





HYDROPHOBIA: ²⁶⁹
S. L.

ITS ORIGIN AND DEVELOPMENT,
^{280.}

AS INFLUENCED BY

CLIMATE, SEASON, AND OTHER CIRCUMSTANCES.

BEING THE

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REPORT OF THE SPECIAL COMMITTEE

APPOINTED BY

THE AMERICAN MEDICAL ASSOCIATION, AND READ AT THE MEETING IN DETROIT,
MICHIGAN, MAY, 1856.

✓ BY

THOS. W. BLATCHFORD, A. M., M. D.
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“Resolved, That the Secretary transmit to the Governor of each State a copy of the statistical part of this Report, with the respectful request that he would bring the subject before the Legislature of the State over which he presides, that in their wisdom they may devise and adopt a plan by which the evil may be mitigated, if not removed.”—*Proceedings*, p. 25.

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REPORT ON HYDROPHOBIA.

It will be remembered that, at the meeting of this Association in St. Louis in 1854, a communication was read from a gentleman of New York on the subject of hydrophobia, touching the popular belief in sidereal influence or hot weather as a predisposing cause of rabies canina; that a committee was appointed to collect facts and report to a subsequent meeting. At the meeting in Philadelphia a report in part was read, but, inasmuch as the facts collected were so few, the committee at their own request were continued. We propose, therefore, at this meeting to report the result of our labors.

Since the last meeting of this Association, circulars inviting the necessary information have been extensively distributed, but your Committee are sorry to say the response has been but feeble. If your Committee could feel satisfied that want of material was the cause of silence, they certainly should not regret that the answers have been "few and far between." But we judge it to be otherwise, or else the periodical press is raising unfounded notes of alarm.¹

A large proportion of the cases herewith presented have been obtained by personal application to individuals whose names were made public as connected with their occurrence. But notwithstanding the general backwardness of our professional brethren to forward communications, your Committee believe they are enabled to present a larger collection of cases of this terrible disease than has ever before been presented to the American public especially at any one time. Some of them will be found of exceeding interest apart from their scientific importance. The Committee, it will be perceived, have confined their inquiries to cases occurring only on this continent, and mostly to those affecting the human subject.

¹ "One hundred deer in Stainborough Park, England, have died this spring of hydrophobia."—*Boston Post*, 1st May.

The main object of our inquiry has been to ascertain, if possible, whether hydrophobia prevails more at one season of the year than at another; whether the community is more in danger from the bite of rabid animals in hot weather and during "dog days," than during the colder months of the year; the proof, therefore, of the existence of rabies canina in any place and at any time is what we seek; and whether the virus is communicated to man or brute, the fact is equally apropos to the task assigned us, though not of equal importance to the community where it exists. We have confined our inquiries to the United States, because we thought the facts elicited would make a deeper impression upon the public mind the nearer they come to our own firesides, and because, as we shall see by and by, the investigation has already been undertaken in Europe, and the results given to the public.

Hydrophobia, or rabies, seems, from the earliest records of the disease, to have been regarded as originating in the dog, or animals of the same genus; and hence the disease in the human subject was called *canine* madness by English writers; and, although the disastrous effects of the bite of the dog have been observed for a period of more than two thousand years, and are so obvious as to have been almost universally admitted, the reasons why the *dog* especially should be capable of originating or developing the disease, have always been, and still are, subjects of doubt and speculation; and hypotheses have been framed as various and conflicting as the causes to which the disease has been attributed, and as unsatisfactory as the various unsuccessful means that have hitherto been proposed for its cure.

The principal causes to which the origin of rabies has been ascribed, or which have been supposed to favor the development of the disease in *dogs*, are want of food, or extreme hunger; want of water, or violent thirst; putrid food; drinking stagnant water; climate; particular seasons of the year; intemperature of the weather, as the extreme rigor of winter, or the immoderate heat of summer; and, in combination with the latter, *especially* a certain mysterious influence which Sirius, the dog star, is supposed to exert over the canine race. It is scarcely credible that such different and opposing causes should produce the same results without the co-operation of some other circumstances. The prevalent opinion seems to be, that the fiery dog star, who is in the ascendant in the northern hemisphere during the heat of summer, not only predisposes *dogs* more than other animals to become rabid, but that he

also gives intensity to the heat of the atmosphere, which, with the putrid or putrescent food and drink, or rather want of drink, excites a fever in his system, and infuriates him to madness. Although this sidereal fancy is not endorsed by any medical authority, several authors assert and maintain the thermal hypothesis, and both appear specious and plausible from the fact of their concurrence with most of the other alleged causes of rabies.

On the other hand, it is maintained by Le Roux and others that rabies prevails most during the coldest weather of the winter season, when, they say, wolves become mad from hunger and want of prey, on account of the deep snows, as well as from thirst, in consequence of the springs and streams being frozen over. Others, among whom are Boissier and Sauvages, assert that the disease occurs most frequently under *both* extremes of temperature of winter and summer; while a fourth class, among whom is Andry, maintain with equal confidence, as the result of *their* observation, that "the months of January (the coldest) and August (the hottest) of the year offer the fewest cases of this disease," and that it is "during March and April there are most mad wolves, and that during the months of May and September the greatest number of dogs are afflicted with madness."

The disease is of frequent occurrence in France and Northern Europe, as well as in the Northern States of this Union. On the continent of Europe especially is it so, as will appear from the following curious statistical table of its ravages in Prussia: In 1810, there were 104 deaths from hydrophobia in that kingdom; 1811, 117; 1812, 101; 1813, 85; 1814, 127; 1815, 79; 1816, 201; 1817, 228; 1818, 260; 1819, 356. Total, 1658. (*Edinburgh Med. and Surg. Jour.*, 1824.) This considerably exceeds the number of authenticated cases known to have been put on record throughout the world when Dr. Hamilton wrote his book in 1798. The deaths were most frequent in the Provinces of Marienwerder (228) and Bromberg (162). In Breslau it was 90; in Opplu, 53; in Trier, 46; in Aachen, 58. On the contrary, not a single case occurred in Stralsund, and it was rare (5) in Dusseldorf and in several other places. Hufeland observes that those provinces in which it is most abundant are contiguous to forests containing wolves, to the forests of Ardennes, of Russia, and of Poland. Hydrophobia is very rare in Sweden. In England and in this country, it seems to occur most frequently in cold or mild weather. Dr. Mease says: "During several hard winter months within my remembrance in this city

(Philadelphia), dogs very commonly went mad. This was particularly the case in that of the year 1779–80, when more of those animals perished by the disease than for a long time before. Throughout Maryland, I am informed on very good authority, it was still more general." "In the winter of 1807," says Dr. Lipscombe, "canine madness raged epidemically at Dover (England) and some of the neighboring towns;" and "three men" are reported by Dr. Haygarth, of Chester, as having "died of hydrophobia at Wrexham, North Wales, in the *autumn* of 1778, and spread great alarm." Dr. White, of St. Edmundsburg, writes to Dr. Lettsom, under date of June 4th, 1792, as follows: "In the last nine months, this part of the country has been terribly infested with mad dogs, during which time it has been my misfortune to be applied to by several persons who have been bitten. Seven of these miserable objects were bitten by dogs. * * * Three others were bitten by a *cow* that had the hydrophobia. All of these except two had the injured parts wholly dissected out three days after the bite, the wounds well washed first with cold and then with warm water, and the surfaces touched with lunar caustic. One of the excepted two was bitten in the palm, and on the back of the hand; as much of the wounded part as could be with safety was removed, and the process of ablution continued for two hours. In the other instance, the tooth of the cow had penetrated the end of the finger, on which account I thought myself warranted to deprive the patient of the first joint. I was also consulted about a foal bitten by a mad dog about five days previously through the wing of the left nostril; the wounded part was cut out, and no other means were used. The animal remained well, while a horse, and cow, and two pigs, bitten by the same dog on the same day, to which internal remedies only were administered, all died within the month. * * * Two persons on whom excision and ablution had not been performed, and to whom medicine of false repute had been given, fell wretched victims to their credulity." (See appendix to *Essay on Hydrophobia*, by James Mease, M. D.)

This letter shows that during nine months, embracing autumn, winter, and spring, and excluding summer, with "dog days," there were at least seven mad dogs, *probably* more, one mad cow, and two rabid human beings in that part of the country during that period, all of whom died. It shows also the importance and *probable* efficacy of *excision* and thorough ablution of the wound several days

after inoculation, of which additional examples will be given in another place.

Rabies seems to be a rare disease in tropical climates.¹ Savary says: "The disease is not known in the Island of Cyprus, or Syria bordering on the sea;" "nor is it ever seen in Egypt," says Volney, which is confirmed by Larrey in his work on military surgery (vol. ii. p. 226, French edition). Prosper Alpinus, who resided in Egypt three years, as physician to the Venetian consul, says the same thing. Dr. Barrow says: "It is extremely rare at the Cape of Good Hope, and in the interior of Caffraria." According to Dr. Mosely, the disease is unknown in the Island of Antigua, and Drs. Hamilton and Mosely both state that "there was not a single case in Jamaica for a period of fifty years previous to 1783." Dr. Thomas, too, who also lived in the West Indies a long time, never saw a case, or heard it spoken of while there. It is the testimony of a number of travellers that in all India, although dogs are quite numerous, the disease *was* equally rare; we say it *was*, for Dr. Daniel Johnson says that rabies is *now* very common there. This apparent immunity from the disease in some tropical countries may, at first view, seem to be the effect of *climate*. That such is not the case, however, is probable from the fact that that disease has, in several instances, originated, or been developed there, and when existing has spread as readily by inoculation as elsewhere. Such was the case in India, as stated by Dr. Johnson, and also in the Island of Crete, where the disease was formerly of frequent occurrence. The prevalence of rabies in Crete was the consequence of a peculiar occupation of the island. The inhabitants were dog-fanciers. They had many choice varieties of the animal, the breeding and sale of which for exportation were a source of considerable revenue. From the very nature of the case, dogs were very numerous and well fed. Dog-fights, of course, must have been very common, and the disease was probably produced, as it is in all other countries, independent of climate.

Although statistics of rabies go to show that, contrary to popular prejudice, it occurs most frequently in cold countries, and during autumn, winter, and spring, still it appears that of the whole number of cases that occur out of the tropics, during the year, *nearly* an equal proportion occur during each month of the year, from which it may be inferred that the appearance and prevalence of the disease, at particular seasons, and in certain localities or regions, are

¹ See Dr. Green's testimony in Case 102.

accidental, and in no way connected with, or produced by, any thermal or sidereal influence.

Allied to the hypothesis just considered is that of the spontaneous development of rabies by "some peculiar influence of the air." It was maintained by Boerhaave, and subsequently by Lipscombe, and Mosely. The latter says: "It generated the canine madness in the year 1783, in the West Indies, for it was general, and many dogs were seized with it, that had no communication with others, and some dogs which were brought from Europe and North America, and that were not on shore, went mad on their arrival in the harbors of the islands." But Dr. Hamilton says: "The dogs from the United States communicated the disease to those on the islands." In view of this solitary instance, as far as we know, in favor of the peculiar influence of the air, and *that* positively contradicted by equally, if not more reliable authority, and the probability of the dogs on board of the ships having been bitten before they were shipped, and had the disease in a state of incubation, ready to break out on their arrival there; and also the probability of intercourse between those on shipboard with those on shore; the agency of such an impalpable cause is not only doubtful but wholly inadmissible.

That putrid meat, or want of food and drink, never generates the disease in the dog, has been satisfactorily proved by experiments. Dogs have been confined under circumstances supposed to favor the development of rabies, and fed altogether on putrid meat, for a considerable time; or food and drink have been withheld from them, under similar confinement, so as to produce the most ravenous hunger, and violent thirst, without ever producing the disease. In accordance with the results of these experiments is the testimony of travellers that "in Constantinople, where dogs are the only scavengers, these animals, half starved and gaunt from want of food, are constantly seen about the streets devouring greedily any putrid meat they can find." "In Egypt," says Larrey, "dogs stray away into the country, and feed on the carcasses of animals that have been left unburied;" and Dr. Barrow says the same of Caffraria and other countries where rabies is scarcely known; not that dogs in those countries live entirely on flesh, but that the little flesh they get is *putrid*.

After this brief and hasty examination of the evidence for and against the generation or development of rabies, by the causes we have considered, we are driven to the humiliating acknowledg-

ment, frankly avowed by the authors of the article on rabies in the French Dictionary of the Medical Sciences, "that the true cause of the disease is not known, or very imperfectly understood."

In view of the conceded inadequacy of all the external causes we have considered, to account for the origin of the disease, and the fact that nearly every case of genuine rabies has been traced to the bite of some animal, it is fair to conclude, *it never proceeds from any other cause*. In most cases (but not in all) the disease followed the bite of animals known to be rabid, or was communicated by inoculation of the virus into an abraded surface, proving to demonstration its contagious character. The communication of a disease from one person or animal infected with it, to another, is a fact so often observed in smallpox, measles, and syphilis, as well as rabies, as no longer to excite any wonder, but is regarded as the natural consequence of the operation of the law of contagion, and therefore is not the subject of our inquiry. But, as all contagious diseases must have an origin, and as in several instances rabies has followed the bite of dogs and other animals free from the disease, such cases give most decided intimations, if not positive proof, that the germ of the disease is in these animals, and that to *them* we should direct our inquiries.

As there are several animals whose bite has been followed by rabies, a very natural suggestion is, that the germ or the faculty of exciting it to action must result from some organic or physiological peculiarity common to, and characteristic of all these animals; and such is the fact: they are all distinguished for the peculiar form of their teeth fitting them in a wonderful manner for seizing and holding their prey, and for rending and tearing flesh; they are all carnivorous, and, from a law of their being, ferocious and irascible, and it is probable that their peculiar liability to rabies consists in a *constitutional irascibility*.

The ferocity of all these animals in a state of nature is well known; that it is dependent on and modified by the food they live on, is also certain. Witness, for instance, the difference between the fierce wolf and his kin, the gentle house dog, whose temper has been mitigated and subdued by mixed aliment, or, what is to the same purpose, the well-known fact that butcher's dogs, who live almost exclusively on the refuse of the shambles, become very irascible, returning in some degree to their original savage habits, notwithstanding their domestication; while the wolf, kept in close confinement and fed upon vegetable matter, becomes tame and harmless.

(See *Godman's Nat. History*, vol. i. p. 182.) The seeming immunity from rabies in some tropical countries to which we have alluded is probably due to the nature of their food; the inhabitants themselves use very little animal food, with a large proportion of farinaceous articles and fruits, and their dogs are fed on the same aliment. In a conversation with Dr. J. B. Flint, Professor of Surgery in the Kentucky School of Medicine, he stated to a member of your committee that he spent a winter on the Island of Cuba, and the answer to his inquiries on the subject of rabies was uniformly, that dogs hardly ever become mad there, and the reason assigned was that, on account of the high price of meats, their dogs were fed exclusively on vegetable food, chiefly *mush* or cooked farinaceous plants or grains.

The temperament of the dog is one of excessive irritability; his nervous system is largely developed, and exerts an influence over all his actions; his senses of smelling and hearing are very acute and active; his brain is seldom in repose, even when asleep, as the twitchings of his legs and the sounds he utters show that he is dreaming; and most of his diseases are attended by nervous excitability ending in delirium before he dies, indicating their cerebral or spinal character.

The dog is more prone to anger than any other domesticated animal; and the watchfulness for which he is so highly valued by man, as a faithful sentinel to warn his master of the approach of burglars or assassins during the night, results probably from this irritability of his temper, as well as from the acuteness of his sense of hearing: hence he is not only aroused from his sleep by the slightest noise (for the dog sleeps much, even when he is supposed to be awake), but he also becomes highly excited with anger at the cause of his disturbance. This irascible temperament varies in degree in different species of the genus, and in different individuals of the same species, and, as has been stated, is modified by his aliment. In some dogs it is so strong that they are enraged by the most trifling cause, so that they are constantly in a state bordering on madness; affecting the *very* organs in which the virus of rabies is supposed to be generated, in such a manner as to exhibit one of the most prominent symptoms of the disease, *i. e.*, the slaver from the mouth. Under this condition of the animal organs, it certainly seems highly probable that a rabific virus capable of originating the disease may be produced. In default of a more satisfactory solution of this difficult problem, we propose, therefore, with due deference, this *constitu-*

tional irascibility of the dog as the basis of a different, and as it seems to us the true, etiology of canine madness.

The term rabies does not necessarily imply *disease*, but violent passion or strong emotion; it is synonymous with rage, fury, or anger. From the resemblance of the paroxysms of rabies to the manifestation of those passions, the disease is called by the French *la rage*, in contradistinction to hydrophobia, as a symptom often occurring in other diseases. An irascible dog or cat, enraged by a sudden provocation, bears the same relation to a rabid one that an irritable or passionate man, in a sudden tumult of anger, does to a maniac. The difference in both cases consists chiefly in the nature and permanency of the cause. In rabies and mania the causes are morbid and permanent. The rage or fury of mere passion, being excited by a sudden and transient cause, is therefore of short duration. In many cases of rabies in man, the symptoms of mental derangement are not constant, but the patient is, for most of the time, rational, except during the paroxysms and for a short time after coming out of them. If then an enraged dog exhibits so many of the symptoms of rabies, especially the viscid frothy slaver so characteristic of the disease, and which all admit contains the virus, it is reasonable to conclude that the functional condition of the organs implicated in the disease, the very organs in which it is supposed the virus is generated, is in both cases very similar, and therefore capable of generating the virus. That the bite of such an animal should be followed by rabies is a most rational conclusion, and if such be the case, it is probably the *only* way the disease ever originates. In support of such a conclusion we refer to several cases in this report. See Cases 2, 14, 23, 24, 30, 31, 34, 44, 63, 86, and also the following authors:—

1. Morgagni relates a case of rabies “occasioned by the bite of a cat that was not rabid.”

2. Doctor le Dulx, a Batavian physician, states that “in several instances hydrophobia succeeded the bite of enraged animals,” and says that “the bite of the common domestic cat rendered furious by provocation is well known to produce hydrophobia.” (*Transactions of the Batavian Society*, vol. v., quoted by Dr. White in his essay on hydrophobia.)

3. Dr. Lipscombe says: “Dogs in various states and conditions are capable of producing the disease by the inoculation of their saliva,” and “whatsoever is capable of exciting anger or agitation

seems likely to contribute to the production of rabies." (*History of Canine Madness*, page 41.)

"From a very early period it has been a common notion that the bite of an animal is very malignant when inflicted in a fit of anger." (Morgagni, *De Causis et Sed. Morb.*) In the French Dictionary of the Medical Sciences, is the case of "a child which died of rabies, the consequence of the bite of a dog which was not at the time of the bite, nor did it afterwards become, rabid." The same was the case with the dog that bit Dr. Neuman's patient, No. 63.

This view of the origin of rabies accounts for the frequency of its occurrence among wolves in the forests of Russia, and formerly in the North of France, as stated by several writers. Wolves are known to be gregarious animals, and herd together. Even in pursuit of their prey, they seldom go singly. Two or more hungry wolves, after an exciting race, overtake and capture the object of their pursuit; each one, goaded on by a greedy appetite, tries to appropriate more than his share, and they fall out over the spoils, become enraged, and in the *mêlée* bite each other, and rabies follows. It explains too the sudden appearance of the disease at particular times and in localities where it had not been known previously for a long period, as has been the case the past winter. For instance, two quarrelsome dogs engage in a fight, and become more and more enraged by the wounds mutually inflicted and received; at last they become so infuriated as to pant and foam at the mouth; from the well-known effects of the passions on the other secretions, we may well conclude that the *saliva* or *slaver* of such dogs is of a morbid character, and that their bite at such time may produce hydrophobia. There are instances of persons who, in their humane attempts to separate fighting dogs, have been bitten by them, and have afterwards died of rabies.¹ To the objection that dogs frequently fight without any such serious consequences following, it is sufficient to say that the bite of dogs *known* to be mad is only in a few instances followed by madness.

Dr. Carpenter, in his work on Physiology, relates *several* cases showing the immediate depravation of the secretions by strong emotion or passion, one of which is so apropos that we must make room for it here. "A carpenter fell into a quarrel with a soldier

¹ Instance Case 30, reported by Dr. Clark, of Woodbury, N. J., and a similar calamity resulted to a gentleman of Compton Street, London, who was bitten in the attempt to separate two fighting dogs, reported by Dr. Mosely. Indeed, most writers concur in the opinion that rabid dogs *never* fight.

billeted in his house, and was set upon by the latter with his drawn sword. The wife of the carpenter at first trembled from fear and terror, and then suddenly threw herself between the combatants, wrested the sword from the soldier's hand, broke it in pieces, and threw it away. During the tumult, some neighbors came in and separated the men. While in this state of strong excitement, the mother took up her child from the cradle, where it lay playing, and in the most perfect health; never having had a moment's illness. She gave it the breast, and in doing so sealed its fate. In a few minutes the infant left off sucking, became restless, panted, and sank dead upon its mother's bosom." (*Carpenter's Human Physiology*, p. 944.)

Although not strictly within the scope of this inquiry, it will not be out of place to notice very briefly so much of the pathology of rabies as appears to be of practical importance.

It seems to be still a question, what place rabies should occupy in a system of nosology; some consider it an inflammatory disease, while a large number, among whom are Marcet, Portal, Mease, and others, view it in the light of a *nervous affection*. M. Trollet says: "Regarded in a certain aspect, rabies should be placed among nervous diseases, especially the first symptoms; but, considered with respect to the traces which it leaves after death, it seems to be of an inflammatory nature. In effect, it presents itself at first as a manifest lesion of the function of the brain, the senses, and the nerves. But very soon a catarrhal affection of the air-passages supervenes, and finally a suffocation, and even true asphyxia." He says the salivary glands are always found in a healthy state, and hence concludes that the virus is not generated in them. From the evident symptoms of disease in the *air-passages*, and their morbid appearance on dissection, he infers the virus is generated there, and is mixed with the frothy mucus of those parts, which together constitute the slaver that propagates the disease.

