

Substance of a clinical lecture on a case of hydrophobia : delivered at the Charing Cross Hospital, Monday, November 24, 1834 : to which are appended the particulars of another case admitted into the hospital, October 21, 1834 / by T. J. Pettigrew.

Contributors

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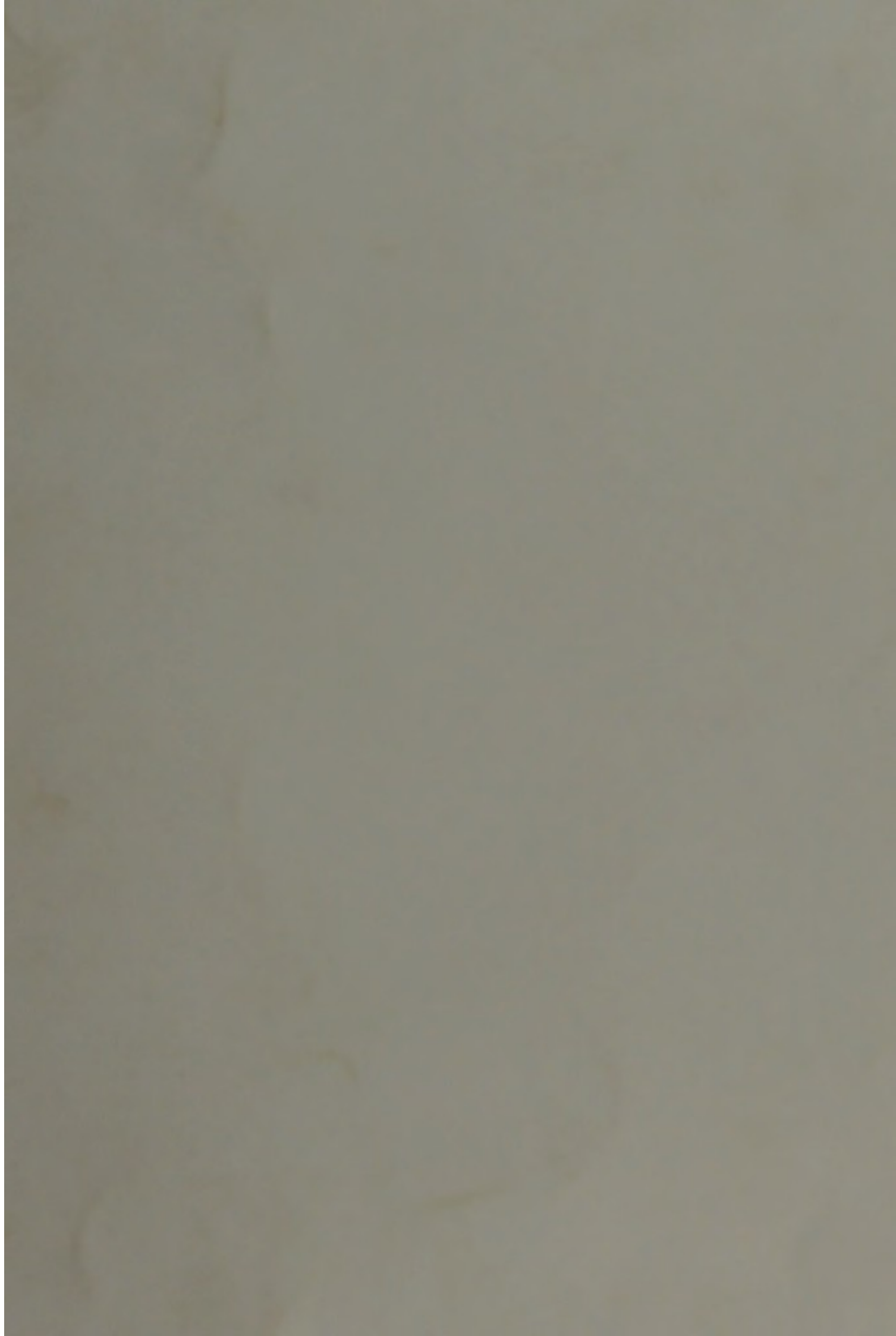
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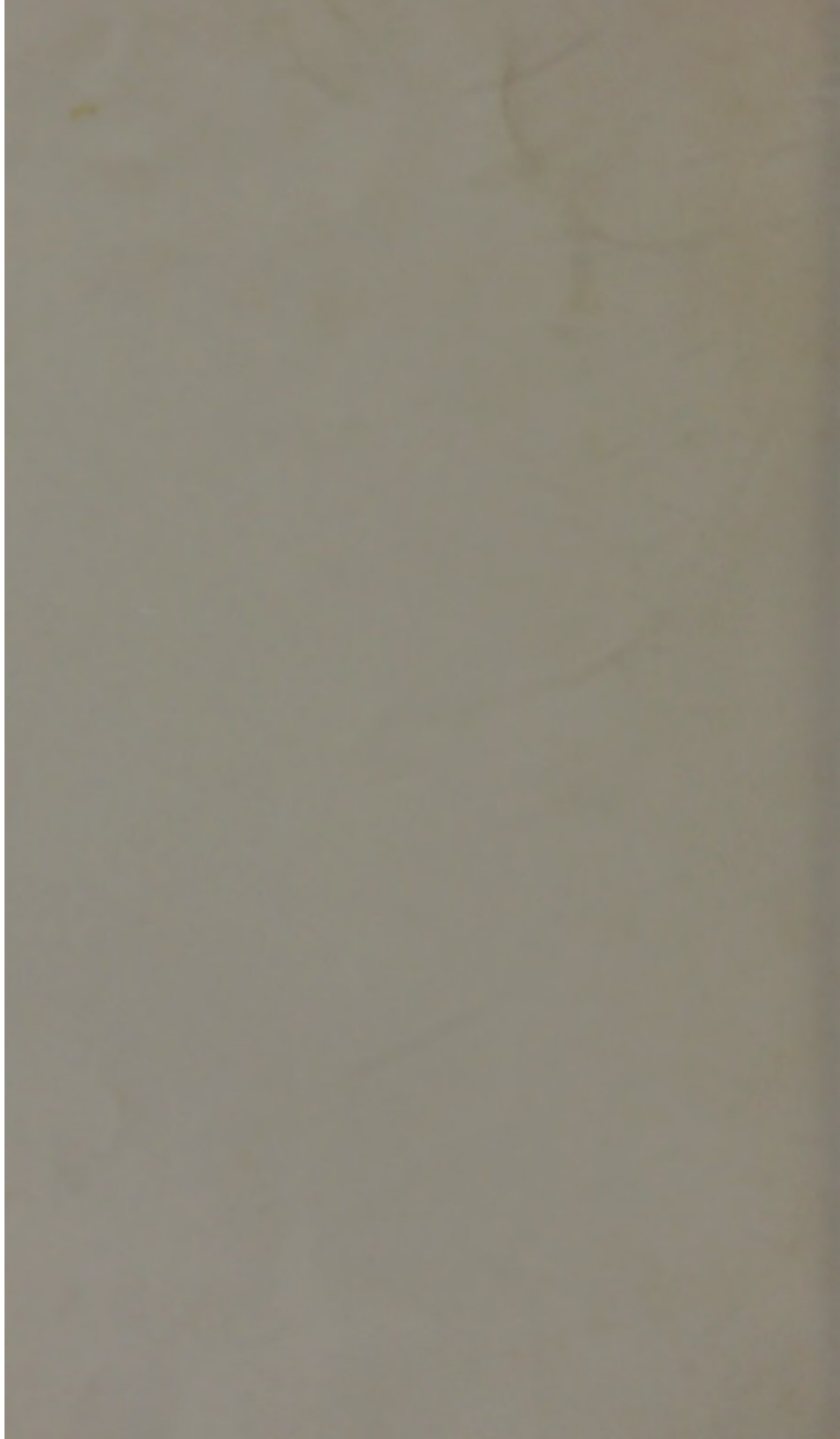
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SUBSTANCE
OF A
CLINICAL LECTURE
ON A CASE OF
HYDROPHOBIA,

DELIVERED AT THE CHARING CROSS HOSPITAL,

MONDAY, NOVEMBER 24, 1834;

TO WHICH ARE APPENDED THE PARTICULARS OF ANOTHER CASE

ADMITTED INTO THE HOSPITAL, OCTOBER 21, 1834;

BY

T. J. PETTIGREW, F.R.S. F.S.A. F.L.S.

&c. &c. &c.

Professor of Surgery in the Medical School at the Charing Cross Hospital,
and Surgeon to the Hospital.

LONDON :

LONGMAN & CO. PATERNOSTER ROW.

1834.

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BENJAMIN GOLDING, M.D.

