cyclopædia, or at least from the same source. such

such cases and dissections as these to which I allude: for, if no one of these anatomical appearances is always found in dogs, which are admitted to die under true Rabies, then neither one nor another of them is essential to that disease, but all are merely accidental.

If, also, any one of these accidental appearances after death is a common occurrence in animals which have never been bitten; is connected with its own appropriate symptoms; and, when in a certain degree, produces death, it is a most rash conclusion, that an animal so dying is rabid, because he happens to have bitten, or to have been bitten by, another, whose Rabies is equally equivocal.

These remarks apply to almost all the published examples of Rabies in animals, and, among the rest, to that by Mr. GILLMAN, in which the stomach laboured under a state of ecchymosis, or mortification, represented by a coloured engraving. This dog had not a single symptom of Rabies, except some change of habits, which must necessarily have attended so violent a disease; a disease fully sufficient to account for the symptoms and death of the animal, without invoking the mystical aid of Rabies. I have attended a case of a fatal black vomiting in a gentleman, in whom I was sure there was no Rabies, notwithstanding

notwithstanding his dissection exhibited a precisely similar state of the stomach.

This dog, however, severely bit three pigs, which died mad. Therefore the dog must have been so. What? may not one, or two, or twenty animals die, when severely bitten by another, without the necessity of inferring that either the biter or the bitten was rabid? Mr. GILLMAN, indeed, considers the latter as having been so. But, are the symptoms of Rabies in pigs so well known to this gentleman, or to any other person, as positively to identify the malady in these cases? I suspect that they are not. Let us, however, examine the facts.

The pigs were seized with the malady, of which they died, before their wounds were healed. Does this occur in Rabies? They were all much bitten about the ears, which are precisely the parts of a pig, on which a dog usually fixes, whether the pig be tame or wild, whether in a farm-yard, or in a German forest. I have related that many of my lambs were seized with Tetanus, several days after having had their ears bored through, at a short distance from their roots, with a red-hot iron; whence it is evident that wounds about this part have a tendency to produce fatal spasmodic affections.

From

From these circumstances, as well as the actual symptoms, it appears to me that the death of these pigs was the effect of mere wounds, producing Phrenitis, accompanied with convulsions. In one of the cases, in which alone the brain is said to have been examined, the pia mater was actually found to be inflamed, and there was the coincidence of sanguineous effusion, occasioning its usual effect, paralysis.

There is, however, great reason to believe, that the symptoms on which Mr. GILLMAN depends as the diagnostic signs of Rabies in pigs, may occur without any communication with a mad dog, or indeed without any wound whatever. Four or five weeks ago, a farmer, in this neighbourhood, lost a cow by "the black water, and yellows;" that is, a disease with jaundice. This cow he gave to be eaten by his pigs, consisting of a sow, three pigs of ten months old, and five of two months. Within two or three weeks afterwards, one, which was ten months old and the master pig, and which had therefore eaten more than either of the rest, became furiously mad; foamed at the mouth; was violently restless; was continually leaping up to a great height; and beat himself with such vehemence against the walls of the sty, that he broke his shoulder. These are the precise symptoms attributed by Mr. GILL-

MAN

MAN to Rabies. After several hours passed in this state, the owner, afraid to go near the pig, watched his opportunity when the animal was for a moment quiet, and shot him with a ball through the head.

This pig was never known to have been bitten; but what appears to prove the absence of that cause is, that the sow and all the other pigs became ill exactly at the same time, and all of them entirely lost their coats, as often occurs to animals under what is called surfeit, or fever from indigestion. Not one of them, however, died.

The advantages of fatness in animals is usually somewhat equivocal. In man, it is an incumbrance. In women, it is surely no addition to beauty. In animals which are the food of man, it has been esteemed a valuable quality. To the creatures themselves it can scarcely be considered as such; for it tends to shorten their lives. Every evil, however, has its counterpoise of good. We are told by a certain medical writer, that of various pigs bitten by a mad dog, all that were lean became rabid, but all the fat ones escaped.*

There is a very useful paper by Mr. NORRIS, in the Memoirs of the London Medical Society. He describes a dog with strong features of true Rabies. Of a pig, bitten on the nose, by this

* Annals of Medicine, vol. iv. p. 570.

dog, he relates the following circumstances: that it was bitten about the 13th of June, and became ill on the 11th of July, "when it was seen to be
"almost constantly shaking its head in a strange
"and unusual manner, and was very frequently
"rubbing its throat; that on the 12th it lay in a
"stupid state, and did not attempt to do any
"injury, but that, if touched with any thing, it
"would snap, and endeavour to bite it. They
"said that it had been much agitated and convulsed
"about its belly, which" Mr. NORRIS imagined,
"was merely the effect of a quick and laborious
"respiration, that he understood it had been dis-
"tressed with."* This affection of the respiratory organs, recognized by Mr. NORRIS, was probably the characteristic symptom of the disease; and the whole case materially differs from those, which I have above recorded, and which, probably, arose from very different causes.

If, however, it should be hereafter found that pigs, as well as sheep, may die of convulsions from ill-conditioned wounds about the roots of their ears, should a case subsequently occur, in which a pig laboured under similar symptoms from a bite, in that part, by a dog actually mad, I should, from a view of all the circumstances, be disposed to conclude, that he died because he was wounded, and not because he was rabid.

* Vol. v. p. 306.

There is indeed an instance by Dr. SHADWELL, which I had not read till after the above paragraph was prepared for the press, and which seems to me precisely in point on this subject. A pig was bitten, by a dog truly mad, “in the ear, which made it bleed copiously. Nine days from the time of its receiving the wound, it alarmed the people by displaying unusual agility; it repeatedly sprang off the ground to the incredible height of a dozen feet, as they said.”* This I should take to be another example of Phrenitis or Convulsions, from a bite in the ear of this animal. It strongly confirms the inference above deduced; more especially as the symptoms occurred at only nine days distance from the bite; a period probably much too short for the appearance of Rabies Contagiosa.