The manner in which this singular virus operates, or the medium through which it produces its astonishing effects on the system, at periods differing so much in duration, in different cases, is as great a mystery as ever. The fact that the disease has been prevented by excision of the cicatrix after it had become painful, swollen, and discolored, a group of symptoms, known by the term *recrudescence*, and which is the harbinger of rabies, and always followed by the disease under any *other* treatment, is positive proof that the virus is not directly absorbed into the system. Hunter and Munro both

affirm that "the disease may be prevented by excision at any time before the occurrence of the second inflammation." Dr. Marcet recommends "excision at *any* time before the general symptoms come on." Poiteau advises "a trial of it even after rabies has come on." A man had a painful cicatrix cut out 25 days after the bite, then volatile alkali was applied to the wound and a dressing of emplastr. vesicator. The man remained well, while several animals bitten by the same dog died of rabies within five months. (*Journal Générale de Méd.*, tome xxx.) D. Blane, an English veterinary surgeon, although a believer in absorption, says: "The bitten part may be cut out at any time previous to the secondary inflammation, or at the end of one, two, or three weeks." The following is his theory: "The poison is immediately absorbed, and taken into the constitution, but remains dormant until called into action; and before it can produce any of its effects, it must raise a secondary inflammation, in the original bitten part, and unless this inflammation takes place no mischief can ever ensue. Consequently, when the bitten part has been removed, no secondary inflammation can take place." Mr. Blane, according to his own account, enjoyed rare opportunities for observation in the English metropolis, and therefore speaks with great confidence: "That it is of no consequence that the excision of the part should be immediately effected, but, as secondary inflammation may come on at any time, he advises to have it done as soon as convenient." (*Essay on Hydrophobia*, by D. Blane, Professor of Animal Medicine, London.) Mr. Blane's practice, though in conflict with his theory, is no less valuable on that account.

The application of caustics and cauteries to the cicatrix on the appearance of recrudescence, and keeping up a discharge from the part, is said also to have prevented the disease.

Dr. Mease disproved and rejected the notion of absorption, and says: "I am disposed to embrace the idea of the operation on the nerves." He believes the poison *lies dormant in the wound* for some time. And at length, in various periods in different persons, begins to show its effects on the system at large. He quotes Morgagni in support of that view, and Salius, who says "the poison is carried by the *nerves* to their origin." Drs. Percival and Vaughan hold the same opinion.

Dr. White, in the letter to Dr. Lettsom before referred to, remarks: "The first sensible mark of action is a pain in the injured part, and the consequent symptoms and sensations have a nearer rela-

tion to spasm than inflammation. The lymphatic system is not affected as it is from the insertion of variolous or any other infectious matter carried into the habit by absorption. The virus probably *lies dormant*, till the pain in the bitten part comes on, and therefore excision and ablution might afford relief at that time, and even when the patient is afflicted with hydrophobia."

Dr. Gilman says: "In the determination of the question as to the time when the extirpation of the parts infected may be performed, it is of great importance to consider whether the poison does not *always* remain in the substance where it is first diffused, until by inflammation or by some other cause a sufficient dose is generated to infect the whole system. Indeed, the notorious connection between a painful and inflamed state of the original wound, immediately preceding the constitutional symptoms, warrants the supposition, and points out the expediency of removing or destroying the parts to the last." (*Diss.* p. 109.) "The pain in the bitten part, at the time the symptoms of hydrophobia come on, is felt in the course of the nerves, and not along the absorbents." (*Dr. Marcet.*)

Contrasting the effects of the poison of smallpox and lues venerea with that of rabies, Dr. Percival remarks: "*Their* progress into the course of the circulation may be readily traced, which is not the case with the poison of a mad dog," and then asks: "Are we then fundamentally right in the idea that the bite of a rabid animal operates by absorption? Might not its effects be as well, if not better explained, by ascribing them to local nervous irritation, propagated in different periods of time, according to the varying circumstances of sensibility and irritability to the brain, and from thence to the fauces, gullet, and stomach? are not all the symptoms of the nervous or spasmodic class?"

"Many medical writers have despaired of excision unless it is employed within a few hours, and perhaps a few minutes after the wound, on the supposition that after a very short time the poison must have mingled with the blood of the bitten animals; but it is well known that the poison lies *long dormant* and inactive in the part to which it was first applied, and, therefore, it is proper to perform excision, not only before the wound is healed, but even at any period before the constitutional symptoms have commenced." (*Cases of Tetanus and Hydrophobia*, by C. H. Parry, M. D., F. R. S., London, pp. 132, 133.)

"The hydrophobic poison requires a period of incubation, and often remains long undeveloped in the nest provided for it, when at

length circumstances favor the hatching process; the new brood leaves its birth-place in the cicatrix and carries destruction into the system. A consolatory inference from this view is that, if the nidus be wholly removed before the hatching is completed, the mischief may be entirely prevented." (*Wood's Practice*, p. 757.)

These instances of and remarks on the probable success of excision after long delays, like that of repentance at the eleventh hour, while they encourage us to hope, even to the very accession of the disease, should not, however, tempt or induce us to defer the operation for a moment, but it should be performed, when practicable, as soon as possible after inoculation. If the result of our inquiry be not that of entirely correcting public opinion on this subject (and we are not vain enough to presume it will), by showing that cold weather does not afford immunity from the contagion of rabies, and that danger is by no means confined to summer, we have the satisfaction of believing that our labors will not prove altogether abortive; we feel that we have done something towards correcting it. In addition to a result so much to be desired as correct views upon a subject of such vital import, your Committee also feel no little satisfaction in being made the medium of placing upon record an amount of information regarding hydrophobia in this country, which will enable some diligent student by comparison, analysis, and arrangement to arrive at a better knowledge than we now possess of this very singular disease.

Besides those cases which your Committee have received from gentlemen, most of whom have been long and favorably known to the profession, they have received others from individuals professing to destroy the latent virus by some secret remedy; one individual, in particular, has furnished what he calls 39 cases, only one of which, he says, had hydrophobia! Of course your Committee could make no use of information from such sources. We think the cases reported sustain us in the opinion before expressed, that either excision or amputation of the part inoculated is the only reliable prophylactic, and affords the strongest ground of hope to any one bitten by a rabid animal, or one enraged, and that even that remedy is better late than not at all, as witness Dr. Jackson, Case No. 75.

Tardieu's report, a short notice of which may be found in the July No., 1854, of the *Amer. Journ. Med. Sciences*, is made up entirely of cases of hydrophobia in the human subject. He details 48 cases occurring in France, in 1852, and has arranged them in groups corresponding to the four seasons of the year. The date of

inoculation was observed in 40 cases, 10 having occurred in the first quarter beginning with March, 16 in the second, 4 in the third, and 10 in the last beginning with December. "But," says he, "as this is an inquiry into the influence of temperature more particularly, would it not be more natural to divide the year into two equal parts, so as to include in each severally the extremes of high and low temperature. Then, beginning with December and ending with May, we have just half of all the cases noted, and the heat of summer, and the mild temperature of autumn, furnish the other half." This division might answer for France, but, with regard to the northern section of the United States, from which nearly all our cases are derived, we have really but four warm and eight cold, or cool months. All Tardieu's cases are traceable to the bite of the dog. Now, as hydrophobia in the human subject arises almost entirely from this cause, do not the statistics of the disease in dogs claim attention, at least more than the subject has generally received?

The date of inoculation and the period of incubation, or latency, are also important items of observation, inasmuch as from them alone are we to determine whether the disease is hastened or retarded by the temperature of the atmosphere. This report of Tardieu's, therefore, is not so complete as it would have been if the date of the bite and the accession of the disease had been noted in each case. Notwithstanding this, however, it is an invaluable paper.

Hydrophobia is a disease about as rare as it is fatal.¹ There are many physicians, and among them some of large practice, who have never seen a case of it, and especially is this true in regard to those in the southern section of the Union; and as to its fatality, how few among us have ever yet been enabled to record the successful issue of a single case. Many physicians, and some of them gentlemen of intelligence, even doubt its existence as a distinct disease, a disease having a specific origin. Dr. Marriot, of London, has written a book to prove the *impossibility* of its being produced by the bite of a dog!

It is therefore evident that no one practitioner sees enough of hydrophobia to enable him to judge correctly from personal ob-

¹ "The subjects of hydrophobia have fallen victims under almost every treatment, and if the genuine disease has ever been cured, such cures are merely insulated facts, from which no general principle can be deduced, for perhaps the means of cure in all of them have been different, and the very next case that occurred has been fatal under apparently the same treatment, and with apparently the same symptoms."—*New England Jour.*, 1812.

ervation alone whether one month in the year more than another favors its development, or the warm season more than the cold. It is only by an *esprit du corps* of the members of the profession collectively, and united efforts as collaborators in the wide field of observation, that we can ever hope to arrive at a correct knowledge of its nature, and thus if ever reach the remedy so greatly desired.

The history of the cases which have occurred in the United States, as well those which heretofore have been given to the public as those which we are now enabled to present, it seems to us furnishes statistics which should satisfy the most fastidious. It may be remarked, also, that in all but one of the cases reported as recovering after hydrophobic symptoms had manifested themselves, the period of incubation was very much shorter than in those cases which terminated fatally. Witness Cases 17, 77, 81, 90, 97, the average being only 15 days, whereas the general average is 66.

From a reference to the tables annexed, it will also be perceived how strongly they confirm conclusions drawn from similar statistics in Europe. Dr. Radcliffe, of England, has made an analysis of 109 cases of hydrophobia. In 84 the month is stated in which inoculation took place. Of these, January furnishes 3; February, 14; March, 8; April, 6; May, 16; June, 5; July, 5; August, 5; September, 6; October, 3; November, 5; and December, 6: or the first quarter of the year, beginning with March, 30; second quarter, 15; third quarter, 14, and last quarter, ending with February, 23.

Every investigation, and anywhere made, only proves that a belief in the influence of the "dog star," or climate, or season of the year, as inducing or favoring the production of rabies, is an utter fallacy, a mere astrological fancy, handed down it may be from remote ages, its very antiquity, perhaps, shielding it from the probe of investigation, but yet entirely unsupported by facts. Laws based upon such an hypothesis are a reproach to the nineteenth century, and not only absurd, and their execution expensive and cruel, but positively injurious to the community, inasmuch as, during the colder seasons of the year, when Sirius is not in the ascendant, they are off their guard, and thus, lulled into a false security, are consequently more exposed to danger.

A reference to the tables will also show that very few cases of hydrophobia result from bites on parts of the body protected by clothing. The cases reported are almost uniformly from bites upon exposed parts of the body, such as the fingers, hands, face, nose, ears, &c. &c. They also show that it is not necessary that the

animal inflicting the wound should itself be diseased. Temporary anger, produced by harsh and cruel treatment, is noticed in several of the cases as preceding the infliction of the injury which resulted in all the symptoms of well-marked hydrophobia.

In some few of the cases received, the period of inoculation is not mentioned; where this has occurred, your Committee have taken the usual average of determined cases, which is about 40 days, and counting backwards have assumed the date reached as the period of the injury; this, however, occurs in but very few instances.

The statistics also indicate with sufficient clearness the course which legislative and municipal authorities should pursue in reference to this subject. They demonstrate that an attack of hydrophobia is invariably preceded by the bite of a dog or other rabid or enraged animal, and that no one season of the year affords any immunity from the danger of inoculation. They confirm, too, as might have been expected, the results of the MORTALITY STATISTICS of the late census of the United States, carefully prepared by the superintendent of the census, J. D. B. De Bow, Esq. We there find that, during the year ending 1st June, 1850, there were reported 26 deaths from hydrophobia, as follows: Georgia 1; Illinois 1; Louisiana 1; Maryland 1; Michigan 1; New Hampshire 1; New Jersey 1; New York 3; North Carolina 1; Pennsylvania 2; Rhode Island 4; Vermont 2; Virginia 4; New Mexico 3. And the seasons of the year were as follows: 1st quarter, beginning with March, 7; second quarter, 7; third quarter, 3; and the last quarter, December, January, and February, 9; total, 26.

It will be seen that several of the communications notice the existence of "dog laws" in their several localities in force mostly during the hot months of the year; but none of them embracing the whole year.

Thus it seems to your Committee that a very strong case has been made out, though not as strong as it would have been could they have presented the Association with a longer catalogue of cases; for it is certain that with all their diligence they have collected but a small number of those which have occurred in the United States. Enough, however, is here presented if brought properly before the community, as it is in the power of this National Association to do, to produce results, under the operation of the law of self-preservation alone, favorable to human life and happiness, however destructive it might prove to the canine and feline races. The committee do not feel called upon to recommend any specific course of ac-

tion for legislators to pursue. They merely state facts as they find them, and facts they think sufficiently suggestive. The simple question seems to be, Shall human or canine life be protected by the ægis of law?

It will be perceived that, in order to bring certain classes of facts together for comparison and convenient observation, we have arranged the cases in five columns. 1st, the number of the case; 2d, the name and age of the patient, stating the part of the body injured, and the animal inflicting the wound, together with the authority; 3d, the time of the bite; 4th, the time when sickness commenced; and 5th, the termination.

The cases presented for publication as part of this report are cases never yet published, and are furnished by those witnessing the facts they relate. The cases derived from books are duly credited.

*A Schedule of Cases of Hydrophobia occurring in the United States.*¹

CASE.	DESCRIPTION AND AUTHORITY.	BITTEN.	SICKENED.	DIED.
1	Boy 11 years old; by raccoon, on thumb. Reported by George Russell, M. D., Lincoln, Mass.	Oct. 16	Nov. 27	Dec. 3
2	Boy 7 years; by dog, enraged not mad, on little finger. By E. Coale, M. D., Boston.	Sept. 17	Oct. 7	Oct. 11
3	A youth 18 years old; by dog, on wrist. By Dr. Curtis, Lowell, Mass.	July 29	Nov. 4	Nov. 8
4	Boy 7 years old; by dog, on eye and mouth. By Dr. Hayward, Am. Med. Journ., 1854.	Aug. 13	Sept. 12	Sept. 16
5	Girl 7 years old; by dog, on hand, elbow, and face. By Dr. Cabbot, Am. Med. Journ., April, 1854. ²	Dec. 18	Jan. 20	Jan. 22
6	J. W. H., 15 years; by dog, on calf of leg and ear. By Dr. C. D. Homans, Boston Medical Journal, March 8, 1854.	Jan. 27	Feb. 26	Feb. 28
7	A man, 23 years; by dog, on hand. By J. S. Fogg, Boston Med. Journ., April 19, 1854.	Feb. 8	April 6	April 10
8	Son of Wm. Craft, 8 years; by dog, on nose. By P. Moulton, New Rochelle, N. Y.	Feb. 18	March 25	March 27
9	A man, 35 years; by dog not mad. By Dr. Casselberry, Evansville, Indiana.	Dec. 16	Jan. 16	Jan. 18
10	A boy, 9 years; by dog. By Dr. Casselberry, Evansville, Indiana.	Jan. 1	Jan. 13	Jan. 17
11	Mrs. E. Riley, 34 years; by dog, on left arm. By Dr. W. L. Atlee, Philadelphia, Pa.	Nov. 3	Feb. 9	Feb. 13
12	Boy, 8 years; by dog, on leg. By Dr. Blatchford, Troy, N. Y., Boston Med. Journ., July 26, 1854.	Sept.	Aug. 30	Sept. 2
13	Boy, 8 years; by dog, on leg. By Dr. Blatchford, Troy, N. Y., Boston Med. Journ., July 26, 1854.	Sept.	Sept. 9	Sept. 11
14	Mr. House, 30 years; by dog, not mad, on hand. By Dr. Blatchford, N. Y. Annalist, 1847.	Sept. 23	Nov. 9	Nov. 13
15	A man, 28 years; by dog, on hand. By James Thorn, M. D., Troy, N. Y., Boston Med. Journ., July 26, 1854.	Feb. 4	March 19	March 23
16	A girl, 6 years; by dog. By Dr. Trail Green, Easton, Pa.	March 11	April 22	April 22
17	Mrs. S., 57 years old; bitten on the finger. By Dr. Samuel Hart, Brooklyn, N. Y.	June	In 14 days	Well
18	Several animals bitten by dog in Oswego; all died. By Dr. Hart, Brooklyn, N. Y.	January		
19	Cornelius Wurgeois, 22 years old; by dog, on hand. By Dr. T. Turner, Brooklyn, N. Y.	Nov. 12	Dec. 14	Dec. 19
20	N. C., laborer, 45 years; by dog, on hand. By Dr. Turner, N. Y. Journ. Med., Nov., 1855.	May 12	Aug. 9	Aug. 30
21	Mrs. Willard, of Buffalo; by a cat, on hand. By Dr. G. N. Burwell, Buffalo, N. Y.	Jan. 21	March 24	March 28
22	Mr. Gould, of Hamburg, 57 years old; by dog, on arm. By Dr. G. N. Burwell, Buffalo.	May 14	July 2	July 5
23	Jos. Mallet, of Providence, R. I.; by his own dog, not mad, on lip. By Dr. F. H. Peckham, Providence, R. I.	Feb. 19	March 4	March 9

¹ For the first seven cases, your Committee are indebted to the researches and kindness of our friends, Drs. J. B. S. Jackson and C. B. Homans, of Boston. They embrace, it is believed, all, or nearly all, the cases of hydrophobia recorded as occurring in that vicinity.

² See an interesting *conversation* on hydrophobia, in Am. Med. Journ., April, 1854.

Cases of Hydrophobia occurring in the United States—Continued.

CASE.	DESCRIPTION AND AUTHORITY.	BITTEN.	SICKENED.	DIED.
24	Henry Hopkins, 28 years; by dog, not mad, on finger. By Dr. Stephen C. Griggs, Providence, R. I.	July 23	Oct. 21	Oct. 23
25	Mr. John White, of Camden, N. J.; by cat, on forefinger. By Dr. Thos. F. Cullen.	June 28	Sept. 5	Sept. 9
26	Several hogs, cows, and horses, bitten by dog, and died mad, in Spencer County, Indiana, 1839. By J. B. Sanders.	Sept. 20		Died from 9 days to 4 weeks
27	Robert Adams, of Louisville, Ky.; on finger, by dog. By Dr. Hewett, Western Journ. Med., Sept., 1849.	May 16	July 25	July 27
28	Isaac Murphy, 25 years; by dog, on hand and wrist. By Dr. C. F. Clark, Woodbury, N. J.	March 7	May 14	May 17
29	A horse sickened in one week. Do.	March 7	March 14	Shot
30	A pig; by dog. By Dr. C. F. Clark.	Jan. 1	Jan. 29	Jan. 31
31	Avery Newland, 15 years; by small dog. By Dr. Ariel Hunton, Vermont.	April 19	May 23	May 25
32	A cow; by a dog, in Gaines, N. Y. By Dr. J. H. Beech, Mich.	Feb.	6 days	Next day
33	A lady; by a dog. Ten years after, broke her arm and died of rabies. By Dr. Beech, Coldwater, Mich.			
34	Michael Casey, 40 years; by dog, on hand. By Dr. G. D. Ayres.	May 31	Aug. 9	Aug. 13
35	Henry Uthoff, 28 years; by dog, on hand. By Dr. Roelker, Cincinnati.	May 17	June 30	July 4
36	Mrs. Jane Porter, 65 years; by cat, on hand. By J. E. Pearson, Vienna, Ala.	Summer	3 mos.	3 days
37	Stephen Lee, 64 years; by dog, on finger. By Dr. Fountain, Am. Med. Monthly, 1856.	May 1	Oct. 1	Oct. 10
38	John Wolman, 38 years; by dog, on finger. Phil. Med. Journ., vol. i. 1820.	Nov. 2	Nov. 28	Nov. 30
39	Edward Bransfield, 28 years; by dog, on lower lip. By Dr. J. H. Griseom.	April 5	May 11	May 15
40	A German, 45 years; by dog, on hand. By Dr. J. L. Smith, N. Y. Journ. Med., Sept. 1855.	Nov.	March 16	March 21
41	Thomas Brothers, 28 years; on tendo-Achillis. Philadelphia Med. Museum, vol. iii.	June 10	July 4	Well
42	Mrs. Rodgers; by dog in 1825, and again by dog, not mad, 1856. Dayton Gazette, Ohio.	Jan. 15	March 21	March 25
43	James Coho, 30 years; not known to have been bitten. Buffalo Med. Journ., May, 1855.	Probably Nov.	Jan. 18	Jan. 22
44	Laurence Mier, 34 years; by his own dog, not mad. Buffalo Med. Journ., May, 1855.	July 27	Sept. 14	Sept. 18
45	Dr. J. S. Hawley; by same cat which bit Mrs. Willard (see 21). Reported by himself.	Jan. 20	Parts excised	
46	A lad, 8 years; by dog. By Dr. Z. Pitcher, Detroit, Mich.	May	June	June
47	A lad, 18 years; by dog. Reported verbally by Drs. Donne and Flint, Louisville, Ky. Priapism prominent.	Oct.	Dec.	Dec.
48	Christopher Knowlson; by dog, on arm. Eclectic Repertory, vol. ix.	Feb. 20	June 3	June 5
49	A boy, 6 years, son of Mr. H. Melendy; by dog, on face. By P. B. Miller, M. D.	March 5	March 20	March 23
50	A laborer; by dog, on finger. By P. B. Miller, M. D., Mt. Carrol.	March 5	Parts excised	Well

Cases of *Hydrophobia* occurring in the United States—Continued.