My Dear Sir,

I have much pleasure in acknowledging the publication of the substance of a Clinical Lecture on the Case of Hydrophobia admitted into the Charing Cross Hospital, to record the regard and esteem I entertain for you personally, and to express my admiration of the principles which have led, and the zeal that has animated you to the establishment of an Institution so interesting to humanity, and so much needed by an increased population. That the Hospital which owes its existence to your unwearied exertions may continue to prosper and accomplish to the fullest extent your most sanguine expectations, and that the same cordiality and union, and the same eager desire to carry into effect the benevolent designs of its Founder which now reigns among the Medical Officers, and the Governors of the Hospital, may be perpetuated, are among my most ardent wishes, and that you may long live to witness the benefits arising from your philanthropic labours, and the consequent promotion of Medical Science.

I have the honor to be,

My dear Sir,

Yours very faithfully,

P. J. PETTIGREW.

TO
BENJAMIN GOLDING, M. D.

&c. &c. &c.

My Dear Sir,

I eagerly embrace the opportunity afforded me by the publication of the "Substance of a Clinical Lecture on the Case of Hydrophobia admitted into the Charing Cross Hospital," to record the regard and esteem I entertain for you personally, and to express my admiration of the principles which have led, and the zeal that has animated you to, the Establishment of an Institution, so interesting to humanity, and so much needed by an increased population. That the Hospital which owes its existence to your unwearied exertions may continue to prosper and accomplish to the fullest extent your most sanguine expectations, and that the same cordiality and union, and the same eager desire to carry into effect the benevolent designs of its Founder which now reigns among the Medical Officers and the Governors of the Hospital, may be perpetuated, are among my most ardent wishes, and that you may long live to witness the benefits arising from your philanthropic labours, and the consequent promotion of Medical Science.

I have the honor to be,

My dear Sir,

Your's very faithfully,

T. J. PETTIGREW.

Saville Row,

27th November 1834.

S U B S T A N C E
OF A
CLINICAL LECTURE ON HYDROPHOBIA.

GENTLEMEN,

IN conformity with the practice adopted by the Medical Officers of this Hospital, by which the Pupils derive not only the advantages of watching the progress of the several cases of disease at the bedside and examining the reports that are made every morning and evening; but also the benefit of having the complete history of every case that may be either remarkable in its character or important in its relation to the state of medical science brought forward in a Clinical Lecture; it is my duty to direct your attention to the unfortunate case of Hydrophobia that occurred during the past week. Prior, however, to entering upon the detail of this case, I must direct your attention to a statement I have received from Mr. Griffith relative to the condition of the Dog by whom it is supposed that George Grindley, the subject of this disease, had been bitten. This relation has been obtained from William Boore, an intelligent young man, a fellow shopman of the deceased, and may well be relied on :—

“ On Sunday the 7th of September, a dog belonging to the family, left the house in the evening, and returned on the following day in a state of great agitation, with a tin kettle tied to his tail. On the Monday following, the 15th, a strange cat came into the house, and in order to get rid of her, George Grindley (the subject of the present case) and his fellow shopman, set the dog on to

worry her. She flew up the chimney, and by means of a stick was forcibly pulled down, when the dog instantly seized her, bit her, and mangled her so much, that she lay motionless and apparently dead for about a quarter of an hour. She was pushed about with a stick and she suddenly started and ran into a hole communicating with the adjoining house, where she died. The dog was in a state of great excitement and foaming at the mouth. George Grindley took him up in this state (pleased at the manner in which he had punished the cat) and kissed him repeatedly. He was frequently in the habit of caressing the dog and even suffered him to come to his bed and to lick his face. On Sunday evening, 21st. the dog howled and barked at seeing other dogs in the street and appeared anxious to get out. The door was opened, and he snapped at the first dog he met: he was away an hour, and his master went in search of him and brought him home. At this time as the chairwoman was going up stairs, he seized her by the leg and bit her, but there was no abrasion. He was a quiet dog and this was the first instance of his attempting to bite any person in the house: on the 26th and 27th he was much altered, uneasy, restless, and snapping at every dog he saw in the street. On the following day, Sunday, the 28th, he found his way into the bedroom and was with difficulty got out by the housekeeper: he attempted to bite her finger and again snapped at her waist and tore her apron. She shut him up in the dining room until William Boore got up—he liberated the dog, and the animal followed him to the shop to Grindley, who immediately took him up and kissed him—the dog licking his face. The dog afterwards went into the kitchen where he seized a kitten and bit her. Grindley now took him upstairs and played with him for about half an hour. The dog came down and found his way into the street and has not been heard of since. William Boore states that Grindley was in the habit of teasing the dog by taking hold of his hind legs, and is well aware that he was bitten by the dog in his hand: he remembers Grindley mentioning this circumstance to him, and shewed him his hand in corroboration of the fact, but cannot call to mind the exact time."

Thus far with respect to the dog:—George Grindley residing at Lower Eaton Street, Pimlico, *Ætat* 18, was visited by Mr. Griffith at half-past twelve on Wednesday night the 19th November, when he complained of a difficulty of breathing and soreness of the throat, which he attributed to a cold taken the night previous. Pulse 86 full—bowels costive—tongue dry: ordered Ext. Coloc: comp. gr. vi. Hyd. submur. gr. iij. in two pills to be taken directly, and a draught, composed of three drams of Sulphate of Magnesia, ten drams of Comp. Infusion of Senna, with two drams of the Tincture of Senna, in an hour after

the pills. The pills he swallowed with some difficulty, after many attempts ; but the draught he said he could not swallow. The nature of the disease not being then suspected, his disinclination was supposed to refer to the medicine being fluid. He was therefore left for the night and recommended to take the draught. It appears that after several unsuccessful efforts during four hours, the draught was at length taken, literally by sips. He had passed a bad night, was unable to remain in bed, and got up at three o'clock. Thursday morning, 10 A. M. Complained of his throat—a sense of constriction about it, and considerable dyspnœa—pulse 92 full and strong; ten ounces of blood were withdrawn from the arm, and ten leeches applied to the throat. The bowels had been moved freely three times by the medicine exhibited the previous night, and the evacuations had passed from him with great force, he had no power of restraining them. At eleven o'clock great thirst and dryness of the mouth and fauces. Temperature of the skin low. He was ordered 20 gr. of Ipecacuanha which was mixed with a little water. He said he could not swallow it if he were to attempt it, he knew, “that his breath would meet it.” He was prevailed upon to put it to his lips ; he eagerly seized it and suddenly emptied the contents into his throat. Mr. Griffith now suspected the case to be Hydrophobia, and asked him if he had lately received any wound either from the scratch of a cat or the bite of a dog, and he replied in the negative ; but on being requested to endeavour to recollect himself, he admitted that he had received a scratch in the hand from a kitten, and shewed the palm which exhibited two punctures. Mr. Griffith then went behind the patient unobserved and breathed very gently upon the back of the neck. The patient turned round in an *agitated convulsed state*, and exclaimed “for God’s sake shut the door, that wind will kill me.” The nature of the complaint was now mentioned to the patient’s friends, and a consultation was proposed and agreed upon. At half-past two o'clock I saw him. At the time of my visit I found him crouched over the fire, his back and shoulders towards the windows and door ; he did not turn round to observe my entrance nor did he alter his position upon being addressed by me. The leeches were hanging from his throat and blood was trickling down his neck, from which however he did not appear to experience any particular inconve-

nience. He was much agitated and had frequent spasmodic twitchings and gaspings in his breathing. Upon enquiry as to the probable nature of the disease, he shewed me the cicatrices of two punctures in the palm of his right hand; these he ascribed to scratches he had received from a kitten at this time living and in the house. These marks were evidently proceeding from a bite, not a scratch, though he could not be got to admit having sustained any injury whatever from the dog. He described to me, that he had first felt an inability to take fluid, on Tuesday the 18th instant, that he found himself unable to drink his usual porter at dinner though extremely thirsty; that this difficulty had increased by supper time, but he went to bed, slept with his brother, and according to their joint account, passed a calm and tranquil night. On the Wednesday morning he could take no breakfast, but attended to his usual business, that of a pawnbroker. He says that a neighbour having released a carpet that had been pledged was desirous not to be himself seen carrying it home, and requested him to do it, but that fearful of the cold air, he declined; the man however was urgent in his request and George Grindley at length complied; it was a distance of not more than fifty yards, and this journey he said, he performed going backwards, not being able to expose the front of his body to the current of air. At dinner he took with difficulty a small quantity of pea soup. Complaining of his indisposition he was urged to go and consult Mr. Griffith, living in the neighbourhood, but this he would not venture to do—accordingly in the evening, Mr. Griffith was sent for and saw him as I have already stated at half-past twelve. Upon questioning him as to the operation of the emetic powder taken in the morning of this day, (Thursday) it appeared that he had not swallowed it more than two minutes, when it was forcibly driven through his bowels, and to use his own expression, it had “passed into his trowsers.” This was literally the case and no emetic effect was produced by it. He complained excessively of his difficulty of breathing, and referred all his pain to the *epigastrium*. He said whenever he attempted to drink, something rose up and prevented him. I wished to examine his throat and desired him to move towards the window for this purpose. He did this with evident reluctance, and was much agitated by the exertion. I availed myself of this opportunity to pour out some