So difficult is it, in pathological physics, to ascertain that invariable order of like phænomena, which constitutes the relation of cause and effect.

It is unnecessary for me to detail the submissive assent to authority with which Mr. GILLMAN at one time infers genuine Rabies from the appearance of inflammation in the stomach after death, and his positive assertion, at another time, that it does not always exist. Granting, however, for a moment, that the symptoms of inflammation of

* London Medical Memoirs, vol. iii. p. 463.

any part of the alimentary canal are in any degree similar to those of the true Rabies, since dissection has shewn us that Rabies may exist without it, we cannot avoid considering such appearances as only tending to induce confusion and error; and, on the contrary, we should, conformably to just analogy, consider it as one of the best *à priori* arguments in favour of genuine Rabies, that the animal, which died of the disease, was found to be wholly free from these morbid appearances.

This argument should, however, be reckoned as only secondary, while our chief conclusions as to the existence of Rabies in animals ought to be founded on the quality and succession of the symptoms themselves; which, if duly observed, and accurately related, would, we might reasonably expect, be much more analogous to those in the human race, than the descriptions given us by the authors whom I have quoted.

With regard to the history of the disease in man, Mr. GILLMAN is not more happy than in his description of it in certain brutes.

He says that in attempting to drink, the patient is seized with a sudden inexplicable repugnance. Hence has arisen the term Hydrophobia, or dread of water, which, he observes, is a mental affection. Certainly, dread of any object, or event, must be a mental affection; but, if the repugnance arises from

from this dread, it is surely by no means inexplicable. He adds, that this mental affection "perhaps arises more from the inconvenience of swallowing, than the dread of liquids." This is erroneous; for I have shewn that, in the cases of TUCKER and SELWAY, solids were swallowed without inconvenience, and therefore without dread, long after the inconvenience, and therefore the dread, of taking fluids, had fully subsisted.

It is not more accurate, that the patient usually cannot bear the slightest touch. Though two of my patients were averse to having their faces and heads touched, neither of them felt the least inconvenience from the touch of other parts. No morbid sensibility of this kind was at all observable in the case of TUCKER. Light was offensive to neither of them; and, on the contrary, SELWAY, when requested to choose, preferred having the light of the window fall full upon him.

The involuntary ejection of urine and stools, mentioned by Mr. GILLMAN, occurred in neither of my cases; nor was there any involuntary salivary, till shortly before death.

The tongue is not always dry. In SELWAY, who frequently drank, it was perfectly clean, and always peculiarly moist. The difficulty of swallowing fluids does not increase, but, on the contrary, diminishes, at advanced periods of the
N 2 disease.

disease. Not one of my patients complained of a burning sensation in his stomach, or of pain under the scrobiculus cordis. Excessive wretchings and vomiting are by no means leading symptoms of true Canine Hydrophobia. TUCKER vomited once on the first attack of fever, and again from JAMES'S Powder, shortly before his death: SELWAY, also, at the beginning of the disease. In both, the spontaneous vomiting preceded the symptom of spasm from liquids; and ceased when that took place, except once in SELWAY, during the last convulsions. ENGLISH, though he strained, with sickness, from the tobacco injection, did not vomit at all. With regard to the last vomiting of SELWAY, it implied no disease of the stomach, but was probably owing merely to the succussions of the diaphragm on that viscus, just as happens in paroxysms of whooping cough; and as I have seen occur during fits of Epilepsy, and in the last convulsions of a sheep, dying of hæmorrhage from the carotid artery.

The same spasmodic affection of the diaphragm may probably also be the cause of the stricture or uneasiness which is said sometimes to occur, in the Rabies, across the scrobiculus cordis; and which, by one author, is especially remarked as accompanying the fit of convulsion. So also the hiccup, occasionally existing in this disease, is evidently
owing

owing to a convulsive action of the diaphragm on the stomach, and no more connected with inflammation or any other disorder of the stomach itself, than it is in certain stages of fever, accompanied with delirium and subsultus tendinum.

One can with difficulty avoid associating the emphatical manner, in which this last class of symptoms is urged by the author, with some prepossession in favour of Gastritis.

These remarks on the pathology and history of symptoms of the Rabies Canina in man and other animals by Mr. GILLMAN, I offer with freedom; because it must be allowed, that without an accurate knowledge of the quality and order of the essential symptoms and appearances of a disease, it is absolutely impossible to employ even experience itself as the basis of any rational deductions respecting its cure.

The dissertation of Mr. GILLMAN may, however, be very profitably consulted as to the means of preventing this malady after a bite; for which he gives many excellent and judicious directions, founded on just analogy. Induced by his reasoning, I should the more strenuously advise well washing the wound previously to excision, lest by any accident the venom should be carried still deeper by the stroke of the knife; and as the volatile alkali is capable of fluidizing, if I may be
allowed

allowed that expression, the viscid parts of the saliva, it might be proper, after washing with pure water, and previously or subsequently to excision, to perform another ablution, in whatever way the nature of the wound might render most advisable, with water slightly impregnated with that alkali.

In the London Medical and Physical Journal,* cases are given, by Mr. Surr, of five horses, which died nearly about the same period, after having been bitten about the nose and lips by a dog, which was, in all the cases, probably the same. Except this disposition to bite, there is no evidence that the dog was mad. Of the symptoms in one or two of these horses, a full account is given by the writer. Two of them are said to have drank freely; and neither of them experienced the smallest inconvenience from any application of fluids, or had any convulsions, or any other symptom whatever of Rabies, such as it is seen in the human race. The only two which were examined by dissection were found to have been affected with violent inflammation of the mucous membrane of the parts leading to the lungs and stomach; which might very well have produced the symptoms, but are not usual concomitants of Rabies. This inflammation was probably produced by continuity of membrane

* Vol. xxiii. p. 1.

from the bitten parts ; a common occurrence in erysipelalous inflammation.