CASE.	DESCRIPTION AND AUTHORITY.	BITTEN.	SICKENED.	DIED.
51	Horses and cattle; by dogs. By B. P. Miller, M. D., Mount Carrol.	Jan.		Died from 20 to 60 days
52	Horses; by dogs. By Dr. Miller.	Feb.	As above	
53	Mr. Moor, 24 years; by dog, on hand. Reported verbally by Dr. Ewing, Louisville, Ky.	Summer	Summer	Summer
54	A negress, 16 years; by dog, on shoulder. Reported to Jas. Mease, M. D., by J. Shore, M. D., Petersburg, Va.	Sept. 1	Parts excised	Not div.
55	Jas. Remington, 6 years; by dog, on face. By Dr. King, from Thatcher.	Oct. 28	Nov. 7	Nov. 10
56	Levi Woodruff, 43 years; by dog, on ear. From Thatcher.	March 17	April 13	April 15
57	Black boy, 16 years; by dog, on foot. By Dr. Physick, from Thatcher.	March 24	April 28	April 29
58	Son of Col. Swartout; by dog, on arm. By Dr. Borrowe, from Thatcher.	April 11	July 3	July 7
59	Son of Mr. Pylis, 14 years; by cat, on toe. By Dr. Jas. Mease, from Thatcher.	July 14	Nov. 19	Nov. 29
60	J. Opie, 13 years; by dog, on nose and eye. By Dr. J. R. B. Rodgers, from Thatcher.	April 1	July 10	July 15
61	Son of Wm. Todd, 5 years; by dog, on cheek. By Dr. Rush, from Thatcher.	Aug. 6	Sept. 9	Sept. 13
62	Son of Mr. S. Weston, 3 years; 31 wounds by dog. By Dr. Thatcher.	Aug. 16	Nov. 3	Nov. 9
63	Nicholas Lang, 10 years; by dog, not mad, on forearm. By Dr. Jas. M. Newman, Buffalo.	Jan. 5	March 10	March 11
64	A dog, bitten by same dog as above 3 days afterwards. By Dr. Newman.	Jan. 8	March 12	March 12
65	Ezra Sylvester, 73 years; by dog, on finger; same dog as 62. By Thatcher.	Aug. 16	Nov. 14	Nov. 21
66	Mrs. Bush; by cat, on hand. By Thatcher.	Sept. 4	Oct. 19	Oct. 25
67	W. W. Inman; excised on hand.	Sept. 21	Recov'd	
68	Primus, colored; by dog.	Sept. 21	Recov'd	
69	Jack, colored; by dog.	Sept. 21	Recov'd	
70	Smith, colored; by dog.	Sept. 21	Recov'd	
71	Pigs, hogs, horses, cows, and men, bitten same time by same dog. Of the animals bitten, 15 died mad. By Dr. Davis, New Jersey, N. Y. Med. and Phys. Journ., vol. ii.	Sept. 21		
72	Phœbe Powell, 21 years old; by dog, on wrist. Was cauterized, salivated, and paralyzed; 330 grains acetate of lead, and $\frac{3}{4}$ iv of Goulard's tincture administered in 4 days, &c. &c. By C. E. Smith, M. D. Baltimore, N. Y. Med. and Phys. Journ., vol. v.	Jan. 19	Feb. 7	Well
73	Thos. Rodgers, 12 years old; by dog, on wrist. By Dr. Hartshorne, Amer. Journ., Oct. 1848.	June 27	Aug. 17	Aug. 21
74	David Lithgow, 30 years; by dog, on hand. By Dr. Jackson, Amer. Journ., April, 1849.	Feb. 10	March 16	March 18
75	Mrs. Burrows, 30 years; by dog, on wrist; part excised after three months. By Dr. Jackson, Amer. Journ., April, 1849.	July	Oct. 27	Well
76	A carpenter, 35 years; by dog, on thumb. By Dr. Burns, Mass., Amer. Journ., April, 1850.	June	Oct. 28	Oct. 30
77	Charles Baker, 20 years; by dog, on thumb; opii cal. By Dr. Wilson, Amer. Journ., Jan. 1851.	May 24	June 15	Well

Cases of Hydrophobia occurring in the United States—Continued.

CASE.	DESCRIPTION AND AUTHORITY.	BITTEN.	SICKENED.	DIED.
78	J. Jameson, 12 years; by dog, on hand and little finger. By Dr. C. A. Lee, Amer. Journ., Feb. 1837.	April 1	April 29	May 2
79	Marcus Lovell, 4 years; by dog, on cheek. By Dr. C. A. Lee, Amer. Journ., Feb. 1837.	May	July	3d day
80	John McCormick, 44 years; by fox, on hand. By Dr. C. A. Lee, Amer. Journ., Feb. 1837.	March	June	2d day
81	J. Gould, 8 years; by dog, on hand; salivation. By Dr. Hildreth, Med. Repository, vol. vii., 1822.	March 6	March 15	Well
82	Boy, 8 years; by dog, on cheek. By Dr. Griscom, N. Y. Journ. Med., Jan. 1845.	Oct. 8	Nov. 23	Nov. 29
83	A soldier; by dog, on finger. By Dr. G. A. Smith, N. Y. Journ. Med., Sept. 1845.	Fall	6 weeks	2d day
84	John Tyson, 23 years; by dog. By Dr. R. H. Coolidge, N. Y. Journ. Med., Oct. 1839.	June 9	July 27	July 28
85	Boy (Boston), 18 years; by dog. By Dr. A. H. Brown, Boston Med. and Surg. Journ., 1849.	July 29	Nov. 5	Nov. 6
86	Miss Sarah Crehore, 28 years; by dog, on ankle. By J. Perkins, M. D., Castleton, Vt.	Aug. 22	Jan. 16	Jan. 19
87	Wm. Hill, 45 years; by dog, on scrotum. Eclectic Repertory, vol. i.	Oct. 25	Dec. 10	Dec. 11
88	A little boy, 4 years old; by dog, in hand. Boston Med. Journ., June 26, 1850.	May 15	June	June
89	Miss Fulton (Louisiana); by dog. Boston Med. Journ., Sept. 25, 1850.	July 23	Sept. 3	Sept. 4
90	Mr. J. K.; by dog, on leg. Boston Med. Journ., Oct. 1850.	June 13	July 4	Well
91	Child, 3 years old; by cat, on forehead and eye. By Dr. W. B. Gould, Lockport, N. Y.	Nov. 13	Dec. 13	Dec. 17
92	Mr. White, 25 years; no bite, saliva from mad calf. By C. W. Higgins, M. D., Abington, Ill.	March	March 29	March 31
93	Mr. Clark, 55 years; by cat, on hand. Authority same as above.	Nov. 10	Dec. 10	Dec. 12
94	A horse; assumed inoculation. Authority same.	May 10	June 10	June 12
95	A cow; inoculation assumed. Authority same.	March 5	May 5	May 6
96	Mr. Hoar; by dog, on hand. Boston Med. Journ., 1854.	Feb. 4		April 8
97	Joshua Case, 17 years; on leg, by dog. N. Y. Med. and Phys. Journ., vol. iii. p. 43.	Nov. 8	Nov. 17	Well
98	Girl, 15 years; by dog, on cheek; dog not mad. By R. D. Mussey, M. D., Ohio.		6 weeks	3d day
99	Young man; by dog, on leg or arm. By R. D. Mussey, M. D., Ohio.	July	Feb.	4th day
100	Eliza Frame, 19 years; by dog, on finger. Eclectic Repertory, vol. ix.	June 1	June 28	July 1
101	W. T. Hazlam, 22 years; by dog, on leg. N. Y. Med. and Phys. Journ., 1828.	Feb. 4	Nov. 4	Nov. 4
102	Miss Bassett, 12; by dog, on lip. By J. W. Green, M. D., New York.	April 10	July 7	July 11
103	J. B., laborer, about 30 years; by dog. By J. W. Green, M. D., New York.	March	July	2d day
104	J. Z., 54 years; by dog, on hand. By W. L. Atlee, M. D., Penn.	May	Aug. 30	Sept. 3
105	Robert Ferguson, 28 years; by dog, on finger. By Dr. James P. White, Buffalo Med. Journ., vol. i.	March 15	April 21	April 24
106	Joseph Bell, 35 years; by dog, on thumb. By Dr. Manley, Richfield, Spa.	Oct. 5	June 16	Well

Table showing the month of Inoculation and Commencement of Sickness ;
also the period of Incubation, and day of Death.

	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Bitten	11	10	13	6	12	8	8	5	12	6	8	2	101
Sickened	6	5	13	6	4	9	10	5	7	6	12	5	86

Case.	Sick.	Died.	Case.	Sick.	Died.	Case.	Sick.	Died.	Case.	Sick.	Died.
1	42	6th day	27	60	2d day	53			79	60	3d day
2	20	4th "	28	68	3d "	54			80	90	2d "
3	98	4th "	29			55	10	3d day	81	9	Well
4	30	4th "	30			56	27	2d "	82	46	6th "
5	32	2d "	31	34	2d "	57	35	1st "	83	42	2d "
6	30	2d "	32			58	53	4th "	84	48	2d "
7	57	4th "	33			59	128	10th "	85	101	2d "
8	35	2d "	34	71	4th "	60	101	5th "	86	144	3d "
9	31	2d "	35	44	4th "	61	34	4th "	87	42	4th "
10	12	4th "	36	90	3d "	62	79	6th "	88	30	
11	91	4th "	37	154	10th "	63	64	1st "	89	42	2d "
12	365	2d "	38	26	3d "	64	63	1st "	90	21	
13	360	3d "	39	36	4th "	65	90	7th "	91	30	4th "
14	41	4th "	40	120	5th "	66	45	7th "	92	365	2d "
15	41	4th "	41	24	Well	67			93	30	2d "
16	42	1st "	42	65	4th day	68			94	30	2d "
17	14	Well	43	60	4th "	69			95	60	2d "
18			44	50	4th "	70			96	60	4th "
19	32	5th day	45	14		71			97	9	Well
20	89	21st "	46			72	19	Well	98	45	3d day
21	62	4th "	47	60	4th "	73	51	5th day	99	210	4th "
22	49	3d "	48	73	2d "	74	35	3d "	100	27	4th "
23	13	5th "	49	15	3d "	75	90	Well	101	274	1st "
24	90	2d "	50			76	120	4th day	102	90	5th "
25	69	4th "	51			77	22	Well	103	120	2d "
26			52			78	29	4th day	104	90	4th "
									105	36	3d "
									106	249	Well

Recapitulation of the inoculations for the four seasons of the year, as derived, 1st, from the returns in the Report itself; 2d, from those in the *United States Mortality Census*; 3d, from *Tardieu's Report for France*; and 4th, from *Radcliff's Report for England*, making together 246 cases, in which the month of inoculation was ascertained.

	Report.	U. S. census.	France.	England.	Total.
Spring—March, April, May	31	7	10	30	78
Summer—June, July, August	21	7	16	15	59
Autumn—Sept., Oct., Nov.	27	3	4	14	48
Winter—Dec., Jan., Feb.	23	9	10	23	65
	102	26	40	82	250

The average period of incubation in the 89 cases in which it was ascertained was about 70 days, a much longer period than is usually given.

In 23 cases it was 30 days and under.				In 3 cases it was 80 days and under.			
" 11	"	40	" "	" 8	"	90	" "
" 14	"	50	" "	" 2	"	100	" "
" 8	"	60	" "	" 8	"	200	" "
" 6	"	70	" "	" 6	"	upwards of 200 days.	

The average duration of the disease in the 72 fatal cases in the human subject was three days.

5 died on the 1st day, 20 on the 2d, 12 on the 3d, 27 on the 4th, 6 on the 5th, 3 on the 6th, 2 on the 7th, 2 on the 10th, and 1 on the 21st.

In 89 cases out of 100, the injury was from the bite of the dog. In 9, from that of a cat, and in 1 each from a raccoon and a fox. One supposed from the saliva of a cow, and one from that of a calf.

In 40 instances the injury was upon the hand, in 15 on the face, in 11 on the leg, and in 9 on the arm.

The Committee, in conclusion, would offer the following resolution:—

Resolved, That the Secretary transmit to the Governor of each State a copy of the statistical part of this report, with the respectful request that he would bring the subject before the Legislature of the State over which he presides, that in their wisdom they may devise and adopt a plan by which the evil may be mitigated if not removed.

All which is respectfully submitted.

THOMAS W. BLATCHFORD,
A. D. SPOOR,

Committee.

C A S E S .

CASE 1. *Hydrophobia from the bite of a Raccoon. Reported by George Russel, M. D., Lincoln, Mass.*

On the 16th of October, 1822, a boy 11 years of age was attacked by a raccoon in the open field, and without any provocation. The animal was immediately killed by two men, whom the cries of the boy summoned to his assistance. The thumb, and skin, and muscles between the thumb and forefinger of the left hand of the lad were much lacerated. The wound was dressed by some one of the family, and was nearly healed on the 42d day after it had been received, when the lad was attacked with wandering pains extending from his hand to his shoulder, neck, and head, and sometimes to his back. These pains were considered by his friends as rheumatic. The next day, he complained of universal distress, a sense of suffocation, and inability to swallow liquids. Domestic remedies were employed, and Dr. Russel did not see the patient till the fourth day of the disease. He had then had no sleep for three nights. Pulse, 100; universal irritability of the system, with a sense of suffocation and stricture of the throat and chest—a continued spitting of a thick, frothy, tenacious saliva—an inability to swallow liquids; an unusual wildness of the eyes, and ferocity of countenance; bowels had not been open for three days; intellect at times deranged, and he manifested a disposition to strike, but not to bite, persons who attended upon him; thirst very great, particularly for water, yet, when it was presented him, he was unable to drink, the mere sight of the water producing immediate convulsions. Opium was administered in large quantities, but without any effect, the symptoms above described becoming more and more aggravated during the day, attended with great prostration of strength; vomiting of a thick, bloody matter; a quick, feeble, and intermitting pulse; coldness of the extremities; tongue very red, but perfectly clear; conjunctivæ red; countenance cadaverous; convulsions almost continued. Death at 1 A. M. of the fifth day. No autopsy.

CASE 2. *Reported by W. E. Coale, M. D., Boston, Mass.*

John Fleming, a hearty full fed boy of seven years, born in England, but living in this country for four years, while on his way to

school one day, threw a stone at a dog which was lying under a wagon, and it flew out and bit him slightly on the knuckle of the little finger of the left hand, *and returned to lie down again*. The wound was dressed very simply, and in a few days was entirely healed. Three weeks after this, on Saturday, Oct. 7th, 1848, the boy was reported as having been "out of sorts" for two or three days; he had also refused to drink water for twenty-four hours. At this time, the throat appeared somewhat swollen, and an active cathartic was prescribed. The next day, he was sitting up; appearance stupid, skin cool, pulse 80. Tongue a little furred. Medicine had acted slightly. Had rested but little, sleep being much disturbed. Some pain at epigastrium, also some headache at times. On being requested to wash his mouth out, he took a tablespoonful of water in his hands, held it about six inches from his mouth, and then suddenly threw it against his teeth with great violence, and swallowed it with a convulsive choking, falling back on the pillow and slightly screaming. Pediluvia and aperients were prescribed, and the patient left. The next day, though his sleep had been much disturbed, he seemed much better, and swallowed with ease, was walking about the room. Tuesday, Oct. 10th, symptoms much more unfavorable; pulse 100, involuntary shivering; lies on back with head thrown back; attempts to swallow water, accompanied with violent spasms, principally opisthotonic; answered questions naturally, but talked wildly when not spoken to; is picking the bed-clothes, &c.; bowels had not been moved; an active cathartic was ordered, and a blister to nape of neck. At 2 P. M., he vomited three or four times; at 4 P. M., extremities cold; pulse not to be counted. Countenance expressed great prostration; spasms very frequent and easily excited; mind always wandering, though recalled for a moment; chloroform was administered, but its inhalation appeared to cause so much depression that its use was discontinued; two involuntary dejections; brandy and chloroform were administered every half hour internally, causing spasms, but not as much horror of the fluid. The spasms commenced with a general shiver, and then affected the muscles of the back and extensors. They were not very violent, but consisted simply in stretching the head, neck, and arm out, and stiffening of the trunk; they occurred about once in ten minutes; this state continued till 9½ P. M., when patient had become much weaker; convulsions not so violent; pupils widely dilated; some vomiting of frothy matter; face at times bedewed

with sweat; spasms slight but easily excited, as by fanning him, &c. Death took place at 2 A. M., Oct. 11th.

At the autopsy, all the organs of abdomen and chest were found healthy; right auricle of heart enormously distended with blood; brain healthy; much venous congestion about spinal cord, but nothing else observed.

CASE 3. Reported by Dr. Curtis, Lowell, Mass.

W. H. B., a stout healthy young man of 18 years, was bitten, July 29th, 1848, by a strange dog, which immediately made his escape and has not been heard of since. The wound was near the right wrist, was simply dressed and readily healed. On Saturday, Nov. 4th, 1848, he complained of pain in this arm, which was supposed to be rheumatic; this continued without any other symptom till Tuesday at 4 P. M., when he said that water tasted badly, and at 4½ he was unable to swallow it.

At 7½ P. M., countenance anxious; cicatrix of wound somewhat elevated and reddish, not tender; no inflammation of skin about it; some pain in arm at times; stomach nauseated. On being requested to drink, he took the tumbler in his hand and brought it to within half an inch of his mouth, when his head was thrown back spasmodically and his hand forwards. On attempting it again, with much effort he got about a teaspoonful into his mouth, which, as soon as it reached his throat, was attended with the most violent convulsive catchings of his breath, with a sort of sobbing sound. Some milk he was able to swallow with much less difficulty, and he could also swallow bread. Currents of air produced no effect on him at this time. He was put under the influence of chloroform. The next morning every unpleasant symptom had increased. Convulsions were more frequent and violent, but mind rational in intervals; complained of no pain but of a sense of suffocation; great suffering from thirst; occasionally he would discharge from his mouth a viscid and very tenacious saliva, attended with convulsions of the utmost vehemence. The sight of water, or hearing the name of any liquid mentioned, was terrible to him. The sound of fluids in a neighboring apartment, a current of air, or the breath of his attendants agitating the atmosphere near his exposed surface, would produce a like effect.

At 11¼ A. M., he was placed under the influence of chloroform, from which he gradually recovered and the convulsions commenced again. At 4½, anæsthesia was again produced and kept up with a

short interval till 5 $\frac{3}{4}$ P. M., when he had sunk so low as to be perfectly quiet. At 6 o'clock the sputa had increased in quantity and become less slimy, and far more frothy. The patient lay quiet, with stertorous breathing, countenance flushed, labored action of the heart, extremities cool, with symptoms of cerebral congestion. The discharge at the mouth also greatly increased and became bloody.

Death occurred at 7 $\frac{3}{4}$ P. M., Nov. 8th, without a struggle.

Autopsy, 18 hours after death. Surface of body dark and mottled; extremities nearly black; depending surfaces also very dark; emphysema about the neck, over the thorax, and partly down the upper extremities. Blood, fluid everywhere; no coagula. Spinal cord considerably injected and emphysematous beneath its arachnoid investment. Brain highly injected throughout, and bubbles of air were distinctly seen in its veins. Brain was of normal consistency, ventricles containing their usual amount of fluid. Cut surfaces of cerebral mass exhibited numerous red points. The trachea and bronchia were highly inflamed, and their mucous linings presented a purple colored or violet aspect. Epiglottis very large.

CASE 8. *Reported by Dr. P. Moulton, New Rochelle, N. Y.*

A son of William Craft, deceased, about eight years old, of nervous temperament, and residing in New Rochelle, was bitten slightly on the nose by a strange dog on the 18th day of February, 1842. He was taken ill on the 25th day of March, five weeks after the inoculation, and died on the 27th, forty-eight hours after the attack.

He was visited about two hours after he was bitten, and the bites, which were very superficial, were touched with nit. argenti. He afterwards took sulphur and scutellaria lateriflora for some time, as a prophylactic, as recommended by a Mr. Lewis, formerly of this county. These articles were taken daily up to the period of attack, with the exception of a week or more, when the scutellaria could not be procured.

When I first saw him, after the attack, he had vascular excitement and great restlessness, which I believed might be caused by worms in the alimentary canal. I gave spigelia and senna, which moved his bowels, but gave no relief.

In the evening of the same day, I invited Doctors E. W. Voris and Philip Davenport to attend him with me, as he showed decided symptoms of hydrophobia. It was supposed, by one of these gentlemen, that the symptoms arose from spinal disease, and he sug-

gested the actual cautery along the spine. I went into his room alone, and desired him to try to drink some water out of a glass tumbler, for I knew he drank readily out of a cup, where he did not see the water, remarking to him that he might avoid a painful operation by drinking without agitation, or showing signs of dread on taking the water. He at once consented to drink, and raised himself up in bed to do so; but when he saw the tumbler of water brought near him, he exclaimed "O! not now!" and with great agitation and hurry removed to the far side of the bed, against the wall.

He was directed to take a pill of camphor, assafoetida, and lupulin, or lactucarium, every two hours, if he continued restless.

He took the first pill at 9 o'clock P. M., and rested quietly until near 11. When the second pill was given, he seemed wild, and, for a few minutes, quite frantic; and in this manner he spent the night, having long intervals of quiet rest between his paroxysms.

Finding but little change in his condition in the morning, we agreed to try the effect of cold affusion, as practised by Dr. Arnell, who published a case in the *New York Medical and Physical Journal*, No. 9, 1824, page 43.

We also agreed to give strychnia gr. $\frac{1}{2}$ every two hours, unless it produced some bad effect.

Cold water was poured over him whenever he became much excited, with the effect of calming him, and arresting the fits of jactitation. No perceptible effect was produced by the strychnia; no spasmodic action, nor any other effect usually produced by it, resulted from its use. I was called away, and left him in charge of Dr. Voris, about 2 o'clock P. M., and did not see him again during the day, as a second urgent case called me into a neighboring town; but I rode past the house where he was, about 7 o'clock, and, on inquiry, was informed that he was much better, and that he had just then taken a glass of water into his hand, of which he drank freely, &c. When I returned, in the night, I found him dead. A foam of very thin glistening bubbles was issuing from his mouth. He had been dead six hours.

While I was with him, I noticed signs of nervous excitement most of the time, which was heightened into terror, at times, by the sight of water. At other times he would take a pitcher of water into his hands, put his hand into the water, and pour water from his hand on his head; but it seemed to be done at the expense of painful effort, and he would push the pitcher from him, with signs

of dread, immediately afterwards. At one time he was frightened on seeing a light spot on the wall, produced by solar rays admitted through a crevice in the window shutter, and said: "What fire is that?"

Dr. Voris stated to me, at our next interview, that he gave the strychnia regularly up to the hour of his death, which took place a few minutes after I passed the house, about 7 o'clock; that he had one of his paroxysms about that time, and he had him raised up to receive the cold affusion, when he appeared faint. He was laid down, and a little water was poured on him to remove the faintness, but without having the desired effect, and he died without a struggle, as if from syncope.

It is remarkable that strychnia, in this case, did not produce marked effects. Spasm was not more manifest after than before it was given. We felt justified in giving so large a quantity to this child by the consideration—1st. That the disease was not curable by any means known to us. 2d. That strychnia is a powerful agent, which had not, to our knowledge, been tried in hydrophobia. Query—was this hydrophobia rabiosa? I think it was.

CASE 9. *Reported by Dr. Isaac Casselberry, of Evansville, Indiana.*

Mr. S., aged thirty-five, of sanguine temperament, medium stature, was bitten on the evening of Dec. 16th, 1849, by a dog which at that time was not thought to be rabid. It was fighting the dog of Mr. S. at the time he was bitten. The wound was slight and healed readily, leaving a small hardened cicatrix.