water from a decanter into a wine glass before him, but it produced no fear or apparent anxiety. I desired him to drink a little that I might be better enabled to view his throat—he said, he couldn't. I urged him to put a little in his mouth, but he declined. I pressed him to make the attempt and after considerable persuasion he took the glass in his hand—viewed it with evident horror—knew that he should not be able to do it—made several ineffectual attempts, and then with a fixed glare and hurried determination, rapidly threw the contents of the glass into his mouth, held it there with cheeks distended, for a few seconds, and then powerfully ejected the whole, suffering at the time considerable spasm. He now permitted me to examine his throat: he opened his mouth widely, darted the tongue forth at its extremelength, and at the same time forcibly drawing in his breath, enabled me to obtain a most complete view of his fauces. The tongue, mouth, and throat, were all exceedingly pallid and covered with a thick frothy saliva, resembling the lather from soap. The tonsils were enlarged, but they shewed no marks of vascularity. There were no pustules about the frænum of the tongue.

No doubt remaining in my mind as to the nature of the disease, I left the room to confer with Mr. Griffith, as to the best measures to be adopted under these circumstances, and that gentleman agreeing with me as to its being desirable, that he should be removed to the Hospital, and his friends consent and his own readiness to comply with our proposal, being obtained, I resolved upon immediately bringing him to this Institution. Upon quitting the room after the examination of his throat, I found that he had immediately returned to the fire place, and resumed his former posture. A coach was now obtained for his removal to the Hospital. He was much agitated by the putting on of his coat. I took him by the arm towards the door and immediately upon its being opened, he rushed back, dreadfully convulsed, and I caught him in my arms. He exclaimed, that he was unable to go, he could not bear the air. With some difficulty I placed a handkerchief and a shawl over his head and face, and then led him to the staircase; he had not descended many steps before the street door was opened and the rush of air immediately threw him into a convulsed state, which was so powerful that notwithstanding he was supported by Mr. Griffith and myself, he

fell upon the stairs. We now turned his back towards the door and lifted him into the coach. He sat with his back to the horses between his father and Mr. Griffith. His father, an aged man, breathed rather heavily, of which his son complained bitterly, saying, "Don't breathe upon me I can't bear it." The windows of the coach being drawn up we proceeded to the Hospital. He became more composed and bore the ride well. I engaged him in conversation and enquired as to the state of his feelings for some time past; he admitted that he had lately felt a desire to be alone, though he had not experienced any aversion to his relatives, whom he now seemed exceedingly anxious should remain with him. He was much calmed by my assuring him that all his relatives should have free access to him, and abide with him continually if he desired it. The coachman drove by mistake to the Ophthalmic Hospital, and it was necessary therefore to put down one of the windows to direct him rightly—the consequent admission of air immediately produced a paroxysm. Arrived at the hospital, he was taken out of the coach backwards, and in this state carried up the staircase of the hospital into a ward, which I directed to be solely appropriated to his use. There was no fire in this room and he complained much of the cold air—he was very frantic and threw himself about in much agony and distraction, violently stamping upon the floor. The room was soon heated, a bed prepared and warmed for him, and he was assisted to undress. His manner of getting into the bed was remarkable, he looked at it intensely and with a sudden leap sprung into it, at the same time extending out his hands to keep off the bed clothes, fearful of their directing the air upon him; they were gradually drawn upon him and pillows were so placed as to secure him from injuring his head by any occurrence of spasm.

Although Hydrophobic symptoms had now existed from the preceding Tuesday, embracing a period of time in which usually the disease proves fatal, I was nevertheless anxious from what I had previously seen of the tranquillizing effects of the Tobacco, immediately to resort to it in this instance; I therefore proposed to Mr. Griffith to begin with injections of the infusion in small doses, and to repeat them as the symptoms might appear to demand. Accordingly at ten minutes past three, we threw into the rectum half a pint of water in which 5 grains of

Tobacco had been infused. His pulse at this time was 108, in three minutes it sunk to 100, in 2 minutes more to 98, and then gradually reduced to 84, about which number it remained for half an hour. A part of the injection it must be remarked was thrown out of the intestines, directly upon the withdrawal of the pipe, and a singular circumstance occurred upon this and every other injection being thrown into him; the bladder forcibly contracted, and the urine was ejected with violence. His penis was in a state of tension, approaching to priapism. He became much more tranquil and composed. A blister was applied along the course of the spine. During his removal to the hospital he was much annoyed by the quantity of thick viscid spittle, which he was obliged to be constantly casting out of his mouth—this secretion had much diminished, and after the second injection entirely subsided. He complained greatly of thirst, and I proposed to him to take some orange—he was very anxious to do this—but he was very fearful of it. He would not venture to suck the fruit, but requested a small portion to be broken off for him. He thrust a small piece in a most hurried manner into his mouth,—immediately became convulsed and spit it out. Upon being cheered and tranquillized, he was induced to make another attempt, and in this he succeeded much better—he swallowed this and a third portion. I applauded his courage, and he said, “Any thing to live.” He described it as both *pleasant and painful*. The coolness of the fruit to his parched mouth and throat was eminently grateful, but every time he bit the orange and a drop of juice fell upon his fauces, a spasm was produced. At a quarter past four his pulse was 98, and the pain at the epigastrium much diminished. His spasms were however frequent: I therefore resolved upon another injection of the same strength and quantity as the preceding one. This was followed by similar effects. At twenty minutes before five he was persuaded to take about a quarter of a cup of tea, which he accomplished at two efforts, but with great difficulty—his pulse upon this rose to 107. His spasms became more frequent and his respiration was less easy. A little after five the bandage slipped from his arm, and about three ounces of blood escaped from the orifice by which he had been bled in the morning. At a quarter past five he was more quiet—pulse 104, and a few minutes before six a little more

blood escaped from the arm. At half past six the spasms were stronger and more frequent, and he complained much of the pain in his chest. At half past seven a third injection was given, after which he swallowed a portion of orange with greater ease.

At eight o'clock a consultation of the Medical Officers of the Hospital was held, and it was determined that the use of the tobacco should be persisted in, though no one could be at all sanguine as to the result. At twenty minutes past nine a fourth enema was administered—it remained up ten minutes. His pulse was 104, but the injection reduced it a few beats. In the course of half an hour from this injection, he was able to swallow several portions of orange, and the latter pieces he put into his mouth in a deliberate manner, very unlike the former hurried method. He expressed himself as much refreshed by it; entered into conversation, and referred to his having on the Tuesday been obliged to walk backwards, as he could not face the air when he carried some porter home, and although he longed to taste the liquor, was not able to accomplish it. The fifth and sixth enemas were given at ten minutes past ten, and at a quarter before eleven, as they did not appear to be followed by much depression. During the last two hours he had eaten three oranges, said his spasms were not so frequent, but that they were longer. He became excited, spoke with great liveliness, and began to recount the means he had contrived to endeavour to overcome his inability to drink. He told us that he went into the kitchen and plucked a straw from a rope of onions that was hanging there, and tried to draw up the liquid through the straw, but he quivered at the attempt, and could not succeed; he then tried a quill, as being a larger and more likely means of effecting his object, but the same effect succeeded; he then tried a paper cone, but in this he was equally unsuccessful. He dipped a tea-spoon in some milk, and though it contained no fluid, but was merely wet, he could not succeed in carrying it to his mouth. He placed a drop of water on the back of his hand, and endeavoured to touch it with his tongue, but something came up into his throat and prevented him. Upon being asked to describe more particularly this sensation, he said it was as if he was struck in the pit of the stomach by a ball, and then something came up in his throat and went also down into his body.