On the subject of rabid horses, the letter of Mr. STEVENSON which I have before quoted, contains the following important information. “ I have often heard Mr. CLOVER mention a case
 “ of a horse of his brother-in-law, which had
 “ been bit by a mad dog, and was seized with the
 “ first symptoms of the disease, when turned out
 “ to pasture, and chained to another horse, as
 “ was the custom to prevent their breaking
 “ pasture. In the course of the night, he bit the
 “ other horse most violently, and literally tore the
 “ flesh from the bones of the neck. The mad
 “ horse, when water was offered him through a
 “ hole in the wall, went up to the pail, and on
 “ smelling it, dashed the pail to pieces, and was
 “ thrown into a violent paroxysm. He died
 “ raving mad.” In this case, the pathognomonic symptom of Hydrophobia is very strongly marked.

The following case of disease in a horse, by Dr. STARR,* deserves, on various accounts, to be restored to public notice. There was every reason to suppose that this horse was bitten by a mad mastiff dog on the first of December 1745.
 “ The wounds soon healed. On December 25,
 “ he trembled much on entering the horse-pool,

* Philosophical Transactions abridged, vol. x. p. 913.

“ and

“ and refused to drink at the watering trough ;
“ but in the evening drank heartily at another
“ well.—December 26, as soon as he entered the
“ horse-pool, he trembled all over in a most sur-
“ prising manner, and would by no means attempt
“ to drink. I (the writer) ordered him to be
“ led into a small pool of rain-water which stood
“ in my court. The trembling returned ; every
“ muscle was strangely agitated ; he looked as if
“ he were melancholy on the water, smelt to it, but
“ would not touch it. Being put into the stable,
“ a bucket of pure clean water was brought to
“ him ; he eagerly thrust his mouth into the
“ water, but endeavouring to suck it, a convul-
“ sion seized him.
“ He was bled to about three pints. Musk
“ ʒss. cinnab. ant. ʒj. made into a ball with
“ cons. anthos. was given him. In bleeding he
“ once snapped at the smith, though well known
“ to him, having shoed him for years. This
“ was the only time he attempted to bite any one.
“ In about two hours after the musk was given
“ him, I offered with my own hands about two
“ gallons of white water warm. He drank it off
“ without the least difficulty or hesitation.—He
“ was as yet quiet and tractable. I went to him
“ as usual, handled him, and he behaved as in his
“ former health ; but being looked on as a mad
“ horse,

“ horse, I saw every one was afraid to meddle
“ farther with him. He eat both hay and oats
“ heartily. In the evening, about nine, more of
“ the white water was offered him, but he
“ drank none.

“ December 27. This night the madness in-
“ creased much; for he had bit the manger as
“ far as he could reach, and made it quite ragged.
“ In the morning he frequently bit his breast
“ where the wound had been; and when he hap-
“ pened to take hold, violently drew up the skin
“ with his teeth. Both these things he did during
“ the day at times, but most in the morning.
“ I put a tub of water before him. He greedily
“ ran his nose into it, but endeavouring to drink,
“ a dreadful convulsion seized him, which some-
“ times drew his buttock to the ground. At
“ others, his back was so hollowed with it, that
“ his belly was brought almost down on the
“ litter. During the convulsion, he would groan
“ in an affecting manner, and frequently cry out.
“ As soon as the convulsion was over, he repeated
“ his endeavours to drink with the same cruel
“ event.—He still eat his allowance of hay and
“ oats; but when not eating, he was continually
“ thrusting out his tongue, and working with his
“ lips. His tongue was exceeding dry, and of a
“ blackish brown colour on the surface.—I tried
“ him

“ him with water about nine at night ; every
“ thing was as in the morning ; only the convul-
“ sion was, if possible, stronger, and more excru-
“ ciating ; for he groaned deeper, louder, and in
“ a more affecting tone. His breath was ex-
“ ceeding hot ; it came from his nostrils like
“ smoke from a chimney top. He expanded his
“ nostrils as if he had been violently running ;
“ and the steam was visible for more than a yard
“ distance.

“ December 28. This night he broke his
“ collar in pieces, broke down the partition by
“ which he was separated from my other horse,
“ traversed the stable, attempted to get out, in
“ order to which he beat down the under half of
“ the stable door. However in the morning,
“ being spoken to by my servant, he neighed,
“ immediately went to his place, where he stood,
“ biting his breast and manger almost continually.
“ His look was now become wild and furious,
“ and about ten o’clock I ordered him to be
“ shot.”

From this account it appears, that the contact
of liquids always, except on one single occasion,
produced in this suffering animal convulsive
motions, which are not stated to have ever oc-
curred without that cause. He eat without dif-
ficulty ; was sometimes violent, but for the most
part

part knew his benefactors. What the white drink was, which he once swallowed without inconvenience, I cannot discover. On the whole, there is a great resemblance between the symptoms of this case, and those of rabid human beings; and every one who reads it must at first sight perceive how essentially it differs from those published by Mr. SURREY.

Very interesting information with regard to the power of communicating the disease is contained in Mr. STEVENSON'S letter, above quoted. "The horse that was bitten so
"terribly, recovered of his wounds, and re-
"ceived no infection from them. At Mr.
"REDHEAD'S at Whitlingham, a mad dog bit
"a horse and a pig. The horse my father was
"called to; and he, never having seen one which
"was rabid, attempted to give him a ball, sup-
"posing the horse to have the disease called the
"Mad Staggers. The horse bit the back of my
"father's hand; and, on enquiry, it was dis-
"covered that a mad dog had been in the neigh-
"bourhood, and had actually bitten this horse and
"pig. Mr. CLOVER went with my father, and
"pronounced the horse to be rabid. The pig
"bit Mr. REDHEAD in the lip; and both he and
"my father were much affected in mind. They
"took the celebrated medicine called HERRING'S
" Norfolk

“ Norfolk antidote. My father was under the
 “ care of the late Dr. DACK a long time; and it
 “ was nearly a year before he recovered his spirits,
 “ and got well from the depression, which his
 “ being bit occasioned.” The horse and pig were
 shot, and neither of the bitten patients was af-
 fected with Rabies.