About thirty days afterwards, Mr. S. felt indisposed; but he attributed his indisposition to fatigue and exposure.

During the night, he became much worse, and sent into the city for his physician. The physician visited him early next morning, and found him laboring under the ordinary symptoms of hydrophobia. During the day he was visited by several physicians of the city. His malady rapidly increased; each paroxysm was more protracted in duration, and they were of more frequent occurrence; early the next morning he died.

About one month, therefore, elapsed from the time he was bitten until he manifested indications of being rabid, and he lived about thirty hours after the first seizure.

Mr. S. enjoyed good health previously. The treatment employed was empirical.

CASE 10. *Reported by Dr. Isaac Casselberry, of Evansville, Indiana.*

Master S., aged 9, of nervous temperament, was bitten by a rabid dog about the first of January, 1850. He manifested indications of hydrophobia in twelve days. The symptoms, or rather the disease, gradually progressed. His physician ordered him grain doses of opium, with half grain doses of calomel every three hours. This treatment was continued with but little change for four days, at the end of which time the little patient died. The calomel did not produce the ordinary constitutional effects of that potent agent, nor did it produce any constitutional impression.

The same dog did not bite both persons. But the dog which bit Mr. S. also bit a young man in the same neighborhood, the next day after he bit Mr. S. The young man was badly bitten on the leg, and the wound bled profusely. He has never manifested any indications of the affection.

The city of Evansville is situated on the north bank of the Ohio, in latitude 38°.

Mr. S. resided one mile north of an alluvial district, in which the intermittent form of fever prevails every autumn. He had suffered from this form of fever slightly during the autumn. The lad resided in the city. What are called malarious diseases are not more prevalent in this city than in others on the Ohio, in the same latitude.

CASE 11. *Reported by Washington L. Atlee, M.D., Philadelphia, Pa.*

On Saturday, the 9th Feb., 1839, I was called upon to visit Mrs. Elizabeth Keely. I found my patient to be an intelligent-looking woman, of spare habits, of ordinary stature, and about 34 years old. She told me that she had an attack of rheumatism in her arm, and complained of pain the whole extent of her left arm, particularly in the shoulder. She informed me that she had felt unwell for three or four weeks before, and that on Wednesday previous she had perceived some soreness on the back of the hand, which, continuing to increase, had travelled up to her elbow on Thursday, and, becoming more and more severe, had on Friday reached the shoulder. During the progress of the pain, having received a phial of British oil from a neighbor, she rubbed it on her arm without receiving any relief. She then, of her own accord, applied a blister on the outside of her arm just below the shoulder, with no better success. On Saturday, the pain becoming worse, and advancing into the left side of the neck, and through the arm-

pit into the left breast, she thought it advisable to consult a physician, and I was sent for.

I found the symptoms as above described, with the pain more acute in the joints than in any other part of the arm, taking on the character of the local symptoms of acute rheumatism. Her countenance was somewhat anxious, and her manner a little hurried. The tongue was lightly coated with a yellowish fur; the pulse, skin, and other perceptible functions being natural. I prescribed a blister to be placed on the spine between the shoulders, and four cathartic pills, composed of submur. hydrar., aloë socotor., convol. jalap., stalagm. cambog., sapo. castil., to be taken immediately. Upon taking leave of her, I directed her to send me word in the morning if she was not better, or sooner if she became worse.

On Sunday morning, the 10th inst., word came that she was no better. At 9½ o'clock A. M., I visited her, and was informed by her husband that she had passed a bad night. Shortly after she had retired to bed, she was aroused by a sense of suffocation, and tightness of the chest, with pain in the præcordia, or at the lower part of the breast-bone. After this she could not sleep. Every few minutes throughout the night she would suddenly start up with a wild and anxious countenance, a sensation of smothering, and with feelings of great distress. On attempting to drink, she discovered that she could not swallow, and that every attempt excited spasms in her throat, and aggravated these distressful symptoms. Her peculiar situation alarmed Mr. Keely very much, and he was on the point of starting for me several times in the night, but, through fear of causing too much trouble, he did not inform me until morning. At the time I was there, she had become rather more calm and easy, though I observed occasionally a slight spasmodic action of her throat, and some hurry of speech. She picked up a bottle of spirits of camphor off the stove and smelt it, and immediately she was seized with slight spasms of the chest and neck. On repeating it, the same results followed, when she gave the bottle to her little daughter, telling her to take it away. There was a wildness and an impatience depicted in her countenance during these spells totally different from anything I had ever observed in other spasmodic affections. Even after these spasms were off, she had an expression of anxiety, and complained of great pain and soreness of the præcordia, and weight on her breast, with an inability to swallow anything. The most distressing symptom was the pain

in the præcordia. The blister had drawn well, but, instead of being placed over the spine, it had been applied midway between the shoulder and spine; and the pills had operated freely. Her tongue was still coated with a yellowish fur, and her pulse free from excitement. The pain in the arm was entirely gone, excepting a little uneasiness she experienced in the shoulder.

It was during this visit that I was first informed that she had been bitten by a mad dog. She then resided in Philadelphia, and while walking along the street a dog rushed out and bit her in the back of the left arm, causing an extensive lacerated wound extending down to the sinews. After going home she returned to the place where she received the injury to ascertain the condition of the dog, and discovered that he had been chained up for mad, and had just broken loose as she was passing by, and bit her and several others, and that he had afterwards been killed. She immediately consulted Dr. Pennypacker, of Philadelphia, who ordered her to soak the wound in salt water, and afterwards to apply to it a salt poultice. This was on Saturday the 3d of November last. On Monday following she called on Dr. George McClellan, who was not at home. On her way home she called at the house of a friend, who advised her to employ Stoy's cure. They informed her that about eighteen years before two of their children had been bitten by a mad dog, and the attack of hydrophobia was prevented by taking Stoy's medicine. They procured the medicine for her, and she went through a full and regular course of it, commencing on that day. The medicine had the effect of producing copious vomiting on the two first days that she took it, but not afterwards. Shortly after adopting these precautionary measures, the family removed to Lancaster; since their removal to this place, she enjoyed good health until about three or four weeks ago, from which time, until the period of her attack, she said she "was not very well." The wound had healed up well, but the scar always remained tender and livid, and she frequently felt a numbness in her arm accompanied by a sensation best understood by the term "asleep."

After giving me this history of herself, she said she did not believe her present sickness proceeded from the bite of the dog. Knowing the powerful influence that the mind exerts upon disease of this character, I encouraged her in this idea, and was careful, in directing my inquiries to her, to avoid exciting in her any suspicion that I believed it. Although apprehensive of the nature of her disease, and strongly desirous of employing certain means of con-

firming my opinion, I cautiously avoided everything that would lead her mind to a different result. I think, however, that, although she openly discarded the idea that her illness proceeded from the bite of the dog, her manner disclosed that she secretly believed that to be the cause. I prescribed a combination of submur. hydrar., pulver. ipecac., āā grs. v., to be taken every two hours.

Upon my way home I met my brother, Dr. John L. Atlee, and told him my fears respecting my patient, requesting him to hold himself in readiness to visit her in company with me, in case I was more fully convinced of the character of the disease upon my next visit.

At one o'clock P. M. of the same day, I visited her again. She received me tranquilly, and expressed herself glad to see me. Her symptoms were now more distressing than they were before. She had a more wild and anxious look; her breathing was accompanied with a short convulsive sobbing inspiration; and the spasms of the chest and throat were more violent, and came on spontaneously every few minutes. There was no febrile excitement. Her tongue, pulse, and skin continued the same. I examined the wound particularly. It still retained its livid appearance, but it was entirely free from tenderness. She had taken one dose only of the medicine, and that with the greatest pain and difficulty, and accompanied with violent spasm. She said it almost choked her when she attempted to swallow it. A short time after she had taken this powder, sickness of the stomach came on, and she vomited three or four successive times, ejecting a quantity of slime. During the last act of vomiting from this powder, she threw off a considerable portion of blood. In consequence of the distress and difficulty produced by taking this first powder, she had desisted from the attempt of taking any more, although she said she felt relieved after she had vomited. Her attention was now directed to her power of swallowing. She said she could not swallow. In reply to my several queries, she observed that she could not explain the reason of her difficulty to swallow; her throat was not sore; *she could not say that she had any dread of fluids*; she was willing and desirous of taking them; yet, whenever she attempted it, she was seized with an intense sense of smothering and spasm of the throat which she could not control. Upon expressing my desire that she should overcome this spasmodic action of the throat by a strong effort of her mind, she replied, "Well, Doctor, I will try." She then took a cup containing a little toast-water off the stove, and,

clearing out her throat, she prepared herself for drinking. I now watched her with the most intense anxiety. She carried the cup half way up to her mouth, then stopped. Her countenance at this time was most peculiar and indescribable. Her features were set, fixed. It appeared as if the energies of her mind were concentrating themselves for some dreadful effort. She carried the cup near to her mouth, then stopped again. I could observe, on her fixed and determined countenance, a commingling of much excitement and alarm. *I could there read the unconquerable dread of a fluid.* She put the cup to her lips—and at once the horrors of hydrophobia burst upon me. I shudder even now at the recital—but it cannot be described—it must be seen. The cup had no sooner touched her lips than she was thrown into violent spasms. First, a sudden, quick, convulsive inspiration, accompanied by a noise as if the air was drawn forcibly through a very narrow chink, violent contraction of the muscles of the neck and face, and drawing up of the shoulders and breast, and great retraction of the pit of the stomach and abdomen. The skin of the throat in front of the larynx was corrugated by spasm. Her countenance expressed the greatest anxiety and distress, and her body was thrown forward by the spasmodic action. This dreadful agony lasted about half a minute. As soon as it was over, she said: “Doctor, I will try it again.” Precisely the same scene followed. Again she tried it, and succeeded in getting about a teaspoonful in her mouth. Now making two or three efforts at deglutition without avail, with one desperate effort she swallowed it.

It must be at once perceived that my patient was a woman of extraordinary resolution and firmness, and knowing this, I urged her to take her powders regularly in spite of the difficulty. She said, “Doctor, I suffer very much from the attempt; but I will take them.” Her husband remarked to me that he believed her illness proceeded from the bite of the dog. She replied, “No; it’s rheumatism; I’ll soon be better of the spasms.” Although she seemed unwilling to permit her mind to believe it, yet I think she was perfectly conscious of the truth of her husband’s opinion.

After ordering a continuance of the medicine already prescribed, and the application of a large blister along the course of the spine, commencing at the nape of the neck, I left her.

At 3½ o’clock P. M., I visited her in consultation with my brother, Dr. John L. Atlee. The introduction of my brother produced no unusual agitation. She appeared glad to see us, and was quite

observant of the common courtesies of life, getting up and offering us chairs, and requesting us to be seated. She had taken another powder, but with great difficulty. This was succeeded by vomiting a large quantity of yellowish-green slime, and some blood, which entirely relieved her of the pain in the præcordia. Since the vomiting had ceased, there had been no recurrence of the spasms, unless she attempted to drink, and then they were less violent. She expressed herself much better, and perfectly free from pain. The stricture and weight on her chest diminished, and there was less anxiety of the countenance. No febrile excitement—pulse in an upright position was 84; in a recumbent posture, 72 in the minute. The fauces or throat was free from irritation, except a narrow stripe of red on the edge of the right palatine arch, which appeared more like mere engorgement of the capillary vessels than inflammation. She had no soreness or pain in the throat. There was some tenderness, particularly during spasm, in both sides of the neck immediately below the mastoid process. There was no tonic rigidity of the muscles of the neck as occurs in tetanus or lock-jaw, and even during the paroxysms of spasm, the tension was confined to the respiratory muscles. We offered her different kinds of drink, all of which were followed by spasms, less violent, however, than before. Cold drink caused stronger spasms than warm did. In consequence of the blister having been applied much lower down than had been ordered, and with a view, also, of extending the decorticated surfaces for the purpose of introducing medicines into the system by means of the endermic practice, we ordered another blister over the back of the neck. Applied 1 gr. of acetate of morphia sprinkled on simple cerate to the blister on the shoulder blade. After administering another powder, which she swallowed with less difficulty, we left her.

At 6 o'clock P. M. information was received that she was no worse.

At 8½ o'clock P. M. we saw her again. The change for the better was quite evident on our first entering the room. Both she and her husband expressed their gratification at her manifest improvement. She had had no spontaneous spasms since our last visit, excepting one, and that came on while lying down. I would observe here that there was always a much stronger tendency to spasms when in a recumbent posture. Her spirits were much improved, and her countenance less anxious. The spasms caused by drinking were much lighter. There was no pain in the præcordia,

and the skin was soft and moist, and pulse 90. The powder we had administered at our last visit produced vomiting of the same kind of fluid without blood. She had taken another dose of it, about an hour before, which had not been followed by vomiting. She said she felt drowsy, and thought she could sleep. On handing her a piece of toast and requesting her to eat, she took a small bite, chewed it and swallowed it with tolerable ease, and repeated it two or three times. Observing that it was rather dry, we offered her a drink, but as soon as she placed it to her mouth, the spasms supervened, though less violent than before. Toast soaked in water could also be eaten in small bits without spasms. She tried to drink repeatedly, and succeeded in getting a little down, and it was always attended with spasm. Noticing that the spasm commenced just at the moment she attempted to draw in the drink into her mouth, we suggested to her another plan: to open her mouth wide, permit us to lay a teaspoon filled with water full in her mouth, then close her lips and refrain from sucking it out of the spoon. Having done this, and then emptying the spoon by inverting it, it was followed by a much lighter spasm than when drunk from a cup. In drinking with a quill also, her spasms were weaker. It appeared as if the wetting of the lips and the effort of sucking in the fluid favored the production of the spasm. Ordered the blister to be dressed with basilicon ointment, and prescribed Submur. hydrar. grs. x; Pulv. ipecac. grs. iiss.

On Monday, February 11th, 8 o'clock A. M., I visited her alone. She informed me that she had altogether during the night about one hour's unsound sleep, and more in the early part of the evening than afterwards. She was not able to drink all night, she could not swallow, and thinks her spasms, on attempting to drink, were stronger and of longer continuance. She endeavored to get down some drink by soaking it up with toast, but she could not. During the night, two spasms came on spontaneously while lying down. She said she was very bad early this morning; she experienced feelings of intense distress, and was thrown into spasms whenever the door was opened and admitted the cold air; felt her spirits give way, and her thirst was extreme. At this time she felt the spasms working in her, every four or five minutes, although they did not break out, producing great agony. She continued in this way until she made several desperate efforts to drink some warm coffee, which she succeeded in forcing into her by means of a quill, to the amount of nearly half a pint. This was the largest quantity of

fluid she had taken since the spasms commenced, and it had quite a tranquillizing effect upon her, causing the great anxiety and distress to diminish. After this she washed her face with a camphor rag, and while doing it was affected with spasm. Although she expressed herself much better than she had been earlier in the morning, I noticed more anxiety and wildness in her countenance than the evening before. Her pulse was not quite so full, the skin rather below the natural temperature, the tongue more thickly coated with the same kind of fur, the breathing seemed rather more difficult, and was interrupted by peculiar sobs and deep sighs. While I was there, she picked up a cold handkerchief to wipe her mouth, and it brought on spasm as soon as it touched her face. She had taken two powders after we had left her last night, which produced vomiting of a yellowish, bitter and frothy fluid, and some blood; but she postponed taking any more after 12 o'clock in the night, in consequence of the great difficulty she experienced in swallowing them, and the sickness they produced, although she admitted that she was always relieved after vomiting. The blisters had drawn well; the cuticle being raised throughout their whole extent. I gave her another powder rubbed up in sugar, which, with the aid of coffee and the quill, she succeeded in getting down, not, however, without considerable difficulty.

At 11 o'clock A. M. visited her with my brother. Her skin was of the natural temperature and moisture, pulse fuller, tongue the same, and countenance less anxious. She had had no spontaneous spasms since; they still came on, however, on every attempt to drink. She complained that the heat of the stove sickened her, but she could not bear the doors open. On attempting to drink some coffee with a quill, she was thrown into a violent spasm, and succeeded in swallowing only a little. The powder which I had given her at my last visit caused her to throw off the same kind of fluid, and a living lumbricus. We examined the blister that had been dressed yesterday by the morphia, and the morphia appeared to be absorbed. The fresh blistered surface on the neck was now dressed with acetate of morphia, and, upon applying the cerate cold to the blister, it produced a paroxysm. Her bowels not having been moved since Saturday, we prescribed, in the form of pill, *Oleum tigllii*, *gtt. ij*, every hour until the desired effect would be produced.

At 3 o'clock P. M. visited her in company with Dr. E. Parry. Her symptoms were about the same; pulse 88. She had taken

only two doses of the oil, and without effect. Gave her another dose, which she swallowed with difficulty. When taking some tea after it, she was thrown into severe spasms, and said she *did not like to see drink come near her*. Uniformly in taking drink she would hesitate, as before described, several times before she would place the cup to her lips, and as soon as she attempted to suck in the fluid, the spasms would commence. She had got into a doze about an hour before, and was awakened by her son suddenly entering the room, which produced a violent paroxysm. Applied morphia again to a blistered surface.

At 6 o'clock P. M., received word that she was no better, and that the medicine had not operated.

At 8 o'clock P. M., called again, with my brother and Mr. Landis, a student. Her pulse was 90; skin and countenance the same. The lower gums and the sides of the tongue appeared excited, resembling the mercurial blush, but it was not attended with the coppery taste and mercurial odor. She had had several very severe spasms from cool air coming over her face, and also from her attempts to drink. She got a most violent spasm when the family were at supper, caused by the noise of pouring out tea. This spasm raised her off her seat, and was accompanied with a peculiar spasmodic noise, great horror of countenance, and a throwing of the hands about. We now spread 30 grs. of submur. hydrar. on a small piece of bread, part of which she ate without difficulty, complaining of it being very dry. We offered her drink, but she did not appear to want the cup; she took the quill out of the drink, and hastily drew the wetted end through her mouth, thus catching a drop. This was followed by light spasm. We then advised her to dip the bread in tea to moisten it, but she did not seem inclined to do it. Observing her dread of the fluid, I dipped it in for her, when she ate it. She said she had dozed a little, and she thought she could doze more through the night. She had taken since the last visit two doses more of the oleum tigllii, making in all 10 gtt., without any effect. Prescribed submur. hydrarg. grs. xv, pulv. ipecac. grs. iij, to be taken every three hours during the night.

On Tuesday, February 12th, at one o'clock A. M., I was called up by a messenger, telling me that Mrs. Keely was much worse, and that I should hurry over. When I arrived there, Mr. Keely informed me that, while he was lying dozing on a chair, she alarmed him very much by suddenly starting up, and flying across the room, with wildness and impatience, towards the front door. He asked

her what was the matter, and she replied she wished to lock the door, and then as suddenly rushed towards the back door. Mr. Keely said that, for a considerable time before this came on her, she had been engaged in prayer, and in hearing the Bible read, according to her request, and that she expressed herself sensible of her situation, and was anxious to prepare herself for the final result. Before my arrival, and immediately after that spell, she had several spasms more violent than at any time before. She had taken one of the powders with great difficulty, and in attempting to take another, it brought on very severe paroxysms, accompanied with ejection of *urinæ*. When the spasms became so violent, she requested her husband to tie her, no doubt fearing that in those moments of intense agony she might injure some one. When I arrived, her children were in the room with her. She said that before she got so bad she had felt extremely happy, and had her children called up around her, that she "felt as if she could go," and spoke a long time to her children and husband, as one taking an everlasting farewell. She told me she felt so much composed when her mind was engaged in such reflections, and desired that the Bible might be read again. I asked her whether I should read it for her, and she assenting, I inquired what portion of the Scripture she preferred. She replied: "The 52d chapter of Isaiah." I read that chapter slowly and distinctly for her, and when done, inquired if I should read on. She said: "I am afraid of tiring you; but I would like to hear more." I then continued, and read eight or nine of the succeeding chapters, asking her, at the end of every chapter, whether I should read on. I then observed that perhaps there were other portions of Scripture she would like to have read. She replied: "You are too kind; but if you are not tired, I should like you to read of the sufferings and death of our Saviour." I then turned over to Matthew and read for her. During all this time, she remained perfectly composed and tranquil, although her spasms had been so violent before. Shortly after this, my brother arrived. Upon asking her to let us see her tongue, she became greatly agitated; her countenance became wild and suspicious; and with appearance of great dread, she said "she could not bear the candle." She was sitting with her back turned towards the candle, but she observed my brother reaching for it, and, although the candle was not touched, instantly she was thrown into the most violent paroxysm I had yet seen. Her head was thrown about from side to side in dreadful anguish, and fearing that she might injure those who were holding

her, I placed my hand upon her head to secure her, but her agony was very much increased, and she earnestly called out: "Take off your hand! take off your hand!" My brother remained until 3 o'clock, at which time we gave her pulv. ipecac. grs. xx, acetate of morphia, gr. ss.

She hesitated for a long time before she took it, saying, "I can take no more," and while preparing to give it to her, she appeared violently agitated, and was seized with incessant spasmodic sobbings. She at last consented to try it, but would not have it moistened; it was mixed up with dry sugar, and she took it, and succeeded in swallowing it with great difficulty, but without much spasm. I remained with her until 4 o'clock, and during this time she had several very severe paroxysms. They sometimes would come on spontaneously; others would be excited by walking through the room, and agitating the air. Her dread of fluids was so great that no drink was offered to her. During these paroxysms, which lasted from half to a whole minute, the inspirations and expirations were quick and spasmodic, producing a singular sound by the concussion of the sudden ingress and egress of air, which, to a warm and pre-possessed imagination, might seem to be a kind of barking. This no doubt has given rise to the vulgar idea that a barking like that of a dog is one of the symptoms of hydrophobia. The spasm generally commenced with a sudden, forcible, and spasmodic *spitting*, very quickly repeated, resembling very much the spitting of an irritated cat, and ended with a deep inspiration or sigh. She frequently had very sudden convulsive sobbing inspirations, sometimes only one, at others two or three in rapid succession, and both in these and in the spasms, her countenance would get much more wild and anxious. Her skin was moist, pulse rather quicker, and she complained more of the heat of the room. Prescribed a powder like the last, to be given every two hours.