He counted the number of inspirations he was now able to take between the attacks of spasms, and for some time he was engaged in enumerating them, as now I can go four, now five, six, and seven, which appeared to be his greatest number, and it appeared that according to the lapse of time his sufferings were increased. This circumstance induced us to administer a seventh injection, and the quantity of tobacco was increased $2\frac{1}{2}$ grains. No sooner was this administered, than his pulse rose from 104 to 133, and became very tremulous. At a quarter before one, on Friday morning, his breathing was more laborious, and his spasms more frequent, so that it was thought advisable to repeat the injection, but sickness coming on a little after one, it was postponed. The matter ejected from the stomach consisted of saliva of a frothy nature, mixed with portions of the orange—his pulse was 144, the skin softer, and disposed to perspire. He said he was easier from the sickness. At a quarter before two he was asked to wash his hands, he consented, and some warm water was placed in a basin before him—he took some soap into his hand, and commenced the ablution; but although he was not observed to express any horror at the act, it was evidently not agreeable to him, for it was done in rather a hurried manner, and he carefully abstained from looking at the water the whole of the time. Having completed this, he was asked to wash his face, but this seemed disagreeable to him, and it was suggested that he should dip the napkin into some water and wipe his face with it. He desired this to be done in cold water, and then, though with evident reluctance, passed it slightly over a part of his forehead, and a part of the right side of his face; he then hastily threw the napkin aside. His sickness continued, and he complained of a pain of his left side, between the eighth and eleventh ribs. His pulse was 128, weak and feeble, thready and contracted. At two o'clock his difficulty of breathing was increased: he attempted to whistle, and to call out to relieve his dyspnœa—he was much distressed, and deplored his unfortunate situation. At a quarter past two he was literally fighting against the spasms, trying by every possible mode to obtain breath—and the scene was most painfully interesting. He expressed a desire to read, and he had asked his brother to bring him a prayer book. A testament was placed before him—he opened it,

and immediately commenced reading: this he did in a loud tone of voice, in a hurried though perfectly distinct manner, and did not permit himself to make any stop, evidently under the apprehension of being attacked with spasm. He was entirely regardless of stops or division of verses: and in one or two places, I remarked that he put in short reflections of his own, springing up at the moment, and referring to his painful situation. At length he seemed exhausted by the great effort he had made, and put aside the book, declaring it was all the same, in allusion to his difficulty of breathing. Having observed the several modes he had adopted to relieve himself from spasm, Dr. Golding ingeniously suggested that he might probably be able to breathe entirely through his nostrils, and so prevent the irritation from the admission of air directly upon the fauces. It was proposed to place a bit of folded muslin over his mouth—it was done but it gave him much uneasiness and excited great apprehension. He permitted Mr. Griffith to hold his lips together and thus perfectly close his mouth for some seconds, and it appeared to aid him slightly. His state of excitement was now increasing, but the tremulous condition of his pulse forbade the repetition of the injection. For upwards of an hour the scene was most extraordinary and agonizing. He was alternately reading, singing, whistling, talking in the most rapid manner, counting 1, 2, 3, &c. up to 20, as fast as he could utter the numbers, then enumerating them backwards, and occasionally prolonging the sound as appeared to be best adapted to the then condition of his respiratory organs. He sang parts of several songs, talked of his fondness for music, attributed his difficulty of breathing to having hurried himself excessively to take a lesson on the flute—wished he had his flute, should like much to play it—seemed for a moment or two to forget where he was—desired it might be fetched out of the plate closet. A flute was brought to him, he attempted to fill it but he failed, and he threw it down, saying, it wasn't his flute—his was a black one. He desired to write, and wrote his name steadily—the appearance of the inkstand excited no apprehension in him—he wrote his name and address, &c. He asked my son to set him a sum in addition, and this was done to some extent; he began to reckon it up and was accurate in his manner of doing it. He now desired to eat some dry bread, and

with great ease he swallowed a considerable quantity, perhaps as much as half a lb. : he did this with great rapacity, calling out as he thrust mouthful after mouthful for more, and in the intervals expressing his fear that he should not get it prior to that which he had before him was despatched. He was solicited to take some tea with it, but he could not be persuaded to do so—with some difficulty he was prevailed upon to dip the bread in the liquid : he put it to his mouth, but did not swallow any. The frequency of the spasms had now very much diminished, and he expressed a wish for air—one of the screens surrounding his bed was opened, and he could bear the admission of air, but if breathed upon, however slightly, spasm was directly produced. At three o'clock he was slightly sick. At half-past three a considerable secretion from the nose ensued and he was constantly snuffling to get rid of it. His talk was incessant, he begged for subjects of conversation to be started, and could not be quiet an instant. There was an occasional slight wandering, and the *tunica conjunctiva* of the eye was somewhat suffused. His breathing was much easier, and his spasms were but seldom. He wanted some bread and cheese, and said he could eat any thing since that thing in his throat had broke, referring to an uneasy sensation as if something was sticking in his throat, which had been relieved by the sickness. He expressed a wish to sleep but said he could not, he should never sleep more, for it (the disease) had got into his brain and it would never get out again. At four o'clock the spasms were of very little violence, and did not occur above once in five minutes—his aversion to liquids however were not abated. He was permitted to get out of bed and he sat in an arm chair covered over with a blanket before the fire. He felt much comforted by being allowed to form part of a circle round the fire, and wished to excite some one to sing with him—he seemed highly delighted to talk of his little knowledge of music and singing, and he went through a whole song (the Canadian Boat Song) in no very inefficient manner. Occasionally a note would prove rather difficult, but he repeated the passage and generally mastered it. High notes however he could not accomplish, and he attempted no ornaments. He said there was a tune he could not get out of his head. The secretion from his nose increased, and he could, by directing the air powerfully through his

nostrils, dislodge it. His pulse was at least 160. Being desired to compose himself and try to sleep, he was with difficulty placed back upon pillows: but by this alteration of position, his spasms were invariably excited. A dark blush was observed under each eye. The eyes themselves were throughout more than ordinarily prominent, and the pupil was dilated to the extreme. He told me in his progress to the hospital that he had looked in the glass at his eyes a few days since and he thought they were swollen.

We were desirous of ascertaining whether the extreme sensibility of air was only resident in the skin of the head and neck, or whether other parts of the body were not equally sensitive. Dr. Golding blew upon his leg and foot and spasms immediately succeeded: the same followed upon blowing upon his hands, and upon requesting him to blow upon my hand he also suffered from spasm occasioned as I believe from his breath being thrown back upon his face. At twenty minutes past four, his face was observed to have become darker in its color, but it did not mark congestion to any great extent. His mind wandered and he still dwelt upon the tune running in his head, which he wished he could forget, and which he ascribed to his attendants. At half past four he threw off his stomach some viscid saliva mixed with bile, and complained of its bitterness. His pulse varied so much that it was with extreme difficulty any estimate could be formed of the number of beats in a minute. It appeared to be about 120. In his attempts to wipe his nose he passed his handkerchief (which in the early part of the evening he was not able to use) rapidly once backwards and forwards under his nose and it always caused him great uneasiness. At a quarter before five his sensibility to air appeared to be again increased, and it was thought desirable that he should return to his bed. Upon this proposal being made to him he grew very violent, positively refused to lie down, calling all about him, his murderers, swearing at them and complaining that they intended to choke him. His sickness again recurred. By force he was placed in the bed and a strap fastened around one of his ankles to the bed, as he threatened to jump out. In his struggle the bandage again slipped from his arm and he lost about an ounce of blood. He now complained greatly of any one when near to his bed and said he could not breathe. He asked for drink and I presented to him some tea, he dipped

his fingers into the cup, and then dashed it away from him, saying, that he could not drink it—mad dogs could not drink water. He said that he was mad, but not so mad but that he knew what was going on. He then complained bitterly of his severe thirst, and his inability to breathe—said he was dying, and ascribed his death to having been obliged to play the flute. He begged earnestly for a pebble to put in his mouth, and reproached all about him with great cruelty in not giving him one to allay his thirst, and save his life. He was pleased at having some barley-sugar given to him—it created a considerable flow of saliva, which he swallowed. At half past five, his pulse was very irregular, and about 130; he became much more tranquil, and assured those around him that he would not hurt them. At a quarter before six his tranquillity was increased, and he was able to lie down upon his back (hitherto he had always lain upon his side with his head much raised). His countenance was composed, and he said the barley-sugar had saved him. He continued to take it, and hoped the quantity he had would not be exhausted before the shops were opened to get a further supply. His pulse now beat 164. At half past six he vomited nearly a pint of fluid, which he said was bitter; he became irritable, and could not bear any one to look at him. He would only allow my son to be alongside with him, and this favouritism appeared to have arisen from his having obtained the barley-sugar for him. At five minutes past seven he again vomited. A cup of coffee was brought to the bedside to him, he did not even see it, but the knowledge of its being there excited a violent spasm. At twenty minutes past seven his pulse was very small, contracted and indistinct, his respiration was more hurried, his skin was moist, and his sickness continued. At half past seven he eat a slice of bread and butter. His brother and father came to see him—he kissed his brother, but broke away from his father, who he said was afraid of him. His pulse was tremulous, scarcely perceptible, and not to be counted. At twenty minutes before eight he drank nearly a cup-full of coffee, and eat some bread and butter with very little difficulty. He asked for more coffee—drank it, but almost immediately rejected it from his stomach. His pulse was now imperceptible at the wrist, his hands cold and clammy, and rather of a blue colour. At eight o'clock he complained