It would, I conceive, be needless for me to make
 any farther references to authors on this subject.
 The reader is already in full possession of the
 principles on which my opinions are founded.
 I desire that they may be examined with the same
 freedom, with which I have scrutinized those of
 others; and it will be for future observation to
 confirm or refute them.

I have thus endeavoured to ascertain the
 symptoms of genuine Rabies Contagiosa in man,
 and offered hints towards fixing more certain cri-
 teria of its existence in dogs and other animals,
 than have hitherto been afforded us by authors.
 I have also pointed out those means which analogy
 or experience has suggested as best calculated to
 prevent the accession of the disease, after the in-
 sersion of the poison.

Another task, however, still remains; which is
 to inquire whether certain measures may not be
 adopted, in order to guard against the communi-
 cation

cation of the disease, and perhaps ultimately to exterminate it.

With this view the first precaution should certainly be, to avoid all intercourse whatever with strange dogs, either by going unnecessarily in their way, stroking them, or attempting to strike them.

Next, it is very reasonable to expect, that in a disorder so subversive of the different vital powers, and in which the functions of the nervous system in particular are so impaired, a considerable change will be produced in the habits of the animal, either by the introduction of fanciful tastes, or the morbid increase of native propensities. This change is indeed common to all diseases of a febrile kind; and whenever it appears, in any of the modes which I have quoted from authors, even in dogs with which we are acquainted, it would certainly be prudent to avoid fondling, threatening or striking them, and to have them chained up in situations, in which they should be unable to annoy man or other animals. If, at the end of three weeks, a dog so confined should be in good health, or perhaps even alive, there can be no doubt that he was not rabid. It is necessary that he should be confined with a chain; because all dogs, whether mad or otherwise, are extremely fond of liberty, and will endeavour to free themselves by gnawing asunder any rope with which they are tied. This

This love of liberty often shews itself, in healthy dogs, by very curious effects. A large Newfoundland dog, whom I brought up from a puppy, and wished to retain as a guard to my country-house, always chose to desert the house as soon as it was dark, and prowled about to great distances, returning early in the morning. In order to prevent this; I chained him for two or three successive days to his kennel, as soon as it became dark. This expedient did not long avail. He seemed perfectly aware of what was to happen to him, and regularly disappeared before sunset, returning again in the morning. Determined now to circumvent him, I kept him chained both day and night; the consequence of which was, that he howled and barked so incessantly, that, for several nights, no one in the house was able to sleep. In order to prevent this disturbance, I had him taken to a garden at some distance, in which he was locked up. During the night, however, he had dug with his paws under the paling with which the garden was enclosed, a hole large enough to admit of his escaping; and the next morning I found him lying under the kitchen table, with red eyes, and in so savage a temper, that he would allow no one to approach him. Thus defeated, I was obliged patiently to submit to his love of liberty; and in three or four days, after

he

he had found that no farther attempts were made to abridge it, he recovered his former good temper. I had, also, another dog, bred between an Irish greyhound and a mastiff, of surprizing size, strength, and beauty. I never fed him, but left that charge to one of my men, who, as well as myself, had known him from a puppy, and who always faithfully acquitted himself of his task. I, however, permitted no one to unchain him but myself; and the effect of this was, that he would at all times leave the man who fed him, in order to come to me, who gave him his liberty.

We may, therefore, easily understand why under the increase of restlessness produced by the first steps of delirium, the native love of liberty in a dog should be augmented even to desperation.

The measures of precaution, which I have recommended, are capable of being easily adopted by persons even of moderate property, whose dogs are seldom suffered to range without controul.

Unfortunately, however, as I have before stated, a majority of the dogs, from whom human beings contract the Rabies, are strangers, and of small kinds, such as curs, spaniels, and terriers. Most of these dogs have no ostensible owners; and many of them belong to persons, who are absolute paupers, and who are so far from being
able

able to support these dependants, that they cannot feed themselves. Hence these animals are continually ranging about like beasts of prey, destroying game, hunting and killing sheep, or, at the least, causing them to cast their lambs, robbing of their food pigs and poultry, and often devouring the latter.

In reality, dogs, for the most part, live on that, which, sooner or later, should become the food of man; and it is remarkable, that, unlike almost all other animals, they return scarcely any thing to the soil from which they derive their support.

The number of them which is kept in this city by persons such as I have described, is extremely great; and it will scarcely bear a debate as a question of morals or sound policy, whether such animals, often kept for the express purpose of poaching, and always with the final effect of destroying property, and not preserving it, should be maintained at the public expense; or whether he, who, on the specious pretext of attachment, prefers the well-being of his dog to that of his wife or child, is a just object of public support.

It is true that Government has, most wisely, and, I think, most benevolently, imposed a tax upon animals of this description, which are above six months old, and are not, with certain modifications, kept for the protection of property. It would,

would, however, be well, if this tax were as rigidly collected, as it was judiciously devised. On the contrary, there is no tax so generally evaded, and therefore so little productive, relatively to its actual power, as that on dogs. A pauper, or man in low circumstances, whose dog is suffered to roam at large, but is always ready at his call when wanted, will positively assert that the dog is not his; and who shall prove that the age of a dog does not exceed six months?

The evil might, however, be in a great measure prevented, if the tax were increased; if the taxable age were six weeks, instead of six months; if assessors would strictly exact the surcharges for non-entries; and if parish officers, supported by magistrates, were compelled by law to refuse parish aid to all persons, who had, within a year previously to application for relief, either owned, kept, or supported for others, dogs of any age or quality; except in the case of shepherds, for sheep dogs *bonâ fide* attendant on their flocks.

By these means there would be destroyed a multitude of dogs injurious to the community; and more especially of that kind, by which the Rabies is disseminated and perpetuated; the peace of society is disturbed, and the lives of men and other animals are yearly sacrificed.

With regard also to dogs that are reputed to be, or actually are, mad, the power of magistrates is too limited, to enable them to take such measures as are absolutely necessary for the public safety.