Before I took my leave of her this morning, she seemed desirous of knowing my opinion of the result of her case. I told her that her disease was one of a very fatal character, but that we were not entirely without hope; that, in consequence of the manifest amendment that had occurred in her symptoms, we had good cause for encouragement; and that, if her constitution was good and the treatment persevered in, the disease might probably wear itself out, and the system afterwards be restored to health. She replied, she hoped that it might be so, but she expected a different result. I informed her that it was impossible for us to tell, at the present stage of her

case, how her disease would terminate, yet, as there was great uncertainty, it would be better for her to prepare for the worst, and then, in any event, she would be safe. She assented to what I said, and observed that she was not fully prepared to leave this world, and felt desirous of conversing with some person concerning the salvation of her soul; she said that, if her mind was fully prepared, she was sure that in her moments of ease between the spasms, she would feel resigned, and consoled with the idea that when she left this world of pain she would be happy in the other. Upon asking her whether she would like to receive the visits of a clergyman, she replied, "Oh! yes, I would be much pleased; but I am a stranger, and know no clergyman." I assured her that would make no difference; that either of them would call to see her with pleasure; and as she said that she belonged to the Presbyterian Church in Philadelphia, I would request the Rev. Mr. Davie to see her.

During this conversation, she was quite calm and collected, and free from spasms.

Before going home, I left two more powders like the last, to be taken two hours apart.

At 8 o'clock A. M., Mr. Keely called and stated that the powder we had given her at 3 o'clock sickened her very much and produced some drowsiness, but no sleep. The other powders she found it impossible to take.

At 9½ o'clock A. M., visited her again with my brother and Messrs. Landis and Maxwell, medical students. She had taken one powder this morning in her husband's absence. She was pretty much in the same situation as when we last left her, though she said she was worse, and the spasms stronger. The spasms appeared as if they were becoming more general, and they were now always accompanied with that peculiar noise. There was yet no tonic or tetanic rigidity of the muscles. The action of the heart was rather strong, and stronger than was indicated by the pulse at the wrist. Prescribed a blister to the præcordia.

At 11 o'clock A. M., I called upon the Rev. Mr. Davie and requested him to accompany me to see Mrs. Keely. At the time we entered her room, the spasms were very strong, and she was suffering much agony when I introduced Mr. Davie to her. Her paroxysms were now more violent and frequent than before, accompanied with intense anxiety and horror of countenance, spasmodic noise, and an urgent desire for air, calling on those in the room to open the doors. During the spasms she requested those who held

her to press strongly on the pit of the stomach. She complained of thirst, and desired to have something with which she could moisten her mouth. She asked for coffee, but, as it approached her, she was seized with strong spasms; by repeated efforts, however, she drew in a little through a quill, and succeeded in swallowing it. Her respiration was frequently interrupted with convulsive sobs, and she was often hawking up, and spitting out, as if phlegm was always collecting in her throat. She found it very difficult to speak, not appearing to have full control over the organs of speech; it appeared as if the attempt at speaking produced a spasmodic restlessness of the articulating muscles, which rendered it painful for her to speak. Becoming a little more composed, she apologized to Mr. Davie for not being able to converse with him, but said she was glad to see him. He was engaged with her in conversation and prayer about half an hour, which had a most tranquillizing effect upon her. During the whole of this period she was remarkably calm, and free from spasm, although her paroxysms before and immediately after were frequent and of the most violent character. It would appear, from this circumstance, as if the exercise of the mind in this disease had some mysterious connection with the production of spasm; for, as the paroxysms were entirely suspended while the mind was engaged in this all-absorbing question, and as they recurred so soon as the mind was not thus exercised, it would indicate almost as close a relation as cause and effect. The members of the profession will at once observe the correspondence between this circumstance in this case, and a distinguishing feature of chorea, viz: the act of volition being necessary to the convulsive movements.

In consequence of the frequent occurrence of spasm, the blister was not applied to the præcordia. She, this morning, again requested to be tied; but as we found that she could be managed with safety, we considered it unnecessary and forbade it. Before leaving her, I applied more morphia to the blistered surface.

At 2 o'clock P. M., called to see her again, with my brother. Her paroxysms had been frequent and strong since our last visit. She inquired of us whether bleeding would not weaken her, as if she desired it to shorten her existence. She said her "feelings were awful; no one knew, and wished it was over." She lamented about her children and husband—"that was her only trouble," and desired us to comfort Mr. Keely. We attempted to give her another powder, composed of submur. hydr., grs. xxx, pulv. ipecac., grs. v,

spread on bread. She ate about half of it, and after having chewed it for a considerable time, she attempted to swallow it, but could not, saying it was so dry that she could not get it to the right place to swallow it. Persevering, however, with very strong efforts, she succeeded in getting some down, and it was followed by a most violent paroxysm, raising her up on her feet, and producing, in the violence of the struggle, the most wild and despairing expression of countenance. During mastication, the tongue was frequently and suddenly protruded, appearing covered with a darker coat; and her lips became encrusted with a dark-colored matter. There was incessant hawking up of the phlegm which collected in her throat, and spitting of it about the room. She complained of great dryness of the mouth, but would not moisten it; and strongly opposed the administration of more medicines, seeming to dread them. Talking was more and more difficult, and was interrupted by spasms of the throat, and convulsive sobbings. Pulse 100. Prescribed oleum cajeputi, drachms ij, pulv. opii, drachm i, to be mixed and rubbed in around the neck and breast.

At 6 o'clock P. M., visited with Dr. Hopkins and Mr. Landis. Found her in a state of very great nervous excitement, her manner wild and hurried; would startle at the least noise or motion; had great dread of candlelight, and the snuffing of the candle produced great agitation; incessant hawking, and vehement efforts to spit out the frothy phlegm; and her face was turned away from those who sat in front of her, as if she dreaded the brilliancy of their eyes, or the effect of their breath on her face, which produced spasm. When the spasms came on her, she would call furiously for air—for the doors to be open. Delirium appeared to be approaching. She said that Mr. Davie had been there in the afternoon, and she had been much comforted, and that she now was "willing and ready to go." In consequence of the vapor of the oleum cajeputi exciting spasm, it was discontinued.

At 8 o'clock P. M., saw her again, with my brother, Drs. Hopkins and Kerfoot, and Messrs. Landis and Maxwell. We entered the room with great caution and the utmost quietness, and although her back was turned towards the door, and a large quilt, hung up, intervened, she was instantly sensible of the increased number in the room, and was greatly agitated in consequence of it. The nervous excitement and restlessness were extreme, her countenance was marked with great horror and dread, and whenever she was the least startled, it was characterized by unutterable anguish and terror.

There was considerable delirium; the mind was wandering and unsteady, ideas incoherent, and she was much more talkative. She referred several times to the mad dog—"Yes, it was the dog;" "I know it was the mad dog." And she would say: "Come, Mr. Keely, let's take a walk—let's go to the door—let's go down stairs, Mr. Keely—let's go to bed—let's go home," and so on in a wild and impatient strain. We talked to her about bleeding her, and, without replying to us, she said wildly: "Shall I, Mr. Keely? You think I should, Mr. Keely?" She appeared to think that we were going to injure her. There was a constant hawking and spitting, and her face was turned down, and away from us. She said she could not look any person in the face. While in this highly excited state, she said to her husband: "Mr. Keely, I want you to look me right in the face." Her face being turned downwards, and from him, he hesitated. Again she said: "Look me in the face, Mr. Keely." He leaned over to look her in the face, and, as soon as their eyes met, there was a simultaneous and frightful expression of horror—the wild anguish and terror in her countenance seemed to startle Mr. Keely, and he turned his head aside with strong marks of horror depicted upon his. All in the room appeared to feel the shock. We now succeeded in administering two grains of muriate of morphia, and also applied it over the blistered surface on the neck. Observing, heretofore, the tranquillizing effect which always followed the taking of drink, we urged her to try and swallow some coffee. She made repeated efforts, with persevering firmness, until she accomplished her object, which was followed by a considerable amendment of her symptoms. She drank more and more until she got down altogether about half a teacupful. In proportion as she took her drink, her wild, nervous, and delirious state subsided. She could now bear the full glare of the candle, and motion through the room produced much less disturbance. The hawking diminished, and there appeared to be an improvement in all her symptoms. Expecting that the large dose of morphia she had taken might produce a desire for sleep, we made a bed for her on the floor, and, after seating her on it, she appeared more composed and rational. After this, we offered her more drink. She took the cup, leaned over it, carrying her mouth towards the opposite side, and suddenly, to our great surprise, *lapped* up a mouthful with her tongue. This was followed by very little spasm. Her pulse was 115. After remaining with her until 10 o'clock P. M., and prescribing two grs.

of muriate of morphia, every three hours, we left her in a much more composed state of mind and body than we found her.

During our visit this evening, we proposed to her the operation of tracheotomy, but this was preemptorily refused by her husband. So far back in my professional life as I can recollect of being able to form any opinion of this most horrible disease, I have always thought that this operation would be of invaluable benefit, and I had come to the determination of carrying it into effect the first opportunity that offered. This opinion is now firmly established by all the phenomena of this unfortunate case. Although the probability is that the rapidity of the muscular exhaustion, which supervened upon this visit, would have rendered the operation in this instance and at this stage of the disease, useless, yet I am fully convinced that, if resorted to early in the attack, it would strip hydrophobia of its greatest horrors, if it did not cure it. I would demand it upon myself, if I should be thus afflicted. The spasms of the glottis, the constriction of the chest, the difficulty of deglutition, the sense of suffocation, and the intense anxiety and distress, would, in my opinion, vanish, and the administration of medicines and the taking of drink would be rendered comparatively easy. The operation is a simple one, and worthy of a trial. The horrid and incurable character of hydrophobia demands the experiment.

On Wednesday morning the 13th inst., at 7 o'clock A. M., I visited her alone. I was informed that she had about one hour's repose shortly after we left her last night, but the phlegm collecting in her throat had awakened her, and she continued awake during the remainder of the night. She took another two grain dose of morphia about 11 o'clock P. M., and remained tolerably composed until between 2 and 3 o'clock this morning. At 3 o'clock A. M. she took another powder of morphia, but this did not tranquillize her, and she continued to get worse until I saw her. During the night she had swallowed three or four cups of coffee. I found her exceedingly nervous, and nearly constantly in a state of wild delirium, and there was added to the whole look an appearance of horror and despair exceeding anything I had seen either in mania or any other kind of delirium. She looked wildly and suspiciously at every one entering her apartment, and believed that those around her wished to poison her, and kill her, and spoke about the operation. She was very talkative, her thoughts run wild, passing from one subject to another, sometimes serious and at other times sportive and humorous. She spoke also a great deal about her children,

and had a strong suspicion that "all was not right with them." She would wildly cry out, "Where's my children?" "Why don't Manasseh come?" "Where's Jackson?" "Where's Louisa?" "Bring them to me." "Ah! Keely! I knew it! I knew it!" "See, there hangs Louisa's apron." "Where's Jackson's shoes? all's not right with them." "Ah! Keely, I knew it!" Again she would break out: "Bring me my children, Keely! and if they kill me, let them be killed too, for I will not leave them here to be knocked about by strangers." She wanted to go home—to go down stairs—to dress and take a walk—and accused them of throwing handfuls of fur and black stuff in her face, and said that the fur was sticking in her mouth yet. She got up several times on her feet, but would sink down again from weakness and exhaustion. Once she suddenly started up and rushed through the kitchen door, but was immediately caught, and she sank down from the exertion. She succeeded in swallowing a little coffee, but was exceedingly suspicious of everything offered to her, and would examine it over and over again, before taking it. She complained of the air being loaded with fur, and of it coming into her face. The hawking was still frequent, and she spit out a great deal of the frothy mucus. Her pulse was small, weak, and frequent, between 130 and 140 in a minute, and her extremities cold. I observed that her bed had been much stained by the renal secretions during the night. Before leaving her I administered another two grain dose of muriate of morphia, which after a short time was spit out again imbedded in the froth.

At 9½ o'clock A. M., called with my brother and Messrs. Landis and Maxwell. We met the Rev. Mr. Davie there. He informed us that he had not been able to fix her attention. Her mind was exceedingly wandering and delirious, and very much as it had been at my last visit. She was rapidly sinking, her hands and feet and face were cold, pulse scarcely perceptible, and the action of the heart very feeble. There were no paroxysms of suffocation, some spasmodic twitching, and copious expectoration of froth. We now gave her, at repeated intervals, about three ounces of wine, which had no stimulating effect. There now appeared to be a general relaxation of the muscular system, extending to the coats of the intestines—shifting of wind, and borborygmus, followed by copious and frequent alvine discharges—the first that had occurred since the spasms had commenced. Her children were now brought in to see her. She looked at them awhile and said, "Take them away;

take them away." About 11½ o'clock A. M., she had the last symptoms of a spasm, which, though not violent, harassed her a good deal. She now drank a little more wine, and then I laid her down upon the pillow, after which she never moved. From this period on to the moment of her death, the phenomena of her case were singularly peculiar. Her body having been placed in an inclined position, her head was thrown back with her face directly upwards. Her mouth and eyes were open. There was not the least motion or disturbance of her countenance, no more action in her bowels, her pulse was lost, and there was not a muscle or a fibre seen to move, excepting those of respiration. The whole body and countenance seemed as passive as in death, and respiration was more like a mechanical than a vital action. She appeared as dead, and was only disturbed by the ingress and egress of air through the larynx. The depth of the inspirations became less and less, until at last they were lost in the larynx. The breathing was clear; there was no *rattle* in the throat indicating the collection of mucus in the air-vessels. This peculiar kind of respiration continued without interruption for about one hour, accompanied, at every expiration, with a very low moaning sound. The breathing now stopped, and all thought her dead; but in a few moments it commenced again, and went on as before. Again it stopped, and again commenced, and so on for 27 successive times, continuing until 1 o'clock P. M., when we looked for its return, but in vain. The moment of dissolution was not indicated by any of the usual evidences of the separation of soul and body. She appeared to experience nothing of the agonies of death. Before, at the time of, and after death, her appearance was precisely the same, and, at the intervals of suspended respiration, life could not be distinguished.

Throughout the whole course of the disease, after the spasmodic symptoms commenced, this unfortunate woman could not bear, except for a moment, a recumbent position. She sat on a chair the most of the time, and after the paroxysms became violent, was secured by a person sitting in front of her having hold of her wrists. There was not the least appearance of danger of her biting any person near her; nor among the variety of motions which she made was there any which looked like attempting to snap or bite at anything within her reach; and they who were about her had no apprehension of her doing so.

I have now concluded this most interesting case, and I have gone perhaps more minutely into its details than was required.

But as you desired a particular account of the case, I was anxious to give you a faithful history of it from beginning to end. This I was fully enabled to do, in consequence of taking notes of the case immediately after every visit. I am not conscious of having made one misstatement, either as respects her symptoms or treatment, or as regards the history of her own case as given to us by herself. All as it came to my knowledge, and in a conscious spirit of candor, is now before the public and profession, and if the latter can discover anything in the treatment or recommendations that can be avoided or adopted to the benefit of the community I shall rejoice in the discovery. It is most ardently desired that the profession will be soon able to say to their suffering patients, in the language of the 52d chapter of Isaiah, "Loose thyself from *the bonds of thy neck*, O captive daughter of Zion."

CASE 16. *Reported by Dr. Traill Green, Easton, Pa.*

But one case of hydrophobia has occurred in this vicinity in the human species. Dr. E. Slough, of South Easton, who has furnished the information, attended the patient, a girl aged 6 years.

Period of inoculation, March 12, 1848; attack April 23.

Six weeks elapsed between the inoculation and attack. On the 22d of April there was much fever. Hydrophobic symptoms appeared towards morning on the 23d, and death occurred towards evening on the same day.

It was supposed, Dr. Slough informs me, that the termination of the case was hastened by the use of chloroform by inhalation.

CASE 17. *Reported by Dr. Samuel Hart, Brooklyn, L. I.*

The minutes of this case have been mislaid; but I find data which I regard as rendering it nearly conclusive that the case occurred in June, 1831.

My first visit to Mrs. S., about fifty years old, was late in the afternoon, and she presented the following appearances: she was sitting in a chair, her mind clear, rather composed, but her countenance expressive of great anxiety; she complained of alternate chills and heats, though slight, and the pulse was small and feeble, and but slightly accelerated; upon the inner side of the right forefinger, near its extremity, she exhibited a scratch, which that morning had become painful, the pain extending up the arm; and the throat was somewhat affected, but deglutition not materially interrupted. The scratch upon the finger had nearly healed, but that

day had opened again, and was much inflamed. It had not been troublesome, and she had not been interrupted in consequence of it from her usual domestic employments.

Upon investigating the cause of this (to me unusual) development, I was startled by the following statement: A favorite dog was drooping and seemed sick for two or three days, with a constant flow of saliva from his mouth, accompanied with great distress, and an utter inability to swallow either liquids or solids, notwithstanding he made frequent violent and apparently spasmodic efforts to do so. Fearing the animal would perish for want of food, he was confined, his mouth held open, and Mrs. S. (her hand being small) thrust a quantity of food into the œsophagus, which passed into the stomach; in withdrawing her hand, she received the scratch above mentioned from one of his teeth. In a little time, I think the same day, the dog disappeared, and was never seen by the family afterwards.

No suspicions were entertained that the dog was rabid, and Mrs. S. had not experienced any solicitude in consequence of this, to her mind, very trifling and inconsiderable wound.

As nearly as I can now ascertain, it was the fourteenth day after the above events occurred that I was first called.

With these antecedents, and the symptoms before me, I could not doubt I had to contend with a most formidable and alarming disease. Experience had uniformly demonstrated the complete uncertainty of remedial agents in hydrophobia, and I approached the treatment with anxious forebodings. Recollecting a case in my father's hands arrested by mercury, and one successfully treated with the same remedy by the late Dr. Willoughby, I was led to adopt it in this case. The submuriate combined with opium was administered in as large quantities, and as frequently repeated as the system would retain, and saturnine poultices with laudanum were applied to the wounded finger, but afforded no relief. In forty-eight hours the specific effects of the calomel began to manifest themselves upon the glands, and the pain and all the unpleasant symptoms were mitigated. The ptyalism continued some ten days, when my patient became convalescent, and perfectly recovered.

CASE 18. *Reported by Dr. Samuel Hart, Brooklyn, L. I.*

I met with a rabid dog, in the town of Oswego, which had bitten several animals; all of them, I believe, died rabid.

In 1847 or 1848, I had several interviews with the late Dr. Drake

of Cincinnati, and at one of them, he inquired whether hydrophobia was frequent among us? I related the case of Mrs. S. He regarded it unequivocally a decided case of the above disease.

CASE 19. *Reported by Thos. Turner, M. D., Brooklyn, N. Y.*

Cornelius Wurges, a German, æt. 22, was admitted to the hospital Saturday evening, December 17, 1855. He had been bitten by a dog at the extremity of the thumb of the left hand on the 12th of November last. According to his statement, the teeth of the animal had not broken the skin, but had caused some blood, which he pressed out, to collect under the nail; the dog was tied up for two days and then let go, and it is not known whether he had rabies or not. The patient was taken ill on the Tuesday previous to admission with chills and vomiting. Dr. Andrews, of East New York, was sent for. At first he supposed it to be a case of commencing remittent fever, but discovered that the man could not drink or eat, and when he attempted to do so, he was seized with spasms. At first he denied having been bitten, but at last admitted it when questioned closely. I first saw him on Saturday afternoon in company with Drs. Ingraham and Andrews; he was walking about the room supported on each side by an assistant; his limbs tottered under him, and appeared weak. He was quite talkative, face slightly flushed, tongue coated, pulse 120 and weak. Under the nail on which he had been bitten was a blue mark, such as is left after a bruise, and the whole thumb was hot and a little swollen. He complained of pain on the bend of the arm at the elbow and in the lateral region of the thorax on both sides. He made several attempts to drink some milk, but gave it up as impossible. When brought to the hospital, he expressed himself as feeling better, and drank a spoonful of tea, but no sooner had it touched the pharynx than he sprang up from the bed and gasped for breath. He explained the difficulty by saying that his tongue had swelled, but nothing more than a greater amount of redness about the fauces could be observed on looking into his mouth. He complained of the pain when pressure was made on the larynx, or on the side of the neck on a level with the angle of the lower jaw. The back was blistered by applying for 12 minutes two strips of muslin 18 inches long by 2½ inches wide, spread with vesicating ammoniacal ointment, leaving about one inch of the median line clear, and extending from the nape of the neck downwards.

The vesicated surface was dressed with an ointment containing

gr. j morph. sulph. He was quiet until 9 o'clock, when he became very violent, requiring three strong men to hold him. He appeared suspicious and afraid the nurses intended to harm him, cried out that they were going to murder him, and shouted, at the top of his voice, "Watch! mad dog! mad dog!" While struggling with his keepers, he seized one of them by the arm with his teeth, making an abrasion of the cuticle, and they stated that through the night he made several attempts to bite them. It was found necessary to tie his feet together, and confine him to the bed by passing a sheet over his chest and fastened to the bedstead on each side. He continued in an excited state throughout the night, and up to 7 o'clock in the morning. On Sunday morning he was quiet but much weaker, evidently failing rapidly. His pulse varied from 130 to 150. The conjunctivæ were injected, and the eyes had a glassy expression. His face and body were covered with a profuse perspiration, and the feet were cold. He said the fingers of the left hand felt stiff, and the hands looked blue as they do in some cases where the circulation is obstructed. He complained of pain at the epigastrium. When raised in bed, he spat out some tough white mucus. He was so sensitive to currents of air on his face, that the breath of those standing several feet from him brought on spasms, and he cursed them for throwing things at him. No other part of the surface was very sensitive when touched or blown upon. Some beer was brought to him at his request, and he tried to drink it, but was unable to get it to his lips. There seemed to be some regularity in the occurrence of the spasms, coming on every half minute. Chloroform by inhalation was tried with the idea that it would allay the spasmodic action; but he died about 12 M. before it could be determined whether the administration of it would have been beneficial or not. At the *post-mortem* all the organs appeared healthy with the exception of the spinal cord, the papillæ at the base of the tongue, and congestion about the fauces and epiglottis. From examination of the part bitten after death, it appeared most probable that the dog's tooth or teeth had passed under the nail.