much of being cold; the skin around his eyes was of a very dark colour; he lay on his side quietly, and his respiration was less laborious. He shivered much, and additional blankets were placed over him, but they did not impart warmth to him. A few minutes after eight his pulse could be felt at the wrist, but it was not very distinct; his skin got warmer, and he desired his pillow to be raised. At a quarter past eight he wished for some broth, as he thought it would warm him. Eructations from the stomach now occurred, and they afforded him *great* relief. When the broth was brought, he would not take it, and he refused wine or spirits. At half past eight his pulse had somewhat risen; he vomited apparently all the coffee and bread and butter he had taken—what he threw off his stomach had a very sour smell. His skin was clammy—he could bear his nose and mouth to be wiped. At nine o'clock he became very impatient, and was vomiting bilious matter. He complained of feeling cold, and suddenly appeared to be sinking; his lips were livid, his countenance ashy, his eyes fixed, a limpid fluid having discharged involuntarily from his mouth, his jaw dropped, and his tongue hanging out of his mouth. He remained in this state nearly five minutes, and was only revived by blowing two or three times in his face, which roused him, his lips regained their colour, the countenance also recovered its hue, and he began to talk very incoherently, though he was capable of answering questions put to him in a collected manner. At twenty minutes before ten his pulse was still perceptible, but his hands and nails were quite blue. He again vomited some bilious matter. At five minutes before ten, a pill, composed of 2 grs. of Carbonate of Ammonia was given, but immediately after being swallowed, thrown off his stomach. At ten o'clock he again fell into an extreme state of prostration, and he was again re-animated by being fanned, and forcibly blown upon by a pair of bellows. He was in this state of collapse for ten minutes—he revived, and rested himself upon his elbow; he appeared like a person recovering from intoxication. He again vomited, tears flowed from his eyes, the tunica conjunctiva appeared highly reddened, and in ten minutes more he again sunk into a collapse. By applying the same means he was again resuscitated, and recovered himself so far as to recognize his brother and his medical attendants, spoke

to them, answered all questions put to him, raised himself on his arm, tossed about wildly when blown on or fanned; again vomited, and in the course of ten minutes gradually sunk into a collapse, to relieve which, it was not thought advisable to employ any means, and from which he never rallied. His lower jaw was convulsed four times before a termination to his misery took place at ten minutes before eleven.

INSPECTION OF THE BODY.

The body was examined at half-past two o'clock. The external surface, where the muscles were in greatest bulk, appeared rather darker than usual, but much less so than in the case of Porter. It was particularly observed in the calf of the leg. Upon cutting into the muscles, they were all found to be full of blood, and of a much darker colour than usual.

Spinal Chord.—The *Theca* was of the natural appearance—no fluid within it, and no particular vascularity upon the surface of the chord itself, the *medulla* of which presented its natural whiteness.

Head.—The *Dura Mater* adhered with great firmness to the skull. The longitudinal sinuses were empty: a small quantity of blood was seen in a fluid state in some of the large veins leading to the sinuses. The hemispheres of the brain had a milky white appearance upon the removal of the *dura mater*, and this was observed to be greatest in the intergyral spaces between the convolutions: the general milkiness of the membranes disappeared in some degree upon exposure to the air. The membranes were much less injected with blood than could be expected. The substance of the brain was very firm and less vascular than ordinary; there were fewer bloody points from division of vessels observed than usual. A quantity of fluid, amounting to between two and three drachms, was found in the lateral ventricles; it was not at all bloody. The *plexus choroideus* was turgid with venous blood, and the vessels in the left ventricle were much fuller than those of the right. The *pineal gland* contained no sabulous matter, but was very tough in its substance, which did not break down under the pressure of the fingers as usual. The greatest vascularity observed throughout the brain was of the *pia mater* over the *pons Varolii* and *medulla oblongata*. Here the vessels were highly injected with arterial blood, particu-

larly on the right side, and they were very strongly adherent to the parts beneath. The membranes over the optic nerves and the anterior crura cerebri were also very vascular. The absence of vascularity in the brain generally was remarkable, and not a drop of fluid was found at the basis. The lateral sinuses, like the longitudinal, were empty.

Neck.—The muscles were dark coloured and fuller of blood than usual. The *tongue* had its papillæ very large, particularly at the root; there were no pustules about the frænum. The *tonsils* were much enlarged, but not vascular. The *pharynx* and *œsophagus* were throughout perfectly natural; there were not the slightest appearances of inflammation in any part. The *larynx* and *trachea* were also free of any marks of vascularity, excepting at the bifurcation of the latter at its entrance into the lungs, where it was slightly reddened. The inner surface of the larynx and trachea were smeared with a dark coloured fluid, which appeared to be a portion of a dark bilious fluid, a small quantity of which was found in the stomach, and of which a considerable quantity had been vomited up prior to death.

Thorax.—Not a drop of effusion was contained in either cavity of the chest. All the viscera had their natural appearance; the *lungs* contained air, and were rather remarkable for the very small quantity of blood in them. There were some adhesions between the *pleuræ* on the left side, but they were not recent. The *phrenic nerves* and the *diaphragm* presented their usual natural appearance; the *heart* was rather more fatty than is usually found in persons of so early an age. The *pericardium* contained about half an ounce of light straw coloured fluid. The left ventricle was empty, firm, and thick, and its substance of a dark colour; the right ventricle had some small portions of coagula. The large vessels presented no marks of increased action; their inner surfaces were quite white. The great sympathetic nerve was perfectly healthy.

Abdomen.—The *liver* was natural, but the *gall bladder* was distended with a bile, perfectly black: it had communicated no tinge to the surrounding parts. The *stomach* was very much contracted; and upon opening it, it was found to contain about four ounces of a greenish coloured fluid. The *rugæ* were very strongly marked, and the glands about the cardia and pylorus were more conspicuous than usual, and contained a whitish coloured deposit, giving a strumous appearance to them. This conjecture is supported by the enlarged state of the *tonsils*—a much enlarged condition of the *mesenteric glands*, and also an increase of firmness in the *pancreas*. No abrasions or extravasations of any kind was observable in the stomach, neither was there any appearance of vascularity to be seen, except towards the pylorus, where a slight redness was discernible. The *intestines* were distended with air, and presented a very dry appearance, they contained no feculent

matter. The small intestines presented no particular vascularity, and there were no spots of discolouration. The whole of the *descending colon* and the *rectum* were powerfully contracted, but not diseased in their structure; there was also a contraction in the centre of the transverse—arch of the colon.

The *Kidneys* were healthy, but the *urinary bladder* was very firmly contracted, and as hard to the feel as a dense fleshy mass; the muscular fibres were observable through the peritoneal covering firmly contracted. The penis was observed to be in a state of tension, that may be considered as semi-priapism.

Hand.—The punctures on the palm of the right hand were examined, and the nerves of those parts traced, but no appearance of inflammation or disorder of any kind was apparent.

This Gentlemen, is I believe a minute and faithful detail of the cause, symptoms, and treatment of the disease, and the appearances at the *post mortem* examination. It is not my intention to occupy your time by a History of Hydrophobia, or of the several modes of treatment that have been adopted. This has been lately detailed to you by Dr. Golding, and I propose therefore on the present occasion merely to allude to a few of the principal features of this case, and to such other points in relation to this disease, which appear to me most deserving of your attention.

In the first place with respect to the condition of the dog:—he was evidently rabid—his conduct depicted that state—his disposition was changed—he became impatient of control—snapped at every thing about him—made no distinction of those to whom he was attached—staggered in his movements—eager to escape—went out—returned no more! Whether this dog became rabid by infection or spontaneously does not appear, nor is this a place to enquire into the circumstances connected with the opinions as to the manner in which the dog may become rabid. Man appears to be the only animal becoming truly affected with a hydrophobia—a dread of water—rabies in dogs and other animals (with perhaps the exception of the horse, but this is very doubtful) is not characterized by any aversion to water—there is usually a great thirst and an urgent desire to quench it, and rabid dogs are not only seen thrusting their muzzle into pools of water but also licking the stones, iron, or other cold substances to pro-

mote the same object. The dread of water in man when under this disease, and the spasms consequent upon the endeavour to drink, has been attributed to the increased sensibility of the parts about the throat under inflammation, but we see in the case just related that no inflammation existed, that the tongue, pharynx, and adjoining parts presented no evidences whatever of that condition either during life or any, even the slightest traces of increased action, after death. Besides, it is not necessary that the fluid should be applied to those parts to produce these effects, for as in the case of Porter, that lately occurred in this Hospital, the very idea of drinking was to him as bad as the act itself. It has been attributed to the extreme sensibility of the larynx in the human species, fitted as this organ is to express every variety of emotion and passion. In drinking the *epiglottis* closes the *glottis*, and the application of fluid to this part has been stated as a reason; the same objections apply to this case as to the former. We must therefore refer this remarkable symptom to the condition of the nervous system.