This defect has lately been proved in the Hundred of Bathforum, in which the justices of the peace, in consequence of the death of SELWAY, caused advertisements to be affixed on several conspicuous places in the city, and throughout the hundred, requesting persons to confine their dogs; but attaching no penalty to a noncompliance with this admonition. The consequence was, that, for a fortnight, dogs were generally confined; but at the end of another fortnight, the streets and lanes swarmed with them to the same extent as before.

If, as I am credibly informed, the magistrates have no power of enforcing by penalties a compliance with their salutary injunctions, it is surely not unworthy of the wisdom and paternal care of the legislature, to secure the welfare of the public by an express law, which might be somewhat to the following effect.

“Whereas it is expedient that provision should be made for the more effectual prevention of Hydrophobia or Canine madness, be it therefore enacted by the King's most excellent Majesty, &c.

That when any dog shall be seen running at large, and there shall be reasonable ground to suspect

suspect that such dog is mad, or going mad, by reason of its biting other dogs, or any person, or cattle, or for any other cause, it shall be lawful for any person to seize, confine, or destroy the same, to whomsoever the same shall belong.

“ And be it further enacted, that upon information being given to the constable, &c. of any parish, that any such dog is, or has been at any time within the three calendar months last preceding, running at large and biting, or attempting to bite, other dogs, or any persons or cattle within such parish, and it shall appear to such constable &c. that there are reasonable grounds to suspect, from these or other circumstances, that such dog is or was mad, or going mad, then and in that case it shall be lawful for such constable, &c. and he is hereby required, to give public notice of the same in the form specified in the schedule to this Act, annexed; such notice directing all persons residing within the said parish securely to confine all their dogs for a space of time amounting to three entire calendar months from the time when the said dog, suspected to be mad, was running at large as aforesaid; so that the day on which the term of confinement shall expire shall be fully expressed in the said notice: And that such notice shall be affixed on the door of the church of the said parish, and shall be further published, either by
being

being publicly cried, or in any other way, which may, in the judgment of such constable, &c. be most effectual for giving publicity to the same.

“ And be it further enacted, that if any dog shall be found at large within the said parish, after the publication of such notice, as aforesaid, and while the same shall continue in force, it shall be lawful for any person to seize, confine, or destroy the same, without being liable to any action of trespass or otherwise at the suit of the owner of the said dog : And the owner of any dog which shall be so found at large within the said parish, after the publication of such notice, and while the same shall continue in force, shall be liable on conviction to a penalty of five pounds, to be recovered before any one magistrate residing near the place, where such dog was so seen at large : And such magistrate shall summon the parties and their witnesses before him, and examine such witnesses upon oath, and hear and determine the matter ; and such penalty, if not paid within four days, shall be levied by distress and sale of the offender's goods ; and, when recovered, shall be applied to the benefit of any person who shall inform and sue for the same.

“ Provided always, that nothing contained in such notice shall extend or be construed to extend to any dog, which shall be accompanied by or
under

under the immediate care of its owner, or of any person having the controul and management of the same; unless the same shall have been actually bit by any dog so suspected to be mad.

“ And be it further enacted, that if any person shall be bitten by any dog belonging to any person within the parish, being at large, or even accompanied by its owner, &c. after the publication of such notice as aforesaid, and while the same shall continue in force, and shall die in consequence of such bite, and information shall be laid before a magistrate residing near the place; it shall be lawful for such magistrate to summon the owner of such dog before him, and upon proof being made upon oath of the bite, and upon proof upon oath of some medical person, that, in his judgment, the deceased died rabid in consequence of such bite, (which oath, respectively, the magistrate is hereby empowered to administer,) to convict the owner of such dog in the penalty of twenty pounds; unless it shall appear to such magistrates, that such dog was at large without any neglect or want of care in the owner thereof. And such penalty, if not paid within four days from such conviction, shall be levied by distress and sale of the offender's goods; and, in default of such distress, such offender shall be imprisoned for any time not exceeding three calendar months :

And

And such penalty, when recovered, shall be applied, one half to the use of the person who may inform and sue for the same, and the other half to the use of the family of such deceased person.

“ SCHEDULE.

“ WHEREAS a dog belonging to A. B. [*or whose owner is unknown*] [*describing the colour and sort of dog*] has been seen [*state where*] running at large, biting other dogs, &c. [*state the circumstances which give rise to the suspicion of madness,*] and that there is reason to suspect that such dog was mad: This is to order all persons within this parish forthwith to confine their dogs, so that the same shall not be suffered to run at large for the space of _____ weeks, from the date of this notice, ending on the _____ day of _____ : on pain of having every dog destroyed which shall be at large while this order shall continue in force, and of forfeiting five pounds for every such dog, and twenty pounds, if any person shall die in consequence of the bite of any dog so at large.

[Date of the notice.]

“ C. D. constable of the parish of _____ .”

The

The above draught is intended merely to suggest hints, which might doubtless be enlarged on and improved, so as to lead to important benefits. Should the subject be thought worthy of Parliamentary notice, due assistance would readily be afforded by professional men with whom it has been an object of long and attentive consideration.

In order more minutely to investigate and ascertain the characteristic marks of the Rabies Contagiosa in human beings, I think that it will not be without its use to select from various works of British authors such cases in this island, as appear to me to be either certain or probable examples of that malady. To each of these cases will be annexed a reference to the work from which it was taken; together with the name of the relator, the name and age of the patient, the interval from the bite to the commencement of the symptoms, the duration of the malady, and the chief means employed for its cure.

Philosophical Transactions.

Abridgement, vol. ix. p. 222. Mr. Nourse.
Patient, Stephen Bellass.

Age, 16. Interval, nineteen months. Duration, less than two days.

Treatment: Venæsection; Dampier's powder
(Lichen terrestris cinereus, and black pepper
āā ʒss.)

Edinburgh

Edinburgh Medical Essays.

Vol. vi. p. 97. Dr. PLUMMER. Patient, a student.

Age, 17. Interval, four months. Duration, about four days.

Treatment:—Venæsection; purging.

London Medical Transactions.

Vol. ii. p. 46. Dr. MUNCKLEY. Patient's name not mentioned.