CASE 21. *Reported by Dr. Geo. N. Burwell, Buffalo, N. Y.*

Mrs. Willard was bitten by a cat. She was seized with hydrophobia about seven weeks afterwards, and died. One symptom was very prominent during the last day's illness, viz: an uncontrollable disposition to loud, rapid, and incessant talking; she would stop for nothing; not to listen to any of us; she was a very

pious woman, and, although glad to see her minister, she would not or could not stop this talking for a moment, even while he was praying by her bedside. On being asked why she did so, she said she should choke to death instantly if she stopped it. It appeared to me that it was necessary to secure *free expiration*; she had no difficulty in making the inspirations, but she evidently felt that there would be no expiration without the articulation.

CASE 22. *Reported by Dr. Geo. N. Burwell, Buffalo, N. Y.*

On July 4th, 1854, I went to Hamburg, ten miles out, to visit Mr. Gould, a farmer 59 years of age, laboring under hydrophobia, having already had it two days. He had been bitten on the arm by a strange dog, May 16, previous. What became of the dog no one ever knew; it was a stranger in the neighborhood; he was already having frequent spasms when I saw him. Despairing of all the ordinary remedies, I tried that of opening the trachea as recommended by Dr. Marshall Hall, but without benefiting the patient. In this case the first sign of a returning paroxysm was a hissing sound through the wound, *during the expiration of the patient*, suggesting the idea of a spasmodic closure of the rima glottidis.

It was only while reflecting on the case, after I had left the patient, that I first drew the inference, from the facts mentioned in the two cases, that a paroxysm in hydrophobia affected, hindered, or impeded the expiratory act of respiration rather than the inspiratory.

Not having seen any cases since, I have not been able to verify or disprove this observation, and do not therefore yet claim it as a true one. I thought I would state it to you, begging you to inform me if it be an old observation (I have not been able to find any such statement in any of the treatises on the subject I have been able to examine), and if new, whether there is anything in the cases you have collected which would go either to refute or confirm it.

CASE 23. *Reported by F. H. Peckham, Providence, R. I.*

Joseph Mallette, residing in Mallette St., Providence, R. I., was bitten Feb. 19th, 1853, by his own dog. The dog was not supposed to be rabid at the time of biting him, nor is there positive proof that he was afterwards, though circumstances go strongly to show that he was. The dog was a small house dog, a mixture of the cur and poodle.

At the time of biting his master, he was suffering from wounds which he had received from fighting with other dogs, the day previous. As he was naturally cross and snappish, his master did not think it strange that he should bite him, as he was bathing his wounds, and might have hurt him. The dog had been severely bitten two or three weeks previous, but had nearly recovered from those wounds. The day previous to biting his master and to being himself bitten, Mrs. Mallette noticed that while this dog was playing with the cat, as he was wont to do, and always seemed very fond of her, and was never known before to bite her, that he suddenly became enraged, and bit her quite severely.

They had two other cats which were bitten by this dog; all of which were killed after Mallette's death. It was much to be regretted that the lives of the cats had not been spared, to see if hydrophobia would have been developed. The dog disappeared the day after biting his master, and was not seen till some days after his death, when he was found dead under one of the neighbor's outsheds, where he had probably lain for some time. Mallette was a Frenchman by birth, of a bilious sanguine temperament, aged 47 years. He was strong and athletic, with remarkable muscular development. He had always been accustomed to the most active and laborious life, and had almost uninterrupted good health up to the time he was bitten. The bite was a very slight one, it was on the inside of the upper lip, about midway; the mucous membrane was only grazed off, so that there was but a slight oozing of blood. Mallette was unable to determine whether this was done by his own tooth or the dog's; as the dog's nose struck his lip when he snapped at him. The injury was so slight that nothing was thought of it at the time. In about eight or ten days after this, he felt a slight soreness and stiffness of the upper lip. This in a short time passed away, and he was well till March the 4th, when he complained of what he termed a "severe cold." He did not leave off his occupation (a truckman) till the 5th. On the 6th, his "cold" was so bad as to confine him to the house.

He had at this time headache, pain in his back, and chills. In the afternoon of this day, the 6th, he had paroxysms of sneezing, with profuse discharge from the eyes and nose. The sneezing was so violent as to create some anxiety, and lasted throughout the night. His wife administered a dose of castor oil, put his feet into warm water, and afterwards applied mustard poultices. The

sneezing stopped in the morning, but he would now unconsciously draw a long sigh, and sob like a person suffering from deep grief.

On the 7th, after the sneezing had subsided, and the catarrhal symptoms had disappeared, the sobbing and sighing continued at intervals from thirty minutes to an hour.

In addition to these, he began to complain of a fulness of the stomach, with a sensation, every now and then, as though all the internal viscera were rising up.

This feeling of rising, or "lifting up," as he termed it, was very annoying and distressing to him. On this day (the 7th), at 9 o'clock A. M., he first experienced a difficulty in swallowing. At first he did not think much of it, and was not in the least suspicious of the terrible malady he was about to be afflicted with. His wife says that, when she saw he had the difficulty or inability to swallow, the thought came over her that it might possibly be hydrophobia, though she did not at that time mention it to him. About 11 o'clock, he made another attempt to drink, but found he could not. There was, at this time, in addition to the difficulty of deglutition, a sort of spasmodic or convulsive action pervading the whole system, whenever there was an attempt to carry liquids to the mouth. The arm was particularly affected, and, as it were, thrown away from the mouth by some uncontrollable power, whenever an attempt was made to carry it there with drinks.

This created some alarm, and they thought they would call their family physician, Dr. Geo. Capron, who was my partner.

His wife, now being more apprehensive than ever that the disease would prove to be what she had feared, inquired of him, previous to Dr. Capron's arrival, if he thought the bite of his dog had anything to do with his sickness. He replied no, as he saw the dog drink water after biting him. And she says she distinctly remembers seeing the dog drink after biting him. She said they were both of the opinion that a rabid dog could not drink water, and both, having seen the dog drink after biting him, were greatly consoled, and their fears quieted by this belief. Dr. Capron visited him between 12 and 1 o'clock of the 7th, and received the foregoing history of his case. The Dr. said he found him calm, without fever, free from pain, and with a pulse about natural. He greeted the Dr. cordially, and laughingly remarked there was nothing the matter with him, except he could not drink. The doctor spoke encouragingly, and said he would see him try. A tumbler of water being brought, he made the most determined and deliberative efforts

to drink, but was unable to do so, owing to the spasms affecting his arm so that he could not bring the tumbler to his mouth. At this time there was no discharge or increase of saliva.

The doctor spoke hopefully to him, and prescribed a warm pediluvium, with mustard poultices, as warm as he could bear them, to be applied to his feet and stomach; the last with a view to relieve the sensation of "rising up," which distressed him very much, and seemed to increase. He also prescribed a teaspoonful of the pulverized skullcap (*scutellaria lateriflora*), to be taken in molasses. (This herb at one time enjoyed considerable reputation as a medicine in hydrophobia. From extensive use in our practice, we have found it a very useful nervine and tonic.)

At 7½ P. M., Dr. Capron and myself visited him again. Dr. C. had related the case to me, and his strong conviction that it would prove to be a genuine case of hydrophobia. On our arrival, we found the doctor's directions had been faithfully carried into effect. The skullcap he had swallowed in molasses, but it was with the greatest difficulty. The foot-bath at first excited him very much, but in a little while it wore off, and he seemed more quiet under its influence.

He had not been able to swallow any water, though he had repeatedly made the attempt. His physical condition was much the same as when Dr. C. first saw him. He was free from thirst, which, he pleasantly remarked, was very fortunate for him. There was no mental excitement perceptible; neither was there of the pulse; no unusual heat of the skin or drowsiness, though he had not slept since the night of the 4th. We had him try to swallow some water, with a view to test his ability, and to observe the effect that would be manifested. He made the most resolute and determined effort, but it was all to no purpose. No sooner had he taken the water into his hand than he began to tremble, and the whole nervous system seemed agitated with a slight convulsive action throughout the muscular system.

During this time he was mentally calm and appeared perfectly rational. I do not think I ever saw one more calm and self-possessed. There was nothing evinced that showed he was mentally nervous or fidgety. As the water was brought to him in a glass, I did not know but the sight of it might have some influence, and I suggested his trying to swallow some water from a spoon put in his mouth by another individual. To this he readily assented. I took a spoonful of water, and put it to his mouth. It produced consider-

able convulsive action, but he finally succeeded in getting his mouth open so that I could empty it in.

With almost superhuman efforts on his part, and the most emphatic encouragement on mine, he succeeded in swallowing some. It was, however, not without considerable choking, and a sense of suffocation.

This was the last water he ever swallowed. It distressed him very much, and whenever the subject of drinking water was mentioned after this, he seemed wild and delirious. It would cause him to shudder and tremble, with the appearance of terror or fright.

We advised him to continue the scutellaria, as he had been taking it, and in addition two grains of the extract of belladonna, every two hours, alternating with the skullcap, till he should sleep. The mustard poultices were discontinued, as they seemed to distress him. He began now to be sensitive to moving bodies around him, and especially if they were coming towards him.

In addition to the above, we advised chloroform liniment, with frictions to the spine. He took the belladonna through the night. This he could, in the form of a pill, chew and get down.

The scutellaria had to be discontinued early in the evening from inability to swallow it. He slept none through the night, but talked deliriously about waters being forced down him, and that he should resist all such attempts, and that he would have satisfaction should the trial be made again.

He would continue to sob, and seemed at times depressed, as though he had lost self-control. On the morning of the 8th, he seemed calm, and much physically as he was the day previous.

He said he was desirous to make his will; that he felt sensible he could not get well. A magistrate was sent for, and he made his will—calmly, and with the most deliberate composure, exhibiting no excitement or delirium.

Once during the night of the 7th, his wife said, in talking about his inability to drink, he desired her to carry the light out of the room, and bring him some water, that perhaps in the dark he might be able to take it. This she did, but it made no difference; whenever water was brought in the vicinity of him, it invariably produced a sort of spasm, with a sense of suffocation and wildness that he could not control. After the night of the 7th, he made no further attempt to swallow water. After making his will on the 8th, he seemed somewhat exhausted and unable to discharge the saliva from his mouth, or to swallow it.

His mouth soon became filled with a viscid mucus, and the periods of sobbing and depression became more frequent and of longer duration.

He continued to take the belladonna till 12 o'clock of the 8th. He seemed no better, but rather grew worse.

The belladonna had not the least effect, though he must have taken at least 17 grains. At this time (12 o'clock of the 8th), he refused to take anything, saying there was no relief for him till he was in his box (meaning coffin).

Dr. C. proposed the use of chloroform to quiet him, and if possible to procure sleep. He consented to the trial of it, but no sooner did the doctor take it from his pocket than he saw it, and was thrown into a fearful paroxysm of excitement and delirium. He ran to a bureau to obtain a pistol he had there, and declared he would shoot the doctor should he attempt to force water down him again. The doctor said he seemed so wild and furious that he felt almost afraid he might do some violence.

From the effect the sight of the chloroform had on him, he took a great dislike to the doctor, and would not see him afterwards. Through the afternoon of the 8th he was wild, and raved about those who were "bent," as he said, "upon destroying him with water."

It was only upon this subject that he seemed to talk much. When he did converse upon other subjects, he seemed calm and rational; his flesh was cool, pulse about one hundred. His countenance began to exhibit the effects of the constant watchfulness, and plainly showed that he was failing. The mouth was filled with viscid mucus, which ran out of the sides. The difficulty of spitting commenced on the 7th, and lasted till he died.

Through the afternoon of the 8th and till 11 o'clock A. M. of the 9th, there was no marked change in his case, except early in the morning of the 9th he had what his attendants thought to be two slight convulsions; these almost instantly passed off. He died easily, and apparently without much suffering, on the 9th, about 11 o'clock A. M.

His death seemed to occur from exhaustion, and complete prostration of the nervous system. He slept none from the night of the 4th till he died, a period of about one hundred and forty hours. He drank no fluids or ate anything from the 5th, a period of nearly one hundred and twenty hours.

He had no movement from his bowels after the operation of the oil on the 6th. The secretion of urine during the time was nearly natural, both as to appearance and quantity.

He was bitten on the 19th Feb. 1853; the disease manifested itself fully on March the 6th following, being fifteen days after he was bitten. He lived about nineteen days from the time he was bitten, and about three after the disease was fully developed.

CASE 24. *Reported by Dr. Stephen C. Griggs, Providence, R. Island.*

On the 22d day of July last (1853), a dog belonging to Mr. Henry Hopkins, a waiter, aged 28 years, became quarrelsome, and bit another dog. Mr. Hopkins tied him up, and punished him, when the dog bit his master through the little finger. This excited no alarm, as he supposed the animal simply irritated at being taken from the other dog. On the 24th, he unloosed it, and although he tried to coax it back, it immediately passed down the street, paying not the slightest attention to the calls of its master. Since that time he has not seen or heard of the dog. Up to the 24th, he had had no suspicion but the animal was in perfect health. The dog that was bitten on the 22d died at the end of two weeks. It first became paralyzed in one of its fore legs; then in the other fore leg; and soon after in its hind legs; then its jaws became paralyzed, and soon after it died. I cannot ascertain that it showed the usual signs of hydrophobia.

After his dog ran away so unceremoniously, Mr. Hopkins became alarmed, fearing the animal might have been mad. (His finger had been dressed simply as an ordinary wound.) He now read several works on hydrophobia, and tried some prophylactic treatment. After waiting three months, he dismissed his fears as groundless, and came to visit some friends in Killingly, Ct. On Friday, Oct. 21, during the day, he felt a slight uneasiness in the throat, as if something was there he should throw off. The sensation was so slight that he did not mention it. He rested well that night till 4 in the morning, when he was suddenly attacked by vomiting. Said "he was not sick at the stomach, but there was *something* in his throat which every few minutes made him heave." He continued so through the day. At about 4 in the afternoon they sent for me. I was not at home, and Dr. Hutchens went.

Himself and friends now feared hydrophobia. Dr. Hutchens did not encourage this belief. He gave of croton oil four drops; applied a blister to the arm; a mustard paste to the stomach.

At this time he refused drinks, as they produced a *sensation of suffocation*.

I first saw him at 12, midnight. He was sitting up on a sofa, supported by two of his friends, and occasionally leaning back on pillows piled up behind him. He was now fully conscious of his situation, but perfectly calm. His face flushed and anxious; his breathing was a continual sighing, with an occasional gasp for breath; very like a person who is wading down into cold water. Pulse 120, hard. Hands covered with perspiration and cold. At this time the *sight* of liquids would produce the suffocating spasm. The spittoon could not be brought near his face. The spasm also would be brought on by anything coming near or in contact with his face. The smallest lock of his hair falling down over his face, or any attempt to apply a handkerchief to his nose, would produce it. There were constant efforts to clear his throat of a thick stringy mucus. Almost every minute there was an effort to vomit. He could not swallow without the utmost difficulty. By great efforts he succeeded in swallowing two teaspoonfuls of cold water. Said it made his stomach feel better; it was soon rejected. The same with some gruel. The suffocating spasms were increasing with fearful rapidity. Up to this time he had not complained of pain in any part of his body. There was no pain or unpleasant sensation in the bitten finger; no headache. When asked if he suffered from pain, he said "no;" he was easy, except this frightful sense of suffocation.

Treatment.—*Not knowing what to do, I did nothing.*

At 7 o'clock, Sunday morning, all his symptoms had increased in severity. There was much difficulty in understanding him, his words were so broken up by his sighing and spasms. At 10 o'clock the spasms had become so intense that it took two men to control him. He appeared perfectly conscious, but had no control over himself during the spasm. At his request the attempt was now made to steam him. But the spasms increased in severity till 2 o'clock P. M., when he died from exhaustion, in the interval between the spasms.

To sum up: he was bitten on the 22d of July, complained of no unpleasant symptoms till Oct. 22, at 4 o'clock A. M., when he was attacked by vomiting, and died on the 23d, at 2 o'clock P. M., just 34 hours from the attack, and three months from the inoculation.

The dog was a large bulldog. Nervous temperament.

CASE 25. *Reported by Thomas F. Cullen, M. D., Camden, N. J.*

On Saturday, Sept. 8, 1855, the wife of John White, aged 50 years, came to my office at 3 o'clock A. M., and desired advice for her husband, who was "sick." Upon inquiry, found that he complained of having pains in his bones, back, neck, and head, weight in the epigastrium, was feverish and thirsty, but could not swallow without some difficulty, and that he had been troubled with a slight diarrhoea for two or three days. He had attended to his business (as slip tender) at Walnut Street wharf until 11 o'clock the preceding night, when he came home. Such was the account I gathered from his wife.

Knowing that his occupation exposed him to sudden atmospheric changes, as well that his residence was on the marshy shores of the Delaware, and also that he had had an attack of intermittent fever six weeks previous, I ordered him to take hyd. chlo. mit. gr. viij, to be followed in three hours by ol. ricini ʒj, and promised to see him in the morning.

Saw patient at 7 A. M.; found his pulse and skin nearly natural; tongue much furred; pain in shoulders, back, head, and breast; considerable difficulty of breathing; thirst, and a disinclination to swallow, as he said it "hurt and choked him." His breathing was so peculiar, and countenance so anxious, that I feared congestion of the lungs, or some serious lesion of the thoracic viscera; consequently I examined by percussion and auscultation, and found everything normal, except that there seemed to be somewhat more vigorous and laborious action of the heart than the pulse at wrist indicated.

Ordered sinapisms to be applied to chest, and ext. senna fʒss, as the bowels had not been moved.

12 M. Bowels had been freely moved; discharges dark, glairy, and bilious; pulse natural; skin moist and relaxed. Breathing more natural, interrupted at times, however, by a slight, hurried, dry, and smothered cough, during the supervention of which there was considerable restlessness, and a tossing to and fro in the bed; when the tongue was protruded (to do which required a strong effort of the will), it was thrust out of the mouth with the velocity of a serpent's, and drawn back very suddenly, the teeth closing in a measure on it. Endeavored to examine the fauces, but this he positively refused to submit to, as he insisted that it would choke him. He had drank some water during the morning, but found a considerable difficulty in swallowing it, as well as the medicine, or any other

liquid. At my request he drank some water, when he seized the glass eagerly, gulped down two or three swallows, handed the glass hurriedly to me, and was seized with a paroxysm of coughing, with restless tossings to and fro, ending highly excited. Made inquiries as to his having received any injuries at any time lately, and was told both by himself and wife that he had received none; made an examination and found no traces of anything of the kind. As his feet and lower extremities were somewhat cool, ordered the application of dry heat, and as he was nervous and restless, and his mind highly excited, objecting strongly to medicines, directed that his room be kept dark, and perfectly quiet, and promised to see him at six in the evening; at which time found his skin hot and dry, tongue more furred, pulse 80 per minute, same difficulty in protruding tongue. Bowels had been moved during the afternoon, pains in shoulder and chest, respiration hurried, and very much interrupted with cough of the character spoken of before. Mind very much excited; expressed fears that he would never recover. Made further inquiries as to his having been hurt, and was still answered in the negative. Ordered sinapisms to chest to be reapplied, and pulv. Doveri gr. x to be given every hour until quiet or sleep was induced.

10 o'clock P. M. Had taken pulv. Doveri gr. xx; seemed more quiet and disposed to sleep, yet at times there was some nervous agitation. Directed a continuance of pulv. Doveri if restless, and tinct. assafoetid. and spt. æth. sulph. comp. āā ʒj. M. Sig.—A teaspoonful every hour or two as necessary.

9th (7 o'clock A. M.) Rested tolerably well during the night; had several hours of sleep, interrupted at times by restlessness and difficulty of breathing. There was considerable jactitation and nervous twitchings, especially in the arms, difficulty in swallowing, countenance sardonic, great fear of death expressed by patient. Asked his wife if he had ever been bitten by any animal. (The question was not put to him on account of his extreme mental dejection, fearing its operation on his mind.) His wife said that he had not. Inquired of other members of the family, and could not hear of any bite having been inflicted.

As every symptom pointed out the disease to be hydrophobia as described, and having never seen a case, I called in consultation Dr. J. S. Mulford, whose experience in that disease I knew to be considerable; and upon our visiting the patient together at noon on that day, and pursuing our inquiries, the patient informed us that

he had been bitten by a cat on Walnut St. wharf about ten weeks before. He was able to designate the time by an accident that happened in his son-in-law's family which I attended, and upon referring to my daybook, I found that the accident occurred seventy-two days prior to the first symptoms exhibited by the patient. The bite was received the evening before the accident.

White stated "that whilst eating his supper he saw a strange cat running on the wharf. He called the cat to him and offered it a piece of cake; the cat came to him and instead of taking the cake bit his finger, and ran away; he never to his knowledge saw the cat afterwards." Showed two scars on forefinger of right hand, also a small dark spot on nail of same finger where the tooth had penetrated.

At this time (12 M. on the 9th) there was an increase in violence of all the symptoms. The answers to the questions of Dr. M. were given in the shortest and most crabbed manner, in fact, some questions he doggedly refused to answer at all. Complained of an increase of pain in chest—the pain about back and shoulders was entirely relieved—pulse 100 per minute. Respiration difficult—tongue protruded with less difficulty, and in a more natural manner.

A slight draught of air being directed accidentally upon the patient, produced convulsive action of the whole system, and peculiar spasmodic action about the glottis, followed by a cough, and a sudden and violent spitting of a thick tenacious saliva, which was secreted in great quantities. The discharge of this saliva occurred every few seconds. Upon being asked to drink some water, he refused in a loud tone, and with a very angry manner. Directed tinct. aconit. rad. gtt. iii, with chloroform, gtt. xxx, every three hours.

After Dr. M. had left the house, White sent for me to come up to his room, when he told me that he had just swallowed two tablespoonfuls of water, and apologized to me in a very humble way for his abrupt manner to Dr. M. and myself. At my request, he swallowed another tablespoonful of water, which was accomplished with great effort, the patient sitting up in bed, anxious and agitated, and saying in a quick and hurried manner, "I'm ready; I'm ready; Quick! quick!" gulping convulsively when the spoon was put in his mouth, and falling back in a spasm upon the bed, tearing at his throat with his fingers, endeavoring, as it were, to force the

water down, by drawing his hands down the outside of his throat, from his chin to the pomum Adami.

6 o'clock P. M. Dr. Mulford and W. S. Bishop, U. S. N., saw the case with me. All symptoms aggravated, eye bright and glaring in expression, pupil much dilated, pulse 150 per minute. Respiration 44 per minute. Experienced great difficulty in speaking, and begged that we would not ask him any questions; skin flaccid and moist; continued spitting of tenacious saliva, which was ejected with much force. Had taken but one dose of aconite and chloroform, but had swallowed some thin arrowroot gruel. Directed blister to nape of neck, intending to apply morph. sulph. to denuded surface. Tinct. aconit. gtt. x, and chloroform ʒiiss in starch water, every 3 hours as an injection.