George Grindley it seems must have been bitten between the 21st and 28th September, and his hydrophobic symptoms commenced on the 18th of November, in this respect corresponding with the period at which most commonly the disease occurs after the bite. In the majority of cases, the disease manifests itself within two months. Dr. Hamilton constructed a table (which I am at present engaged in extending, and the result of which I shall lay before you at a future time) from which it appears that the disease seldom appears before the 19th day or after the 18th month. In one hundred and thirty one cases the number from the 18th to the 30th day are only seventeen; from the 30th to the 59th, sixty three; from 2 to 3 months, twenty three; from 3 to 4 months, nine; 5 months, two; 5 months and 11 days, one; 6 months, one; 7 months, one; 8 months, two; between 8 and 9 months, one; 9 months, two; 11 months, one; 14 months, one; 18 months, two; 19 months, one; which perhaps is, of well authenticated cases, the longest period known. All stated to have occurred beyond this time are probably fabulous, or not depending upon the bite to which they have been referred. The ancients generally ascribed forty days as the time at which the disease would become apparent, and subsequent observation has con-

firmed the remark. It is not improbable but that the disease may be hastened in its progress by exposure to the cold or other causes; it however appears to be necessary that the poison should lie dormant a certain time to be fitted to exercise its virulent effects, and there are instances on record by a celebrated Italian Physician, Dr. Cocchi, in which the Small Pox has been known to occur and to go through its progress in persons who had been bitten, and who have afterwards fallen victims to the disease. So that here we have an instance of a morbid animal poison being taken into the system through the absorbent vessels—that very set of vessels by which the poison of a rabid animal is most probably conveyed, giving rise to its peculiar disease, going through all its stages, the frame recovering from the attack, and the nature of the rabid poison remaining still unchanged, until a sufficient period had elapsed to mature its poisonous qualities, and then break forth with all its characteristic violence and disorder.

You are aware, Gentlemen, that there are two opinions as to the *modus agendi* of this poison: one, by irritation communicated directly to the nervous system, the other as affecting that system mediately through the absorbents. Each of these opinions has its supporters, and among both ranks are to be found men most eminent in their profession. Without going now into an examination of these doctrines, I may perhaps be permitted to observe that I am disposed to lean to that which attributes it to absorption, and I think this is very much favoured by what I have already stated, and the character of the very first symptom by which the disorder usually presents itself—it is an irritation or inflammation of the part at which the bite has been inflicted; an inflammation which proceeds in the course of the absorbent vessels either along the arm or up the leg, or from the part whereon the injury may have been sustained, and a feeling of pain and uneasiness in the parts. This symptom, however, could not be traced in the case of Grindley, but it was in that of Porter. No appearance of irritation could be observed in the hand of the former, though it must be remembered I had not an opportunity of examining it until the third day of the disease. This remark leads me to tell you, that in the majority of cases the disease proves fatal within forty eight hours of the attack; but there are cases

of much longer duration on record, and the case of Grindley is an addition to the number. Grindley's aversion to water was not so strongly marked as usual; but his inability to drink was excessive, and the modes he adopted to endeavour to overcome this dreadful state cannot but have made a strong impression upon your minds.

Various organs of sense have appeared to be rendered more exquisitely sensible under this disease in different cases. The intolerance of light has been noticed by several authors, particularly by Dr. Mead, who mentions the case of a girl who could not endure the light even when her eyelids were closed, and was therefore obliged to lie with her head under the bed clothes. The uneasiness created upon beholding mirrors, and shining substances are of too common occurrence to need further reference on this subject. The most striking symptom in Grindley's case was his extreme sensibility to air. The sense of feeling was here the organ affected, and not a breath of air, however minute, however delicate, when directed upon him, but threw him into convulsions. It brought to my mind a case I saw several years since with my late friend Dr. Powell, at St. Bartholomew's Hospital, in which this same exquisite sensibility existed and in so high a degree that the mere transit of a fly across the face, without coming into contact with the skin, was a sufficient cause for producing a paroxysm.

The appearances on dissection in the cases of Grindley and Porter, will be seen to be widely different—a comparison of these and a collation of other *post mortem* examinations recorded by various practitioners merit your attention. In Grindley's case the contracted state of the stomach and of the colon, satisfactorily accounts for the manner in which the emetic passed through him—the contraction of the colon and rectum explains the difficulty experienced in the retention of the injections, and the condition of the bladder is explained by its contiguity to the rectum and the state of the organ during the disease.

With respect to the Treatment:—You are aware Gentlemen, from the Lectures that have already been delivered on this subject in the Medical School attached to this Hospital, of the various, the almost infinitely various means that have been employed, and you are also aware that there is no well authenticated case of cure upon

record. We have yet to seek a remedy for Hydrophobia. I am not one of those who despair of ever accomplishing an object so desirable and so devoutly to be wished for. The disease appears to me to be chiefly of an inflammatory character; but it is not an ordinary inflammation, it is a specific inflammation, and therefore probably requires a specific mode of treatment. The natives of India have their remedies for the bites of venomous serpents and poisonous reptiles, and although the analogy may not hold good between these cases and those of Hydrophobia, the one being a natural and healthy secretion of the animal, having poisonous qualities when applied to any other species than that by which it is formed; the other a natural secretion rendered morbid under particular states of disease; yet it is not perhaps presuming too much to hope that future researches may enable us to attain an equally favourable result.

I must now say a few words as to the mode of treatment adopted in the cases of Grindley and Porter, as some misconception has gone abroad on the matter. I have been represented as holding out Tobacco as a *remedy* for Hydrophobia. I have done no such thing; neither am I very sanguine as to its *curative* powers; but I do not think that it has yet had a fair trial. Twenty six years since my excellent friend Dr. Clutterbuck had a case of Hydrophobia in a delicate child, to whom in an advanced state of the disease, an injection of tobacco was administered, with the view of allaying the violent spasms operating upon the muscular system. It was followed by a tranquillity extending so far as to procure sleep for three hours; the practice was not persisted in and the child died. This case made a strong impression on my mind and I determined to employ this remedial agent whenever an opportunity should offer. Although I have seen five cases since that time, I had not the means of using the tobacco until the case of Porter at this Hospital; but surely no one will consider his case as one in which the efficacy of any remedy whatever could be satisfactorily tried and ascertained. He was far advanced in the disease—he was a man who had led an irregular life—whose constitution was broken down—whose body had been saturated with mercury—who had made three voyages to the East Indies—and returned to this country in a state of destitution, which compelled him to gain the means of

subsistence by selling fruit and ginger beer in the galleries of a theatre ; besides dissection proved, that he had ossification of the valves of the aorta and a large effusion in the cavity of the pleura. He was therefore a person likely to die suddenly under any circumstances without the super-addition of hydrophobia or any other violent disease. In the case of Grindley, with the exception of the manifestations of strumous disposition afforded by the condition of the glands at the cardia and pylorus, the state of the tonsils, the mesenteric glands and the pancreas, he was in other respects a healthy person ; but the disease first shewed itself on the Tuesday morning, and it was not before three o'clock on the succeeding Thursday, that the means were used—a period had therefore elapsed before the employment of any remedial agent, beyond that in which life is usually maintained under the influence of this dreadful malady. My view in suggesting the use of tobacco is to produce a prostration of strength without an abstraction of the vital fluid, and to subdue the violence of the spasm. We all know and have daily opportunities of witnessing the effects of this powerful narcotic on the human system, and it is certainly calculated to promote this end. I wish that it could be employed at the outset of the symptoms for from what I have seen of its effects, I do not hesitate to aver that it has in all the cases, produced tranquillity and an alleviation of the symptoms ; that which palliates is likely to arrest the progress of a disease—to obtain time for the use of any other means in a disease so rapidly proving fatal, is no trifling circumstance, and with this impression I submit it to the consideration of my professional brethren.