Age, 36. Interval, between five and six weeks. Duration, one day and a half.

Treatment.—None mentioned.

A very questionable case.

*Vol. iv. p. 348. Dr. SATTERLEY. Patient, Georgiana James.

Age, 8. Interval, eighty-two days. Duration, seven days.

Treatment:—Cajaputi oil, internally and externally; mercurial friction; opium; large doses of calomel; blisters.

A case excellently described.

Vaughan's two cases of Hydrophobia.

Page 3. Patient, Thomas Nourse.

Age, 14. Interval, twenty-nine days. Duration, three days.

Treatment:

Treatment:—Venæsection; Ormskirk medicine; musk; opium; mercurial friction; Turbith mineral.

*Page 23. Patient, a farmer.

Age, 25. Interval, nine months. Duration, less than three days.

Treatment:—Warm bathing; opium by the mouth and in a glyster; musk; mercurial friction; inhalation of the fumes of cinnabar on red-hot iron; Turbith mineral.

London Medical Observations and Inquiries.

*Vol. iii. p. 356. Dr. DICKSON. Patient, John Brown.

Age, 13. Interval, four months. Duration, about two days.

Treatment:—Chiefly opium and warm bathing.

Ib. p. 367. Dr. DICKSON. Patient, a servant.

Age, not mentioned. Interval, nearly four months. Duration, two days and a half.

Treatment:—None specified.

*Vol. v. p. 195. Dr. FOTHERGILL. Patient, Mr. Bellamy.

Age, 40. Interval, between three and four months. Duration, three days.

Treatment:—Venæsection; native cinnabar and musk; warm bathing; mercurial friction; Dover's powder; glysters of milk and water.

Memoirs of the Medical Society of London.

*Vol. i. p. 243. Dr. JAMES JOHNSTONE.
Patient, George Pollock.

Age, 45. Interval, between two and three
months. Duration, within four days.

Treatment:—Chiefly venæsection.

*Ib. p. 255. Dr. EDWARD JOHNSTONE.
Patient, Charles Bullock.

Age, 4. Interval, sixty-eight days. Duration,
about sixty hours.

Treatment:—Warm bath; opium and asafœ-
tida, by the mouth and in glysters; mercurial
friction.

Vol. iii. p. 457. Dr. SHADWELL. Patient,
Joseph Wyburn.

Age, 15. Interval, not specified. Duration,
between five and six days.

Treatment:—Uñction with oil; glysters of oil,
and fat broth.

Vol. v. p. 293. Mr. HAYNES. Patient,
a servant.

Age, —. Interval, nine months. Duration,
about four days.

Treatment:—Calomel; opium; anodyne rub-
bed on the fauces; Mercurial friction.

Transactions of the Medical Society of London.

Vol. i. part i. p. 78. Dr. DIXSON. Patient, Miss J. W.

Age, 18. Interval, about seventy-five days. Duration, fifty-eight hours.

Treatment:—Mercurial friction.

The symptoms in this case seem to have been complicated with those arising from violent terror.

Medical Facts and Observations.

*Vol. i. p. 1. Dr. FERRIAR. Patient, John Johnson.

Age, 39. Interval, fourteen weeks. Duration, between four and five days.

Treatment:—Scarification and blistering of the cicatrix; mercurial friction; bark; musk; opium; vinegar; cold bath.

Vol. v. p. 87. Mr. R. SIMMONS. Patient, Mary Strong.

Age, 48. Interval, fifty-nine days. Duration, between three and four days.

Treatment:—Slight mercurial friction.

Duncan's Medical Commentaries.

Vol. iii. decade i. p. 290. Mr. BATHIE. Patient, James Patton.

Age, 14. Interval, fifty-two days. Duration, between three and four days.

Treatment:

Treatment:—Venæsection ; antimonial vomit ; blister to the throat.

Medical Records and Researches.

*Page 117. Dr. BABINGTON. Patient, William Yates.

Young. Interval, forty-six days. Duration, about six days.

Treatment:—Warm bath, venæsection ; mercurial friction ; submuriate of quicksilver ; opium 180 grains in eleven hours, without producing sleep.

*Page 139. Dr. WAVELL. Patient, Rob. Pick. Age, 23. Interval, sixty-three days. Duration, less than two days.

Treatment:—Opium very largely.
All the symptoms in this case are minutely stated.

Medical Communications.

*Vol. i. p. 215. Dr. BABINGTON. Patient, Abraham Palmer.

Age, 14. Interval, thirty-six days. Duration, about three days.

Treatment:—Venæsection ; warm bath ; musk and opium.

London Medical and Physical Journal.

Vol. xiii. p. 155. Dr. BARDSLEY. Patient, John Warren.

Age,

Age, 16. Interval, four months. Duration, five days.

Treatment:—Opium, chiefly by friction; ammonia pura; galvanism; electricity; warm bathing.

*Vol. xviii. p. 449. Dr. MOSELEY. Patient, Mr. Metcalfe.

No age mentioned. Interval, about four months. Duration, forty-six hours.

Treatment:—Aperient pills.

*Vol. xx. p. 195. Dr. BEDDOES. Patient, John Dyke.

Age, 9. Interval, twenty-three days. Duration, seven days.

Treatment:—Opium; warm bath; calomel; castor oil.

Vol. xxviii. p. 449. Dr. PINCKARD. Patient, William Rogers.

Age, $2\frac{1}{2}$. Interval, seventy-four days. Duration, less than two days.

Treatment:—Antimony; ipecacoanha; calomel; opium; blisters.

Medico-Chirurgical Transactions.

*Vol. i. p. 156. Dr. MARCET. Patient, Emanuel Odell.

Age, 28. Interval, two months. Duration, five days and three quarters.

Treatment:

Treatment:—Opium; sulphate of iron; arsenic.

This case, by Dr. MARCET, appears to me to be one of the best described examples of the disease that has been published. Dr. MARCET, in the handsomest manner, ascribes much of its accuracy to Mr. WESTON.

London Medical Review.