9 o'clock P. M. Great aggravation of all symptoms. Immense quantities of saliva had been discharged, and at times there was vomiting of dark-green glairy matter. He was perfectly furious, and very abusive to all his friends, and to myself in particular, and entertained the idea that we wished to murder and rob him—threatened terrible vengeance if he ever recovered. Had positively refused to have the injection given, the bare mention of which excited him to the highest pitch of fury.

Tried the inhalation of æth. sulph. three parts, to one part chloroform; which he resisted with terrible threats, which were sometimes changed to pleadings that I would let him "alone to sleep, and come in the morning when he was *rested*."

Upon reasoning with him, and assuring him that the inhalation would produce the sleep he so much wished for, he would consent to allow its application, but the moment the sponge was brought near him he became frenzied, and endeavored to injure those about him; accordingly, he was secured in such a way that he was perfectly under control. At this time his pulse was 152 per minute, very feeble and irregular. Soon after ether was applied, he became calm; pulse fuller. After remaining quiet for a few moments, the convulsions returned, which were easily controlled by the application of the ether for a few seconds.

The blister on the nape of the neck having been torn off by the patient, and it being inconvenient to replace it, it was applied to the epigastrium. Gave injection as ordered before, and directed its repetition every three hours, also ether by inhalation, only when convulsions returned with violence. Remained until one o'clock A. M., up to which time he was quiet. Pulse 152 per

minute, very feeble and irregular; skin cool, flaccid, and moist; evidently sinking. About one hour after I left him he died, having had only slight tendency to spasms, which were not of a sufficiently severe character to demand etherization.

The patient had only been *ill* sixty one hours, although during the afternoon and evening of the 8th he complained of feeling unwell, but not sufficiently so, as he thought, to warrant his leaving his work.

The short duration of the attack can only be attributed to want of vital force in the patient. He was thin, cadaverous, and decidedly of a scrofulous diathesis, and had in early life suffered severely from white swelling.

A constitution so depraved could not long resist any powerful malady, much less one so terrible as is hydrophobia.

CASE 26. *Reported by Mr. J. Sanders, Cloverport, Ky.*

Sir: I just now noticed a call in the *Louisville Journal*, for information in relation to any case of hydrophobia that may have come under the observation of any physician or other person, to be sent you as early as possible. I am no physician, but several cases of hydrophobia having come under my observation some years past, perhaps I can contribute a mite towards your "philanthropic object."

In the fall of 1839, I was a resident of Spencer County, Indiana; it was I believe about Sept. 20th a "mad dog," traversing the neighborhood, in one night did an immense amount of mischief, by biting hogs and cattle, and other dogs. The animals bitten were attacked in a short time afterwards with the terrible disease; though not exactly in "nine days," yet none were attacked sooner than that period; the disease delaying to exhibit itself in some of these animals for three or four weeks. Of the hogs, their general actions after the attack was that of intoxication, no disposition to change place, yet in continual motion, turning about, taking a step or two forward, and then back again; the head never in its natural position but elevated, and turned a little to one side, white froth about the mouth, no inclination to do any damage; their attention could be drawn in no way. Of the hogs attacked I saw several, they all acted *precisely* alike. Of the cattle I saw only one, a large fat cow; she seemed to be in the greatest pain; no disposition to change place, yet in continual motion; a white froth at the mouth, occasionally bellowing; no raising of the head high as in the case of

the hogs, but giving the head and neck the position the cow kind exhibits when about making battle. This cow frequently fell to the ground, but would immediately rise again. If any one approached her, she would make at him as if for an attack, but would fall immediately to the ground, rise again, not renewing the attack as it were for that time.

How long these animals would have continued in this state I cannot tell, for they were all shot soon after they were attacked. In these lines I have been as brief as possible; if there is anything else you wish to inquire about as being characteristic of this dreadful malady, write to me, and if I can refresh my memory sufficiently, I will give you the information with pleasure. The most remarkable feature in regard to the swine was elevating the head and turning it a little to one side. In the case of the cattle, falling to the ground whenever they advanced a step or two toward any person for attack. The cattle seemed as though they would do injury if they could; but the hogs showed no such symptoms. A small boy was bitten by this dog some miles from my residence, and died soon after in dreadful agony. I did not see the case, and can give no information about it as to how he was affected, how long after the bite before the attack, or how long after the attack before death. If this will be of any use to you in your report, you are very welcome to it. I am yours, very respectfully.

CASE 28. *Reported by Dr. C. F. Clark, Woodbury, N. J.*

On Tuesday, the 16th day of May, 1854, I was called to see a Mr. Isaac Murphy, near this place. He was a stout rugged-looking man, aged 25 years, a farmer by profession. I found him walking about the yard with his sister; he had a wild unnatural look, but was perfectly rational; he told me he was taken unwell on the previous Thursday; he had been bitten on the hand and wrist just 10 weeks previously, by a small Scotch terrier dog, brought home on that day by his mother-in-law, Mrs. Driver, from Philadelphia; no one imagining, at that time, the dog to be rabid, although Mrs. D. was told that this dog was an ill-natured cur, snapping at everything that came in his way; he eventually escaped, and was found fighting with the dog of a neighbor, who shot him, still without any suspicion of hydrophobia.

Mr. Murphy's first symptom on Tuesday was in the cicatrix of the wound on the wrist, which began to swell and pain him. Being at work in a meadow, he took up portions of cold mud and applied to

it, with temporary relief of the unpleasant feeling; on Friday the same unpleasant feeling extended to the arm, and next day to the side of the neck and head, and to the opposite arm; this unpleasant feeling gradually grew more intense, preventing him from sleeping. On Tuesday morning he found some difficulty in swallowing his coffee; this difficulty he attributed to having drank pretty largely of sharp vinegar on Saturday and Sunday, which, he said, had made his throat sore. I proposed examining his throat, and brought him in front of the window, to seat him for the purpose, when he immediately started back, as though the light hurt his eyes, and with a peculiar catching of the breath, such as would be induced by throwing a handful of cold water, unexpectedly, into a person's face. I found the lining membrane of the fauces red and somewhat swollen, the tonsils were not enlarged, the uvula slightly enlarged, the velum a little thickened, and the posterior wall of the pharynx highly vascular. His pulse was quick and full, beating about 100; his eyes were bright and glassy, having a peculiar wild look, such as I have noticed in a rabid horse, which I had seen some months before. The cicatrix was elevated above the surface, red and painful. I immediately cut it out, although I think now this was altogether unnecessary. I applied a blister over the part, gave him a purge of jalap and calomel, and advised him to drink as much brandy as he could, intending, if possible, to intoxicate. He was a temperance man, and objected, on this account, to taking so much brandy, and, besides, he had great difficulty in getting at it, as he expressed himself; while bringing the glass or a cup of liquid to his mouth, he would turn his hand away, and on getting it near his mouth, would seize it with both hands, and throw it suddenly down his throat, immediately throwing himself back, and gasping for breath; owing to these causes, but little stimulus was taken. At 3 o'clock he was attacked with spasms, which continued for $2\frac{1}{2}$ hours; a teaspoonful of black drop (acet. opii) was then given; a drachm of chloroform was poured upon a sponge, and held to his mouth and nose; this at first startled him a good deal, and it was not without difficulty that he could be got to inhale it. It had, however, a soothing effect upon him, and the spasms left him.

While the spasms were upon him, his muscular system was in most violent, irregular, and constant action; at times his body would rest upon the head and heels, and immediately after be thrown violently forward. It was found very difficult to keep him on the

bed ; a number of assistants were required ; no offer to injure himself, or any of the by-standers, was attempted at any time ; immense quantities of thick, viscid mucus were secreted from his throat, from which he seemed in imminent danger of suffocation ; in his efforts to relieve himself of this, it was thrown in every direction around the room. It was necessary for each assistant to have a towel to ward off this offensive matter. He seemed conscious of the impropriety of this, but could not help doing as he did. After the spasms ceased he remained for 6 or 8 hours perfectly rational, talking pretty calmly ; desired to see a young lady to whom he was engaged, but on her approaching the door he motioned her to stop, and turning his back towards her, conversed quite rationally with her for some time. A person coming suddenly into the room, even opening the door, or the slightest noise, agitated him very much. He was extremely anxious to leave the room he was in, and go up stairs to his usual sleeping room, but in every attempt, on approaching the door, he would start back, with that peculiar catching of the breath, as though the fresh air deprived him of the power of breathing ; while free from the spasms he slept quite composedly for short periods.

The spasms returned, after the interval named above, and were in all respects similar to the first. Chloroform was the only thing that had any influence in quieting him ; they continued for a longer time, but again left him with some delirium ; he again became rational, and slept for a short time. He died at 10 o'clock next morning (Wednesday). I was not present at the time, but arrived shortly after. No distortion of the features appeared as evidence of the terrible ordeal through which he had just passed. It was astonishing to see "how calm was his slumber."

CASE 29. *Reported by Dr. C. F. Clark, Woodbury, N. J.*

Mr. Driver, the brother-in-law of Mr. Murphy, was twice bitten on the hand, on the same day, and not an hour previous to Mr. M., by the same dog. He has had no attack of disease of any kind since. After Mr. M.'s attack was found to be hydrophobia, Mr. D. obtained from Philadelphia some nostrum said to be efficacious as a cure, as well as a preventive of this disease. I do not recollect the name of the discoverer ; and put no reliance whatever in its power. Mr. D. describes it as excessively nauseous, smelling very much like the contents of a privy, and tasting accordingly. I had not faith enough in it to try it either way.

You will observe that it was about the first of March when these men were bitten, a time of year when we have pretty cool weather; it was just ten weeks from the inoculation to the invasion of the disease, and about this, I suppose, there can be no kind of doubt; although this is the only case of hydrophobia, in the human being, that I have ever seen, I do not suppose there can be a doubt about the correctness of diagnosis.

The first symptom was an inflammation of the cicatrix. Had Mr. Murphy applied then, I should certainly have practised excision, and then it might have been effectual.¹ It would be well, perhaps, to have this fact remembered, when a person has been bitten, when no suspicions exist; the wound heals, and afterwards becomes painful, red, and swollen; there ought to be no delay in having the part removed, if in a situation admitting of it.

I have seen a number of cases of hydrophobia, in animals; 1 cow, 1 horse, and a number of dogs; the actions of dogs have not always been conclusive. I believe they always go away from home, and after a time exhibit the great secretion of mucus about the mouth. I do not know anything as to the length of time between the inoculation and invasion of the disease in dogs.

In the case of the horse which I saw, it was just one week from the time he was bitten to the attack of the disease. I saw him the next day after the attack; there was then a slight foam about his mouth; he was bitten upon the upper lip, which was slightly swollen at the spot; he was constantly champing; no remedy was tried, except bleeding, but the blood was thick and dark, did not flow freely, and soon stopped. I started the next day, with a good supply of chloroform, to try it upon this horse; he was 10 miles from my residence, but on my way I learned that the owner had shot him, after spasms had come on, the previous evening. I do not remember the time of year when I saw this case in the horse; the weather was cool, I think in the spring.

CASE 30. *Reported by Dr. C. F. Clark, Woodbury, N. J.*

A pig belonging to a Mr. James Dilks, of this place, was taken sick, and as it had been bitten two weeks ago last Sunday, by a strange dog, it was supposed to have the hydrophobia. This morning on hearing of the case went to see it; it was lying down, and ap-

¹ *Note by the Committee.*—"Experience leads us to believe that the excision of the bitten part, at any time before the general symptoms of the disease have appeared, will avert the disease."—Godman, *Nat. History*, vol. i. p. 169.

peared not to be suffering much; its mouth was surrounded with a white foam; on touching it with a stick it threw up its head violently from side to side, got up and staggered about the pen; on presenting a tin basin of water to it, it caught the basin in its mouth and bit upon it hard enough to indent it considerably, threw it violently aside, at the same time squealing as if in pain, exhibiting in its movements evidence, by its irregular gait, of spasmodic action of its muscular system. I have not a doubt of its being affected with hydrophobia.

At the time this pig was bitten, there was in the pen with it another, the nose of which was entirely torn off by the same dog. It occurred early in the morning the dog was seen to leave the pen; no suspicion existed at the time of the dog being rabid, nor has the dog been recognized since to any certainty. How much more damage has been done is of course not known.

On finding his pig so badly bitten, and it being fat, Mr. D. offered it to a neighbor if he would kill it, which he did, and it was consumed in his family. No little alarm was excited amongst them yesterday, on finding this other pig sick and exhibiting symptoms of hydrophobia. I do not think there is much cause for alarm; the pig was bitten on Sunday morning, was killed on Monday, before the virus had time to penetrate the system, and it was not certain that the disease could be propagated by consuming the flesh even of a rabid animal, after it had been cooked, though I suspect very few would like to try the experiment. There are a good many rumors around the town to-day of dogs exhibiting signs of disease. I shall have an opportunity, before mailing this letter, to learn something of their truth, and communicate the result to you. I met Driver a few days since in Philadelphia in perfect health, I mean the man bitten at the time Murphy was, whose case I before communicated to you.

I thought the case of this pig would be interesting, from the fact of its occurring in cold weather, and from another fact, which I think is unusual; according to what I have seen, *rabid dogs do not often worry the animals they bite, they only give them a snap and go on;*¹ but in this case, one of these pigs had his nose eaten off entirely, the other was bitten on the lip and ear, and a piece of the tip of the ear bitten off; this helped to lull suspicion; occurring, as it did, about the time Mr. D. had killed his hogs, it was supposed the dog had

¹ Italics by Committee.

been prowling around after something to eat, and had *quarrelled with the pigs* in that way. I begin to think the only effectual dog law, is one to exterminate them. Our corporation prohibits dogs running at large without muzzles in summer, but they are at perfect liberty now to bite whom they please.

31st. P. S. Pig died last night; one dog has been killed that exhibited signs of hydrophobia.

CASE 31. *Reported by Dr. A. Hunton, Hydepark, Lamoille Co., Vt.*

The 24th May, 1840, I was called to a son of Thaddeus Newland, of Hydepark, Lamoille County, Vt. The name of the lad who had symptoms of hydrophobia was Arry Newland, aged fifteen. I was conducted to his room; he was in bed; I took hold of the sheet, and spread it up toward his face with a quick motion, to agitate the air; he caught his breath and sighed deeply.

This test, with the shudder at the sight of water, was satisfactory evidence of the character of the disease. Five weeks previous, the lad was bitten by a small dog, as he concluded accidentally; as the dog was digging for a squirrel, the boy took hold of a root to help the dog, and was bitten. The dog ran to the neighbors, was cross, and showed so much fight, that it was killed. There was a suggestion that the dog was rabid, but the idea faded and was nearly forgotten. The Thursday and Friday before I saw him, he was noticed to be listless, dull and taciturn; was asked if he was unwell; said not, but Friday evening he called for water; was presented some by his mother; he shuddered, appeared perturbed, and refused to swallow. This was the first notice of the nature of the complaint. The father was called; other trials were made until they were satisfied the lad was rabid. He being very thirsty, some cider was put in a phial; an oat straw was inserted in it; he would sip enough from the straw to wet his mouth. I informed the father the disease was hydrophobia, and the child could not be cured; compared the case with inoculated smallpox; that the boy was inoculated with a specific virus; it is now operating in the system; reason would teach any reflecting mind the disease could not be averted, and was incurable.

To satisfy friends, I advised to give him a lobelia emetic, thinking it might obviate some regrets or misgivings in the family after the decease of the child. The tincture of lobelia being put in the phial with the cider, he sipped enough through the quill to cause emesis, after which his breathing was not as laborious; he was more calm for

some two hours. To make my narrative intelligible, I must digress. Two years previous to this, a Mr. Richardson, of Elmore, was bit on his hand by his fox-hound, supposed to be rabid (which probably was not the case); the news went to Montpelier, twenty miles. A Mr. Wright, a Thompsonian practitioner, hearing the circumstance, rode to Elmore and tendered his services to Mr. Richardson; he being a man of *common* sense, did not employ him, neither did he try any preventive; he is still living. Had he taken the lobelia and steam of Mr. Wright, he (Wright) would have had a tall plume added to his turban. This was known to the father of the lad, Mr. Newland; his older sons had without his knowledge sent to Montpelier for Dr. Wright; he was not at home, he being a *clergyman* was off curing souls, it being Sabbath, whether with steam or pepper I am not informed.

A young ignoramus employed in Wright's sweat-house, made his appearance soon after I left. I much regret I did not see him. I wished to give him a short lecture he would not soon forget. It is said he introduced himself as *Doctor* Sartle. Mr. Newland asked him if he could cure the hydrophobia; he unhesitatingly answered "*yes.*" Newland was somewhat posted on the disease; I had left with him Thatcher on hydrophobia. He asked Sartle what he would use. *An airb.* What herb? He declined to inform, fearing some of the regulars would know as much as himself. Newland informed the sage *doctor*, he should not give his child any medicine until he knew what it was; he then acknowledged it was lobelia. He was then asked if he had ever performed a cure; he answered he had. Who? was asked. He was loth to give the name, but being urged he gave Mr. Richardson. Newland informed him he knew that to be false. Mr. Newland informed the miserable (may I write it) *devil*, he had imposed on him, that he was convinced his child must die; he gave *Dr.* Sartle a parting blessing; he departed I presume not feeling much elated.

I tarried with the lad until Sunday noon; his appearance was quite similar to those afflicted with delirium tremens; he appeared to see some frightful object; he desired on Sunday morning to be left alone; he raised a window, crept out, leaped two fences, and ran some distance into the field.

There was living in the family a young man, on whom I had performed castration; this probably was known to the patient. I went into the room a short time before I left; he sprang on the bed, leaned against the wall, looked frightened, and said to me, "You

old *cuss*, you want to cut out my b—x, don't you?" When I left, I concluded he would live until noon on Monday; I wished to see him again; informed the friends I would see him the next morning; started on Monday, but heard of his death. He would have turns of raving; would strike, but I did not see him attempt to bite. It required some strength to confine him. The probability is I have been more minute than necessary. If there is any useful information, regard it, and reject the rest. I should like to be informed of your reception of this. I am old, my mind is treacherous; please excuse my imperfections.

CASE 32. *Reported by Dr. J. H. Beech, Coldwater, Mich.*

My knowledge of hydrophobia is next to entire ignorance; but a few facts have passed under my observation which may assist stronger evidence, although their own weight is diminished by not having been recorded at the time with dates and particulars. I think it was in February, 1842, a small dog came into the enclosure of Dr. Martin Mason, at Gaines, Orleans Co., N. Y., and flew at his cow, and I believe drew blood from one ear. It was only thought to be young and mischievous, and was not killed till it had travelled twelve or more miles east, if at all. I have an impression that some weeks afterwards a rumor came to that effect. One other animal was bitten in the immediate vicinity, and showing signs of disease of some sort about two weeks after the death of the cow (which I will describe), was killed.

The said cow showed no signs of disease until *six days* afterwards. (I may be mistaken in the time.) Her quantity of milk was less on the evening of the sixth. The next morning she was heard before day, about two miles west of home, making a frantic moan or bellow, and was found to have been running in a circle of about three rods in diameter, and was foaming at the mouth; the eyeballs fiery and prominent. I saw her about nine (9) o'clock; she was then unable to stand, but would show a disposition to hook and push on the nose with open mouth, which was interpreted as snapping, by the by-standers. I recollect well that a part of her circuit was through a deep snow-bank. She died about 11 A. M. There seemed to be no doubt in the minds of those who saw her that the disease was produced by the bite of a rabid dog, although poison, "phrenitis," and other causes were mentioned.

I have known of the killing of several *rabid* dogs in the vicinities in which I have been, none of which have been in the "dog

days" or hottest season. Yet all the others have been in warm weather.

CASE 33. *Reported by Dr. J. H. Beech, Coldwater, Mich.*

A cousin of my mother was bitten, when a child, by a rabid dog. A quack remedy containing acetate of copper was administered, and as it did not kill, it was thought to have cured her. Ten years after she was so unfortunate as to break her arm, and died in a few days with marked symptoms of "*rabies*."

I have no means of getting at the particulars of the case.

CASE 34. *Reported by Dr. G. D. Ayres, Brooklyn, N. Y.*

Michael Casey, aged about 40, was employed as harness washer in a livery stable in this city. In April last, whilst endeavoring to catch a bitch pup about four months old, was bitten (not severely) on the fleshy part of the hand, between the thumb and forefinger. He treated the wound as a trifling affair, and adopted no prophylactic measures. About three weeks after he was bitten, he was employed to bury two dogs which had been killed in the same vicinity, one of which was unmistakably rabid, and severely bit the other, covering him with saliva and blood. This dog Casey freely handled. The wound from the bite cicatrized, but as near as I can find out his hands at this time were abraded in several places. About ten weeks from the day he was bitten he exhibited the first symptoms of the disease, when about taking some soup. At the first spoonful, he complained of a sore throat, and spat it out, saying he could not swallow it. This was at noon on Thursday, the 9th August. On the 10th he kept quiet at home, refusing all food or fluids, although complaining of great thirst. On the 11th (in the evening), I first saw him. His countenance expressed anxiety; he was sitting up in bed. Pulse 80, but varied in frequency at short intervals. He complained of no pain in the head or arm; tongue moist and slightly furred. The room was darkened and the windows closed, he having intolerance of light, and apparently great susceptibility to any currents of air; objected to being fanned, &c., yet did not complain of being cold or chilly. He begged for water, and after several ineffectual attempts to drink or even get the glass to his lips, I told him to open his mouth and close his eyes, and suddenly I threw a dessertspoonful of water in his mouth. This act was followed by a most violent choking spasm of the muscles about the throat; he swallowed but little of it, the

most being spilled over his chin. After a little, he said "he could take more, after he got a little used to the water," and asked for some to wash his hands in; this act produced hurried inspirations. I asked him to put a piece of ice in his mouth, but as his hand approached his mouth, his head apparently involuntarily receded from his hand, but when once in his mouth, he allowed it to dissolve and swallowed it, not without difficulty, but with less spasm. Having no convenience for his proper treatment at his house, and he being constantly annoyed by the visits of the curious, his removal to the King's Co. Hospital was advised, whither he was taken on Sunday morning, the 12th inst. On starting he appeared quite cheerful; said he felt better, shook hands with his companions, &c. Deglutition was about as difficult and painful as the day before. After admission to the hospital he drank some brandy and water, and also a little gruel with difficulty, and was cupped on the cervical region of his spine. In the P. M. a dose of laxative medicine was exhibited, after which he slept some, but was restless, and talked wildly. About midnight he awoke. Complained of pain in the hand (in which he was bitten) and in his arm, which finally became paralyzed; also of his throat, and was now constantly spitting out shreds of viscid mucus. From this time he had occasional spasms (of his whole body), and died exhausted on Monday the 13th August, at 12½ o'clock P. M.