But Gentlemen, although we have no remedy to offer for the cure of this disease, we must not fail to remember that we have almost always a certainty of being able to prevent it, and culpable, deeply culpable indeed is he who neglects to do that which is so likely to place any individual who has been so unfortunate as to be bitten, in a state of security against the invasion of so intractable and hitherto incurable a disorder. Excision is the means to which I allude, and I must here caution you Gentlemen, as to the mode and manner in which this is to be performed. We are all too apt in the hurry of professional avocations to hasten any operation, particularly that in which a fellow creature is suffering pain ; but your vigi-

lance in most completely eradicating the whole of the bitten part, must not be allowed to slumber; extensive ablution of the parts in the first instance is necessary, and this is to be followed by making an elliptical incision including the entire bitten portion, and I would recommend as a test of the complete performance of the operation, the examination of the part cut out, to perceive whether any opening whatever can be detected at the bottom of it; if any point appear, you may be satisfied that you have not gone sufficiently deep and your operation must be extended. Where so much is at stake as the safety of a fellow creature, you cannot be too cautious; and I am induced in the majority of cases to recommend and to practise in addition to the excision of the parts, an application also of caustic, either the *kali purum* or *nitrate of silver*; these form eschars sufficiently deep to include all the parts to which it is probable the virus may have been applied, and their removal will ensure the eradication of the poison.

The human species is fortunately less susceptible of infection from the rabid poison than the brute creation. We have the authority of the celebrated John Hunter, an observer of the animal economy in health and disease, whose accuracy no one will venture to question, that a rabid dog bit four dogs and twelve human beings, that of these all the dogs died rabid and the human species escaped the infection. It is desirable however that excision should never be neglected, and the sooner it is performed the better; though I believe that security will be afforded by the removal of the bitten parts at any period between the infliction of the bite and the occurrence of the first symptoms of hydrophobia. A case in point upon this matter related to me by my friend Mr. Saumarez, who formerly practised very extensively in the neighbourhood of London, is of exceeding interest and importance, and may serve to give consolation to many labouring under an apprehension as to this disease. A grandmother, mother, and three children, were lying in bed, covered with but a small quantity of clothing, when a strange dog entered the bedroom and wounded the whole of them. The animal escaped, and no attention was paid to the circumstance until the grandmother at about five weeks from the bite, became hydrophobic and died. Mr. Saumarez made enquiry into the case and

learning the particulars of the injury to the mother and three children, recommended that the parts at which the bites had been made should be excised; to this the sufferers readily assented, and the marks were sufficiently obvious to direct Mr. Saumarez in his operations. They all escaped the disease, and at the time Mr. Saumarez communicated to me this interesting case, two years had elapsed, and they were all living.

With these remarks, I shall close the present lecture, and beg again and again to impress upon the minds of my pupils, the necessity of performing excision in all suspected cases, and doing that in the most careful and perfect manner, never forgetting the heavy responsibility which attaches to them for any neglect upon this head.

CASE OF THOMAS PORTER.

[Extracted from the Case Book of the Hospital.]

“ THOMAS PORTER, Æt. 47. Residing at No. 10, Denzell Street, St. Clements. Admitted into the Hospital under the care of Dr. Golding, October 21st. 1834, he having applied for relief as an Out-patient to Dr. Chowne this day at two o'clock. He states that about five weeks since he was bitten by a strange cat in four or five places on the left hand whilst endeavouring to turn it out of the English Opera House.

“ He thought nothing serious of it at the time but applied some spirits and some salt to the wounds. The hand becoming painful and swollen, he went to a medical man who applied some simple dressing to the parts, and told him it would do well. The hand continued uneasy and from that time has never been free from pain. In a fortnight the wounds healed. On Saturday the 18th whilst at the English Opera House, where he sold fruit, &c. he felt uneasy, went home, and passed a restless night. In the morning (19th) he arose, eat and drank his breakfast pretty well; between twelve and one, he attempted to drink some Ginger beer but found great difficulty in so doing, was obliged to make many gulps in order to swallow it; he afterwards took his tea, went to bed early, where his sleep was disturbed, rose about nine, (20th) took his meals that day, but had very little appetite.

“ (21st) At breakfast this morning, found he could not put the cup to his mouth; after a few hours, came to the Hospital, complained of numbness in the fingers and a rheumatic kind of pain extending from the bites he shewed on the left hand made by the cat up the arm to the axilla; thought it to be rheumatism, to which he was subject, had some difficulty in speaking, and seemed short of breath; said he could not swallow very well. He was requested to drink a glass of water; he readily took it, but immediately before it touched his lips a spasm of the muscles of the throat took place—he averted his face, essayed to do it once or twice but failed and immediately put down the glass. Water being poured from one vessel to another produced these spasms though not so violently—

some was poured upon his hands, this caused a horror, shuddering, and more spasms. Admitted as an In-patient about half-past two o'clock. With much convulsive effort he washed his face and hands, a puff of air upon the back of his neck caused a renewal of the spasms, but still more violently if blown, however gently, upon the face; any attempt to take a pinch of snuff, to which he was accustomed and for which he was anxious, produced the same effect. Any thing cold applied to the neck caused it, but not so violently—a looking glass did not affect him. He manifested extreme sensitiveness to cold, even the moving of the bed clothes increased it. Bowels not moved to day, but had been freely acted upon yesterday by some medicine taken of his own accord. Pulse frequently varying from 70 to 90 and rather feeble. Tongue palish and slightly furred. Urine high-coloured, sparing, and no sediment. He has had but little thirst, no head ache, no fever, and does not feel constitutionally ill. Mustard cataplasm applied to the pit of the stomach and a $\frac{1}{4}$ of a grain of strychnia directed to be given every third hour. A consultation of the Medical Officers summoned for eight o'clock in the evening. Poultice taken off in half an hour and dressed with ung. sabinæ. Took the strychnia in the form of a pill pretty well and a piece of sponge cake after it; has with difficulty taken some rice and milk in the form of pulp—has a great dread when water is mentioned and can scarcely speak, the spasms interfering. He has boldly dashed two or three fingers into water and rapidly drawn them through his mouth, and this he has repeated twice or thrice, but it is evidently a very disagreeable effort to him. At eight, P. M. a consultation of all the Medical and Surgical Officers was held agreeably to the summons for that hour, when it was determined to proceed with the strychnia, to apply a mustard poultice along the course of the spine; and an enema of infusion of tobacco during the night should the symptoms increase. At ten P. M. he took his third pill, and ate some apple for which he had asked—he continued much in the same state till one A. M. when he took another pill and some cake—from this time he continued getting worse. He fancied the cake came back and stuck in his throat. He coughed and spat forcibly, tried to bring it up, violent paroxysms followed, one immediately after the other; the mouth was thrown open, the eyes staring, the chin elevated, the head thrown back, and an expression of extreme anxiety and terror was depicted in his countenance. He remarked 'this complaint is something more than cold and rheumatism, I have had rheumatism before on board a ship.' Bowels were now moved. At four A. M. he took another pill (the 5th); from this time his symptoms became worse and the paroxysms more urgent. He gnashed his teeth, grasped the bed clothes over his knees, he being in a sitting posture—his words were articulated with difficulty and with spasmodic efforts, and he seemed in a much worse state than he had been at any previous time. His urine came away involuntarily, the skin was

bedewed with a cold sweat, and the pulse too quick to be counted. At twenty minutes to six a quarter of a pint of the infusion of tobacco, consisting of that quantity of water with 5 grs. of the tobacco, was used as an enema, and produced an almost instant effect. He became tranquil, and had an evacuation of a very dark colour. The pulse 76 and regular—the skin moist. He continued in this tranquil state until near eight o'clock, when the sight of a plate of toast (and being spoken to by a stranger) immediately occasioned a renewal of the violent paroxysms. He then put some orange to his mouth, and afterwards fancied some pips were sticking in his throat; an enema containing 15 grains of tobacco, infused in three quarters of a pint of water, was employed—the pulse at the time was too quick to be counted. Three minutes after the enema was administered, a profuse perspiration came over the whole body; in five minutes afterwards the pulse became fuller and softer, beating 96, and he became more composed: this was followed by a sensation of faintness—hands and feet cold and clammy, and muscles relaxed, throws off a viscid saliva very violently and suddenly; ten minutes before nine pulse 72, more feeble, faintness increased. In a short time the paroxysms returned. At nine the spasms were very violent, tossing about from side to side, and the forcible spitting of saliva incessant. Any attempt to recline on his back produced immediate spasmodic action (seemingly of the diaphragm), and a starting up into a sitting posture—skin covered with a cold sweat, countenance dark, and of a purplish red, lips livid, makes constant and violent, but ineffectual attempts to vomit—pulse tremulous, thread like, almost countless, and scarcely perceptible; tongue furred and brownish—the saliva streaked with blood, the latter probably arising from the violent gnashings of the teeth and gums, constant desire to blow his nose, but is unable to do it: thinks he has a stoppage in his nose, which if removed would relieve him. Reason perfectly undisturbed, and has at no time seemed impaired. Attempts to sneeze by forcing air through his nose, from which there is a great discharge of mucus. Declines taking any drink, but is willing to take a piece of toast, of which he has convulsively snapped off with his teeth a good sized mouthful. Half past ten o'clock, colour of the face becoming paler, he seems gradually getting easier. Eleven o'clock the paroxysms have somewhat subsided—occasionally has a sensation as though he was putting his finger down his throat: has had another evacuation. Twelve o'clock symptoms still abating—colour of his countenance almost natural; perspiration still profuse, pulse scarcely perceptible. At one P. M. expressed a great desire to have some porter, and wished to have it in a pewter pot: the request was complied with, and after several vain efforts, and with a little assistance, he succeeded in getting some into his mouth, but soon expelled it forcibly. At half past one rather excited by seeing his relations, whom he had desired to be sent for, particularly his father; upon shaking hands