Vol. iv. p. 374. The EDITORS. Patient, a female child.

Age, 4. Interval, nineteen days. Duration, within four days.

Treatment:—An aloëtic glyster; two scruples of calomel, and three grains of opium, injected through a tube into the stomach.

From the symptoms and dissection, it is not improbable that this was a case of Bronchitis, and not Rabies.

Gillman on the Bite of a Rabid Animal.

Page 169. Mr. CARLISLE. Patient, Eliz. Kittle.

Age $3\frac{1}{2}$. Interval, twenty-seven days. Duration, about forty-four hours.

Treatment:—Calomel, and liquor ammoniæ subcarbonatis in glysters.

Hamilton

Hamilton on Hydrophobia.

*Vol. ii. p. 309. Sir L. MACLEAN. Patient, Jeremiah Groves.

Age, 40. Interval, ninety-six days. Duration two days and a half.

Treatment:—Venæsection ; oil internally, and warm oil in form of bathing and frictions ; opium ; mercurial friction.

Ibid. p. 330. Mr. FREEMAN, jun. Patient, Steward Race.

Age, 40. Interval, six weeks. Duration, two days and a half.

Treatment:—Venæsection ; opium ; snake-root ; asafoetida ; camphor ; cinnabar ; musk.

Ibid. p. 333. Dr. GIRDLESTONE, and Mr. THOMPSON. Patient, Samuel Smith.

Age, 18. Interval, about forty-five days. Duration, less than four days.

Treatment:—Venæsection ; tartarized antimony ; calomel ; camphor ; arsenic ; oil.

Ib. p. 441. Dr. VAUGHAN. His third patient.

Age, 8. Interval, a month. Duration, forty-eight hours.

Treatment:—Warm bath ; oxyd of zinc ; ammoniated copper ; friction with mercurial ointment and oil of amber ; opium by the mouth
and

and in glysters; asafoetida both ways; immersion in cold water, so as for a time to suspend the senses.

*Ibid. p. 345. Dr. WHITE. Fourth patient.
Age, 30. Interval, a month. No duration specified.
Treatment:—None mentioned.

Ibid. p. 351. Mr. TUSON, Patient, Master Rowley.

Age, not specified. Interval, thirty-six days. Duration, fifty-six hours.

Treatment:—Musk; venæsection; native and factitious cinnabar; opium; mercurial friction; Turbith mineral.

Edinburgh Medical and Surgical Journal.

*Vol. vi. p. 7. Mr. DAY. Patient, — Brown.

Age, $7\frac{1}{2}$. Interval, eighty-one days. Duration, less than three days.

Treatment:—Camphor; opium; cicuta; mercurial friction.

Dr. Monro's Morbid Anatomy of the Human Gullet, &c.

*Page 137. Dr. RUTHERFORD. Patient, Nelly Stuart.
Age,

Age, 74. Interval, seventy-two days. Duration, about three days and a half.

Treatment:—Æther and opium internally and externally.

From this Treatise.

Page 33. Patient, Master Edm. English.

Age, $3\frac{1}{2}$. Interval, fifty-two days. Duration, three days.

Treatment:—Tartarized antimony; tobacco glysters.

Page 41. Patient, Mr. Tucker.

Age, 35. Interval, about nine months. Duration, between six and seven days.

Treatment:—Venæsection; blister and leeches to the throat; squill; hyoscyamus; calomel; James's powder.

Page 51. Patient, Frederic Selway.

Age, $5\frac{3}{4}$. Interval, twenty-three days. Duration, three days.

Treatment:—Bleeding from the temporal artery, jugular vein, and arm.

These thirty-eight are all the cases of true Rabies Contagiosa in this island, which I have been able to ascertain in my own practice, and in the works of authors. They greatly differ as

to minuteness and copiousness of detail, and therefore as to the proofs of their being genuine. To those, which in this respect are most clear, I have prefixed an asterisk.

Numerous others, besides those which I have given my reasons for excluding from this genus, are to be met with in our periodical and other publications. I think that I have carefully perused them all. That some of them may have been genuine examples of the disease, I do not deny. But we might as well expect to be able to distinguish between an apple and an orange, when debarred from all observation of their respective colours and flavours, as to recognize Rabies Contagiosa, where the diagnostic signs are wholly undescribed. In many other instances, the picture is so overcharged, that the distinction of features is lost amidst the uniform glare of the colouring.

It is, however, only from those cases in which the diagnostics are distinctly described, that we can form an accurate judgment of the effects of remedies, whether prophylactic or curative; and, on this account, we are ignorant as to the real efficacy of various means, which are presumed to have been fairly tried in this malady. It was in order to give the reader an opportunity of making this distinction, that I thought it expedient to

annex

annex to each case the chief measures which were actually employed for the cure.

Not having recollected the case of Hydrophobia recorded by Dr. MONRO, jun. from Dr. RUTHERFORD, which unfortunately is no where referred to in the index to the valuable work from which I quote it, I omitted in the proper place to observe of it, that, notwithstanding the circumstances are excellently well described, so as to identify the case beyond all dispute, an accurate dissection shewed a total absence of disease in the fauces, larynx, pharynx, œsophagus, stomach, intestines, and all other parts of the thoracic and abdominal viscera. It may be remarked that, in this case, the process of putrefaction was unusually slow; the body being little changed forty-eight hours after death, in the middle of September. Such a difference from what occurred in the example of SELWAY, like that of the effect of a looking-glass on different patients, and various other particulars, serves the important end of shewing what circumstances are essential to the malady, and what are merely accidental.

In the case recorded by Dr. SATTERLEY, there are some circumstances which are peculiar. I have already adverted to the patient's ability, during a certain period of vomiting, to swallow drink without

without inconvenience. This power was, however, confined to liquor which was warm; cold drink constantly producing its usual effect on the organs of respiration. Cold was, in other respects, very offensive to this patient. It will have been seen that the contrary was observable in the case of my patient SELWAY; and that, in TUCKER, the contact of warm or cold water produced precisely similar effects. This limited capacity of drinking, like that in Dr. STARR'S horse, may be considered as among the anomalies, which occasionally occur in diseases. Thus I have known a young man, who died of Phthisis Pulmonalis, whose pulse, during many weeks, never exceeded 60 in a minute. In Dr. SATTERLEY'S case, the spasm of respiration did not usually affect the diaphragm; though the other muscles concerned in that function were violently agitated.

The following notice I discovered in the London Medical Journal, too late to insert it in its proper place.

“ A man who was bit by a mad dog in the lip,
“ May 28, 1781, was attacked, June 13, with the
“ usual symptoms of Hydrophobia. He was
“ carried to the Hotel Dieu at Paris, June 15,
“ where he died the same day. After his death,
“ the whole course of the vertebral canal was
“ carefully

“ carefully inspected, and the membranes appeared
 “ to be in an inflamed state. This was done at
 “ the request of Dr. SALIN, physician at Paris,
 “ who is of opinion, that, in Hydrophobia, the
 “ medulla spinalis is the principal seat of the
 “ disease.”*

The conclusion here drawn ought to be received with great scepticism. An interval of only sixteen days from the bite is a very short one. I have had occasion to see this state of the membranes enveloping the medulla spinalis. What were the symptoms? Nothing in any degree like those of Rabies Contagiosa. The patient had some perversion of sensation, and of the power of motion of the extremities, especially the lower; which were sometimes affected with involuntary twitchings, and which he could never, with any degree of strength or certainty, direct according to the dictates of the will. In one word, this was a case of the disease usually denominated Paraplegia, which is so often found to occur from a distorted spine. From this dissection, in connection with the symptoms, I have just reason to conclude that most of the instances of this disease, whether from cold or various other circumstances, when unaccompanied with mal-organization, arise from this very cause; which is apt to affect various parts of the spinal cord, at the same or

* Vol. ii. p. 272.

different

different times, and which does not prove immediately fatal, or even produce any great general derangement of health, till it extends itself, either by continuity, or predisposition of similar texture, to the pia mater.

On the different modifications of this state, I trust that I shall be able, hereafter, greatly to enlarge. In the mean while it is demonstrated, by dissections, that Rabies Contagiosa may exist with all its distinctive characters, and terminate in death, without any apparent deviation from the usual state, not only in that part of the pia mater which envelopes the brain and cerebellum, but also in that which covers the medulla oblongata.

This point is, however, well worthy of farther investigation by actual dissection.

I cannot conclude my remarks on the disease on which I have been treating, without observing that it is a truly deplorable one, inasmuch as, in our present state of knowledge, it infallibly condemns the patient to death without the smallest chance of reprieve. It is not, however, without great satisfaction that I see, in a most estimable writer,* a concurrence in the opinion long ago entertained by Mr. GEORGE NORMAN and myself, that the Rabies Contagiosa is far from being a disease productive of as much suffering to the

* MR. CARLISLE. GILLMAN, p. 180.

patient as many other maladies incidental to mankind. He who, in this respect, shall consider it as equal to Tetanus, to Croup, to Scarlatina maligna, to Enteritis, or even to Gout or Gallstones, is rather deceived by his own sympathy, than informed by a just comparison of the actual symptoms.

In the mean while, it is highly consolatory to reflect, that the disease rarely occurs, and that, even by such means as have been imperfectly recommended in the preceding pages, the probability of its occurrence may be still further diminished.

Let us even not despond with regard to the discovery of a cure. It may be unveiled to us by that hidden direction of Providence, which we, impiously or ignorantly, denominate chance. Or, perhaps, some future JENNER may arise, capable of discerning, at one glance, the most obscure analogies, or of deducing the unknown and important truth from a few of the simplest, but hitherto unarranged, phænomena.

IN order to guard as much as possible against Hydrophobia, arising from the bites of rabid animals, I annex the following plain rules, chiefly taken from those judicious ones long ago printed by Dr. HAYGARTH. It would be advisable, that, on the occasion of the appearance, in any parish, of dogs reputed to be mad, the Magistrates should cause these directions to be printed, and affixed to the doors of all churches and chapels, market houses, town or county hall, or other public buildings; and also to recommend that the same should be permanently placed in the entrance of inns, taverns, public-houses, and in the common dwelling-rooms of some of the most respectable persons of ordinary rank throughout the parish.

“ Plain Directions for Preventing the Hydrophobia, from the Bites of Mad Animals.

“ THE slaver of a mad animal, infused into a wound, being the only cause hitherto known, by which Canine Madness can be communicated to the human body, it is in every one’s power to guard against the infection by a method which is safe and easy.

“ This consists in washing away the poison, first, by cold water, in which the wounded part should,
if

if possible, be steeped, and then washed to the bottom, by directing on it from a pump, a tea-kettle, or a tea-pot, a stream of cold water, during a full hour. Immediately after this, the same process should be performed with warm water, for the same length of time as before.

As, however, in different cases, different parts may have been bitten, and various degrees of injury inflicted, it will be proper on all occasions to have as speedy recourse as possible to the assistance of a surgeon, before whose arrival the washing above recommended should in all cases be diligently and for a long time employed.

“ When the surgeon arrives, it will be prudent for him, if the wounds are deep, to continue the washing by means of water injected by a syringe; after which he should endeavour to draw blood from the part by cupping glasses; and then, wherever it is practicable, should, for greater security, shave off the surface of the bitten part to the utmost extent of the wound.

“ If, either from the nature of the part, or the apprehension of the patient, excision cannot be employed, the surgeon, after having syringed and cupped the part as before directed, should again wash or syringe it, as the case may require, with warm rain or distilled water mixed with one sixth part of liquor ammoniæ, or caustic volatile alkali.

“ N. B.

“N. B. The patient should not be discouraged from the use of the above efficacious means, though several minutes, or even hours, may have passed away from the time of the bite,”

P. S. It will be satisfactory to the reader to know, that neither of the waiters at the York House, bitten by Mr. REILLY's dog on the 26th of December 1813, has to this day, September 14th, 1814, been affected with Rabies.