with his brothers he exclaimed cheerfully and encouragingly, 'Come nearer, I hope you are not afraid of me.' A consultation of the professional officers being now held, it was determined, from the above report, that the strychnia, which had been discontinued upon the employment of the enemata, should not be resumed; but that an enema of 5 grs. of tobacco should be administered, provided the symptoms again recurred with violence. At two o'clock P. M.—has swallowed about a table-spoonful of porter and retained it, his head being at his own request held at the back. A slight paroxysm occasionally, and he expectorates without the effort of vomiting. Pulse 152, very feeble. At a quarter to three—has swallowed rather more than a table-spoonful of porter, and with less effort than previously, his head and partly his neck resting on the pillow—pulse 125, very feeble. At three P. M. fancies he is going to be removed from the hospital, and expresses his gratitude on being assured to the contrary. At a quarter to four asked for a pen, ink, and paper—began to write a letter; he wrote the word Mary—the letter M with great steadiness, but the remaining letters were written with great rapidity, and in the most hurried manner, and could proceed no further—will attempt it again presently; cannot expectorate quite so freely—thinks it is owing to the porter—wishes for some tea. At a quarter after four pulse upwards of 150, indistinct, apparently intermitting; in other respects—prostration of strength by no means extreme—expectoration less viscid—every inspiration attended with more or less spasm of the muscles of the throat near the base of the tongue—says his throat feels inflamed—talking is still as distressing as it has been throughout the whole attack—thirst by no means extreme, nor the tongue dry, but says, 'He should like to drink were it not for the spasms.' At a quarter to five perspiration subsiding—feet and hands cold; the other parts of the body warm: says to think of water or air is almost as bad as attempting to drink or to be blown upon. At five o'clock expresses himself as being much easier and better, and seems in every respect more tranquil. When he attempts to drink he puts his head in such a position, as should admit of the fluid running down the throat, almost as it were by its own gravity—thus hoping to avoid as much as he is able using the muscles of deglutition. At a quarter past five had about two table-spoonfuls more of tea. At twenty minutes past five—his mother-in-law came into the room—he said, 'I feel a tightness across the chest'—slightly groaned and expired.

Although the feeble state of the pulse, and the diminished force of the spasms, which now allowed him to recline on his back, and to drink liquids in small quantities, suggested the probability that the patient could not survive many hours, yet, neither his countenance, his voice, nor his gestures manifested so near an approach of death.

But a few minutes before he expired he moved himself as occasion required with energy about his bed, smoothed the clothes,

and talked manfully, sensibly, and with comparative cheerfulness—expressed himself as being much better, and very grateful for the attention and comforts which he said were afforded him, and for the permission of the unrestrained visits of his relations whenever he might desire to see them. It was obvious, however, that his efforts to restrain the spasms were great; these continued in the muscles of the throat, and were seen at *every inspiration, however small*, so that he restrained from breathing as much as he was able. Every movement in which the exercise of the diaphragm was excited seemed invariably to increase the spasms, and although these he said were not in themselves excessively painful, yet the fatigue they occasioned, and the sense of dragging from the pit of the stomach to the loins, in the direction of the diaphragm, were very distressing, in preventing the free inspiration of air, and increasing the difficulty of talking.

“To shew the very extraordinary effect of air upon the face in producing the spasm and aggravating the distress, he was blown upon with extreme gentleness by the physician who stood upwards of four feet from him—he threw himself to the opposite side of the bed, over which he averted his head, and exclaimed that the wind was powerful enough to move a 74 gun ship. His efforts to draw in air resembled the gasping of a person in the act of being immersed in water, or a child when air is blown forcibly into its face.

Post Mortem Examination—Twenty hours after death.

“The body appeared to be more rigid than usual, and a very dark appearance of the muscles was observable through the skin. Putrefaction had not made more progress than ordinary. Upon the skin being raised, every muscle of the body appeared of the deepest crimson hue, and overcharged with blood, and most of the viscera—the liver, the spleen, lungs, and kidneys were of the same colour and condition. With the exception of some coagula in the ventricles, the blood was uncoagulated in every part of the body, and in the larger arteries was found staining their inner surfaces.

“The *Arm* being examined, a point of discolouration resembling the ecchymosis resulting from a leech-bite was observable under the skin on the thumb of the left hand—from this evidence of the bite of the cat, the nerves were traced up the arm to the axilla, and found to be quite healthy in appearance; a small twig under one of the discoloured points was thought to be greatly reddened, but it could hardly be considered as evidence of the inflammation of the part.

“*Head*—The *dura mater* had strong adhesions to the calvarium, and the membrane shewed more vascularity than ordinary. Between the tunica arachnoides, and the pia mater there was some effusion; and minute portions of coagulable lymph were floating in it. In

certain parts the tunica arachnoides was opaque—the vessels of the pia mater were full of blood; upon cutting into the hemispheres of the brain, the vessels were more conspicuous than usual, the bloody points appearing very numerous; the lateral ventricles contained about $3\frac{1}{2}$ oz. of fluid, and the substance of the brain was in general of a soft consistence. At the base of the brain the investing membranes over the *Pons Varolii* and *Medulla Oblongata* were highly injected, and of a bright red colour, they adhered with great firmness to the parts they immediately covered, but these parts when cut into were quite healthy in their appearance. The membranes investing the origins of the 8th and 9th pairs of nerves were gorged with blood.

“*Spinal Chord*.—Within the theca of the *Medulla Spinalis*, there was as usual a small quantity of fluid observed, the chord was removed from the canal, and was found unaltered in its appearance, but the vessels seemed fuller than ordinary.

“*Mouth and Fauces*.—The papillæ of the tongue were much enlarged. The mucous membrane covering the frænum was healthy, with the exception of a few glandular enlargements. The salivary glands presented nothing remarkable. No ulcerations on any part of the mucous membrane of the mouth. The upper part of the pharynx slightly inflamed. The œsophagus presented several white millet seed like glandular enlargements, and was of a blueish colour.

“*Abdomen*.—The stomach contained a little mucus; it was considerably inflamed near its cardiac extremity, and at the lower part of its smaller end the surface was abraded. This did not appear to have arisen from the action of the gastric juice, for the vessels were distinctly visible, ramifying minutely at this spot. The *duodenum* was strongly tinged with bile, and slightly inflamed. The *jejunum* was inflamed, but the remainder of the small intestines and the larger ones were quite healthy. The *liver* was indurated—granular in its appearance, and had adhesions to the diaphragm—none of these appearances could be regarded as recent. The *gall-bladder* was full, and its ducts pervious. The *spleen* was enlarged and gorged with blood. The *kidneys* were more injected with blood than usual, and vessels were observable ramifying on the pelvis of them. The *bladder* was found strongly contracted.

“*Neck and Thorax*—The *trachea* was inflamed, particularly between the rings; a similar condition was found to exist in the bronchiæ and their termination. The *pleura* was healthy, but contained a pint of fluid. The *lungs* were gorged with serum, and blood and sputa. In the bronchial plexus of nerves there appeared no change. The substance of the *heart* was softer than natural, and the right side contained several coagula. The left auricle was of a deeper colour than the left. The *aorta* appeared of an uniformly high red colour, which increased in depth as it approached nearer the heart.

"This part, it should be remarked, could not be examined till the following day, and it had been put into water for some hours before its minute examination, when the serous membrane on its inner surface appeared of the high red colour mentioned; but this was an appearance that did not exist before it was removed from the body, and is therefore probably attributable to the fluid nature of the blood which was found in an abundant quantity in the arteries. At the arch of the aorta, and in the centre valve at the origin of that vessel, there were depositions of bony matter. The *pulmonary artery* was of even a deeper hue than the aorta, and probably arising from the same cause, for, upon examining these parts by the aid of a lens of considerable power, no vessels could be detected upon the coloured surface.

"The *great sympathetic nerves* and the plexuses in the abdomen were minutely examined, but presented no morbid appearance."

* * Mr. PETTIGREW has been engaged for some time past in collecting and arranging materials to form a concise but complete History of Rabies in the Dog and other Animals, and of Hydrophobia in the Human Species. He will feel obliged by the communication of any facts or experiments that have been made in any of the branches relating to this subject, so interesting to humanity and important to Medical Science.

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