Post-mortem appearances.—Aug. 16th. Externally, livid patches, particularly on posterior surface. Vessels of membranes of brain congested, but nothing remarkable about the brain itself. The *papillæ*, especially of the back portion of the tongue, were enlarged and the parts about the epiglottis, larynx, and trachea, as well as the pharynx and œsophagus, were very red. Mucous membrane of the stomach softened, and at the greater curvature was abraded for some three or four inches in circumference, and diaphanous; lungs, with exception of some old adhesions, normal; liver large and flabby, and all the viscera much congested. The spinal cord, down to about the 10th dorsal vertebra, was covered with an effused lymph. Ossific deposits were found in the aorta, and large quantities of sero-purulent matter escaped from the spinal canal when exposed.

This man had been notoriously intemperate for some years past, cannot find out that he ever had delirium tremens. For some three weeks previous to his death, he had stopped entirely the use of stimulants.

The same pup a few days before had bitten a boy, who was teas-

ing him at the time. His wound was freely cauterized with arg. nit. immediately. Up to this time he enjoys his usual good health.

The dog was killed immediately after biting the man, without exhibiting any of the usual symptoms of rabies. Several other dogs have been killed in this vicinity this summer, all showing more or less the symptoms of hydrophobia.

As to the dog laws, we have about the same laws here as in New York city, but they are very imperfectly enforced, if at all.

Your letter should have received an earlier answer, but I was delayed in obtaining some of the data. If there should be any points in this case on which you would desire more explicit information, it will afford me much pleasure to collect them for you.

CASE 35. *Reported by Dr. Roelker, Cincinnati, Ohio.*

Henry Uthoff, 28 $\frac{3}{4}$ years old, laborer, married, a native of Prussian Westphalia, came to the United States in 1845; was a resident of Cincinnati since 1849; a middle sized man, rather slender, of dark blond hair, brown eyes, of irregular habits, not a drunkard, but would drink too much when in jovial company, which would happen sometimes once, sometimes twice a week; a trifle in talk and action, who would tell stories for the fun of it, hence not reliable in his words; was bitten May 17th, 1855, at about 4 A. M., while going to his work, by a strange dog, who wore a part of a chain around his neck. Whether the dog was mad remained unknown. Uthoff is said to have seized the dog by his neck and thrown him upon his back, upon which the dog bit furiously into his hand, and kept such a firm hold of it that Uthoff could not free himself of it until he seized the dog by the throat, and nearly strangled him. The dog never was seen again afterwards. Uthoff washed his hand in water and bandaged it, but never consulted a physician, although he was urged to do so. The wound continued sore for about four weeks, when it healed up. Early in June he went to Illinois, from whence he returned on Friday, the 29th of June, at midnight. He ate and drank, and went to bed. Saturday, the 30th, he complained of heaviness and weariness in his limbs, and feeling sick all over, which he ascribed to having taken cold on board of the boat. He ate and drank but little. The following night he did not sleep, and talked loud, as if dreaming. On Sunday, July 1st, he complained of pain in the bitten arm, and of a prickling sensation running from his fingers up to the shoulder, for which he was advised, by his friends, to bathe the limb in warm water. When trying to do so he shud-

dered, and turned off with aversion, without accomplishing it. During the day he felt unwell, and weary, and heavy; had no appetite, still ate and drank something, and spent part of the day in company with his friends. The following night he was more restless, talked loud, as if dreaming, made queer noises, but could not turn over in his bed. Monday morning, July 2, he could not wash himself, shrunk back from water, and could not drink his coffee. Then he went about two miles to get medical advice; did not, however, represent his true case, but stated that he felt unwell, weary, and oppressed about his chest; thought he had taken cold on board of the boat, where he slept on deck, on his return from Illinois, and led, by his statement, to the supposition that he had contracted an intermittent. In the afternoon, his landlord came and communicated his suspicion, and a part of the above history of the case. I saw him the same evening, with a medical friend. He was perfectly rational, answered all our questions, told me himself that he had been bitten by a dog, and swallowed some water, by my request, although it cost him a great effort, and it was accomplished with great difficulty. Ice was put upon the nape of his neck, and chloroform and the tr. rad. aconit. applied to his throat, and, his tongue being very much coated, an efficient dose of calomel was administered, to act upon his bowels. The medicine acted well, but the applications could not be kept up, as he was excessively restless all night, and wanted constantly to run off, or jump out of a two-story window. Early in the morning, July 3, he washed himself, was perfectly quiet, rational, and docile, but his eye was wild, the profuse perspiration continued on him, as well as the rapid pulse and the spasmodic contractions of his throat. Towards noon, eight grains of the powdered root of belladonna were administered, as fresh as it could be obtained in the city, although it was not of this spring's growth, and ice ordered to be applied the whole length of the spine, which proved, however, impossible, on account of his restlessness. In the afternoon he drank water, but continued so restless the whole day and night as to keep about a dozen men busy in watching him, to prevent his running off, or jumping out of the window. In the morning of the 4th of July, about 4 A. M., he drank coffee, with some, but not a great deal of difficulty. At 7 A. M., he was too much exhausted to leave his bed any more, although he sat up in it; he hardly knew me; he answered some of my questions, but it was with great difficulty that he could collect himself sufficiently; the profuse cold perspiration was running

down his body; his hands were ice-cold, and their skin purple-bluish and corrugated, like a cholera patient's, in the state of collapse. He died at 9 A. M., the same morning, and was buried in the evening of the same day.

Post-mortem examination was not made.

CASE 36. *Reported by Dr. J. E. Pearson, Vienna, Ala.*

If there are extant any *municipal regulations* or "Dog Laws," in this State, I am not aware of it. This may be attributed to the very singular fact, that there are no rabid dogs in Alabama! I have practised my profession twenty years in this State, and have heard of no case of hydrophobia, and have taken pains to get information from others older than myself who have preceded me. In South Carolina, however, where we were frequently terror stricken by the unwelcome visitation of such guests, now and again a case did turn up to the alarm of the neighborhood and the discomfiture of the physicians, during my minority, in the little village of Monticello, Fairfield Dist., S. C.

A most excellent old lady, Mrs. Jane Porter, aged about 65 years, of bilio-nervous temperament, dark complexion, was bitten by a cat whilst she was visiting her garden in the summer, for the purpose of gathering vegetables for dinner. The cat was, it seemed, a constant companion in her daily walks, and owing to its peculiar friendship and sagacity before, this circumstance alarmed the husband, who immediately called in my brother, Dr. Geo. B. Pearson, who was then practising his profession in the village. He suspected the animal of hydrophobia after reviewing the circumstances, and proposed to put her under an alterative treatment, which he did by the administration of small doses of mercury, for three months. Under this treatment her health did not only continue good, but seemed to improve. At the end of which time he either concluded that nothing was the matter of a serious character, or if it had existed perhaps the mercurial had overcome it. In this, however, he was sadly mistaken; as soon as the alterative ceased to exert its influence upon the system she gave signs of hydrophobia. One morning while engaged in dishing out tea, she had constriction about the larynx and glottis. She arose from the table and sent for the doctor; being myself at his house, I walked over with him, who, on hearing the relation from herself of her feelings on pouring out the tea, requested me to hand her a glass of water, which I did. She raised it to her mouth, but immediately dashed it down upon

the floor, and arose from her chair seemingly to get her breath. These symptoms from day to day grew more aggravated, and on the ninth from the attack, she left for the spirit land, with full confidence of rest in heaven, and had for the twenty-four hours previous no distress either of mind or body, which period she spent in kind admonitions to her friends and neighbors to prepare for eternity. I recollect that during her illness she could not bear to look at a mirror, the light of day, or of any fluid or polished surface. Owing to spasmodic stricture of the throat occurring in paroxysms, she made a strange noise in attempting to breathe, which caused the ignorant to circulate a report that she barked like a dog and at other times mewed like a cat. I have been thus particular in detailing the above case, and perhaps unnecessarily tedious and uninteresting; but as far as it goes, it proves the unmistakable origin of the disease, and the fact, too, that if not curable, it can be postponed. It also indicates that the isothermic condition of the year has something to do with the causation of hydrophobia. The opinion has obtained that rabid animals are only to be met with in the summer solstice; this is with me the result of observation and experience. One of my neighbors once had a great many of his hogs and cattle bitten in the summer; I saw the pigs sucking, and when the old sow or sows would take a suffocative paroxysm, which was preceded by a terrible squealing, the little pigs would fly with consternation until the fit was over. The cows lowed most piteously. All died or were shot.

CASE 39. Reported by Dr. J. H. Griscom, New York.

Edward Bransfield, aged 28, was brought to the N. Y. Hospital about 2 P. M. on Monday, 14th May, 1855, attended by two or three physicians and a crowd of curious people. On admission his face was flushed, the eyes wide open and pupils remarkably dilated—the whole expression indicative of terror and distress. He was suspicious and fearful, shrinking when the hand was laid upon him, but not dangerously disposed.

He was received by the house physician, who placed him immediately in bed in a quiet room, under the care of a good male nurse, removed from his presence every person and thing that might annoy him, and administered immediately such soothing remedies as were admissible. He soon became tranquil, answering questions intelligently, and submitted without remonstrance to what was deemed necessary. He complained of a sensation of air

blowing over him, the windows and doors being at the time closed. Accumulations of tenacious saliva troubled him somewhat, but when asked if he would take some water he quietly declined, saying he thought it hurt him. None was then presented to him. His pulse on admission was 160 per minute and full, but at 3 o'clock (one hour afterwards) it had declined to 136. The respirations were 16 per minute.

Soon after this an opium pill was ordered for him, and the nurse inadvertently brought in a tin cup full of water to assist him in swallowing it. He started up in bed with an expression of horror and apprehension, swearing fiercely, and intensely enraged. The cup was instantly removed, and he was soothed and persuaded to take the pill into his mouth. He attempted to swallow it, but failed. He lay quiet for a moment, then started up in a violent rage to spring at the throat of the nurse, spitting vehemently, with furious voice and gestures. He was easily prevented from inflicting injury, but the assaults being repeated, was restrained by force. When he became quiet again, he said that in the paroxysm he was "not himself."

On being gently fanned with the hand on his bare head (which was naturally devoid of hair), from such a position that the hand could not be seen, he burst into a violent expression of rage, swearing and exclaiming, "It was better to knock him in the head at once than do that way." These experiments were not repeated, and he was kept as calm as possible.

It being at this season my tour of service at the hospital as attending physician, I was immediately notified of the case, but in consequence of other engagements did not receive the notice in time to reach him before 8 P. M. The foregoing statement is condensed from the report furnished me by the house physician, Dr. Mills. I found the patient at the time of my visit on the bed, to which he was strapped to prevent injury to himself and others, perfectly calm to all appearance, intelligent, and entirely submissive to treatment. He conversed freely though with some confusion of dates and facts respecting the time when he received the bite (between four and five weeks previous), and other circumstances connected therewith, and of his own feelings then. The scar was upon the lower lip, perfectly healed and exhibiting no signs of irritation. As he thus lay and conversed, no one could suppose that he was laboring under so fatal an influence, unless either the finger were laid upon the pulse, which now numbered nearly 160 and was full

and bounding, or he complained of the pain in his throat and difficulty of swallowing. On examining his throat a degree of redness was observed in the fauces, accounting partially for the pain of deglutition. After giving further directions for his continued comfort and the prevention of more convulsions, it occurred to me to test the truth of some of the popular notions respecting this disease, especially in relation to that peculiar symptom from which it derives its name, viz: *The dread of water*. The results of these investigations it is hoped may have the effect not only of correcting some false views on the subject, but what is more desirable, of hereafter alleviating the intense sufferings of those afflicted with the disease, if indeed they may not increase the means and probability of recovery.

The most distressing part of the malady is undoubtedly the *difficulty and pain in swallowing*, arising from sharp spasmodic action of the muscles concerned in this function, extending sometimes even to those of the neck and chest, and producing a feeling of alarming constriction of the organs of respiration, causing almost complete though temporary suffocation, and thus aggravating if not actually exciting the convulsions, with the more or less violent contortions and discoloration of the countenance, protrusion of the eyeballs, and other active painful symptoms. It is a popular idea that all these are excited by the sight and even by the sound of water, and although an intense thirst almost universally co-exists, the friends and even the patient himself, anxious as they are to alleviate it, dread even the presence or sound of water, much more its approach to the lips, lest all these horrible symptoms should ensue. My investigations, simple as they are, throw light on these points, and it is hoped will show how relief may be extended in future in those most distressing symptoms—*thirst* and parched and burning throat—if the means thus pointed out are sufficiently, promptly, and carefully attended to.

That the mere *sound* of water will not excite the paroxysm was proved in this case by the fact, that the noise of a stream of water in a closet was continually within reach of his ears, to which he gave no heed whatever while I was by him, though it is said that when he first heard it he was unpleasantly affected by it. Observing this, I then desired to try whether its actual taste, *without swallowing*, could not be safely borne; and to this end I induced the patient to take a mouthful, but to hold it in his mouth without attempting to swallow. *He did so*, and after retaining it sufficiently long to satisfy

both him and myself, at my direction he ejected it from his mouth, expressing gratification at its cooling effect.

One step further I determined to go, though not without some fear of producing a paroxysm of pain and perhaps a convulsion. I sent for some ice, and with a little persuasion placed a small piece in his mouth, directing him to allow it simply to trickle down his throat as it melted, avoiding as before every effort at swallowing. A piece of about the size of a thimble was first tried, the cooling effects of which were exceedingly grateful, and he willingly accepted a second piece. It was very difficult for him to avoid deglutition; he did succeed, however, and all the ice descended to the stomach as it melted drop by drop, demonstrating in the most conclusive manner that water *per se* has no influence in the causation of the spasms, and that the disease is improperly named. It is not a *hydrophobia*, a dread of water; it is rather a dread of *swallowing*, whether of water or any other liquid, or even of solid substances, as my patient said to me; and if that act can be avoided as in his case, relief may possibly be afforded in others by the administration of cooling and perhaps even more decidedly palliative remedies. In fact, encouraged by these observations, I directed the application of a strong solution of nitrate of silver to the fauces with the view of allaying the irritation apparent there, and this he bore with not more difficulty than is noticed in a majority of the cases in which this astringent is applied for other diseases.

By these means, and the administration of anodyne and nourishing enemata, the application of cool cloths to his overheated head, mustard poultices to his extremities, and dry heat to his general surface, and even by inducing him, a few hours before death, actually though slowly and with some difficulty, but not so as to bring on any general paroxysm, to swallow some ammonia and brandy, the patient was not a little comforted, and his passage to the grave made more quiet and less painful. Unhappily, there is yet no known antidote to this mysterious poison, and the symptoms can only be treated on general principles. The ebb of life was attended with no unusual phenomena, none of the unnatural sounds, barking, or frothing, or biting popularly ascribed to this disease, being noticed. The vital powers became gradually exhausted, until at 9 $\frac{3}{4}$ o'clock on the 15th, twenty hours after admission, he breathed his last.

What the treatment was during the three days of his sickness prior to admission into the hospital I have not been informed, ex-

cept in being told by him that he had not been able to swallow anything. What effect an early adoption of the suggestions above made might have produced it is of course impossible now to say; yet the thought is unavoidable that this mode of administering cooling liquids, carefully followed in the early stages of the malady, might sometimes have a very soothing and calming influence, and even pave the way for the introduction of more active remedies.

CASES 43, 44, and 45. *Reported by Dr. James S. Hawley, Buffalo, N. Y.*

I inclose to you the statistics of three cases of hydrophobia which have fallen under my observation.

James Caho; the time of his inoculation not known; attacked January 18, 1854; died January 22; was healthy and robust, but addicted to drink; about 30 years old.

Mrs. Willard; bitten by a cat, January 21, 1854; attacked March 24; died March 28; between 50 and 60 years of age; feeble and supposed to be convalescing from protracted uterine disease.

Laurence Mier, bitten, in the latter part of July, 1854, by his own dog, which he had cruelly beaten, a few days before. Attacked Sept. 14, died Sept. 18. The particulars of the cases of Caho and Mier may be found in the *Buffalo Med. Journal*, for May, 1855.

I was myself bitten by the cat which bit Mrs. Willard. The wounds were carefully excised the same day, and no bad results have followed.

CASE 46. *Reported by Dr. Z. Pitcher, Detroit, Mich.*

From the commencement of my residence at this place, as a citizen of Detroit, in 1836, I have seen but one case of hydrophobia in the human subject, which occurred seven years ago, in the latter part of May or the first days of June, under the following circumstances: Two little lads, each about eight years old, were playing together on a small unfenced lot, across which the dog made his way, in passing from one street to another, which constituted two of the boundaries of the vacant common. On attempting to caress the animal, both of them were bitten, but whether the one that became rabid, or the one that escaped was bitten first, I could not ascertain. The cries of the children soon brought friends to their rescue, but the dog nevertheless made his escape.

One of the boys was seen by a physician who applied chloride of lime to his wounds. He escaped hydrophobia. The other was

taken care of in the family. His wounds healed readily, but symptoms of water-dread showed themselves on the nineteenth day, and he died three days afterwards without medical treatment. This omission of all effort to arrest the disease was occasioned by the timidity and nervousness of the child, which was partly natural and partly induced by the disease, and from one or the other cause, so highly developed that the approach of a physician would induce a paroxysm of suffering almost as surely as the sight of water. This account is as accurate as it is possible to make it, for the family (some of whom I have seen to day) kept no record of the case, neither did any of the physicians who visited it, like myself, from professional motives, keep any memorandum of the occurrence.

I have no knowledge of any other case, if such have occurred in Michigan, and I have made inquiries of my professional acquaintance for that purpose.

As pertinent to your inquiry, though not containing all the information you desire, I will state that in my early youth, when I resided in Washington County, N. York, I saw repeated instances of canine madness, some of which dogs thus mad, bit stock upon my father's farm; all of which occurred late in autumn, when people were gathering apples and potatoes. I will also add, that in the month of April, 1831, at Fort Gibson, Cherokee Nation West, after a severe winter, which killed the cattle of the Cherokees, the prairie wolves who fed upon their carcasses became rabid and communicated the virus to some of their domestic animals, but not to any of their people.

Our "Dog Ordinances" take effect in July and August of each year.

CASE 49. Reported by Dr. B. P. Miller, Mt. Carrol, Carrol Co., Ill.

In the village and neighborhood in which I reside, rabid dogs have been very plenty since about the first of January, 1856. The cold has been intense through the months of January, February, and until about the 20th of March; the temperature nearly the whole time was from 18 to 30 degrees below zero. Dogs through those months have continued to be afflicted with rabies.

Cattle and horses which were bitten by those animals, were attacked with the disease in from sixteen to sixty days after they were bitten; death occurred in from one to three days after the disease was developed in horses or cattle. I have not known of a dog being confined, and cannot say how long the dogs would live after

being attacked with the disease; the dogs have been invariably killed as soon as possible.

I have had but two cases of the human subject bitten, in my practice; one, a fine, healthy boy, about 6 years old, of sanguine nervous temperament, son of Mr. Horace Melondy, of York Township, Carroll County, Ill.; the other a hired man, in the employ of Mr. Melondy, of bilious nervous temperament; they were both bitten by the same dog, on the 5th day of March; the boy was badly torn on the face: one tusk of the dog entered the orbit, near the inner canthus of the left eye, making a wound obliquely downwards, and cut about $1\frac{1}{2}$ inches long; he was also bitten through the lower lip, and in several places on the cheek. The hired man was bitten on the finger in trying to secure the dog.

I was sent for immediately, and saw the subjects within four hours after they were bitten. I excised the bitten part as much as I could, and used nitrate of silver freely to the wounds, first washing and syringing the wounds freely. After probing the wounds with solid nitrate of silver, I pulverized the silver, and filled the wounds with the pulverized silver; as soon as the cauterized part sloughed, which occurred in two or three days, I again applied the caustic, continuing to wash the wounds freely. I gave internally calomel, until slight ptyalism was induced, dressing the wounds, after the eighth day, with simple dressings; the child's health continuing very good, wounds healed rapidly, no unhealthy appearance appeared at any time; complained of no pain or soreness in the wounds until Thursday, the 20th, fifteen days after he was bitten. In the afternoon he complained of darting pains from the wound near the eye, with twitching of the muscle of the eye; through the night, was restless, starting suddenly from sleep, complaining of pain in his eye. In the morning of Friday, felt better, and played as usual, and appeared to feel well, until about 4 o'clock, when he called for some water; his mother gave him a drink, he hurriedly swallowed a mouthful, and complained that it choked him, and could not be induced to try to swallow any more; complained of soreness in the throat, and darting pains through the eye; complained of thirst, but the sight of water produced convulsive action, particularly if the water was in motion. If water was carried to him without ruffling the surface, he could look at it without any convulsive action, but shake the water, and spasm was the consequence; we succeeded, however, in getting considerable fluid into the stomach, by placing a wet cloth over the mouth. The boy could compose the

mind, so that when the cloth was removed quickly, and a spoonful of water poured into the mouth, he could swallow. If an attempt was made to give any more, convulsive action would be produced; but replace the cloth, and allow some time to elapse, the mind would become composed, the boy would request the cloth removed, and another spoonful of water poured quickly into the mouth he could succeed in swallowing it. From Friday until Thursday evening, at which time he died, the eyes were staring widely open; in fact, there appeared to be an inability to close the eyelids; he did not even wink; there appeared to be a perfect rigidity of the muscles. The spasms continued to increase in violence until Sunday, about 4 o'clock, at which time he was taken with a violent convulsion, which lasted about one hour and twenty minutes; after which he gradually sunk, and ceased to breathe about 7 o'clock.

CASE 50. Reported by Dr. B. P. Miller, Mt. Carroll, Carroll Co., Ill.

The hired man was subjected to the same treatment, but the bitten part I was able to completely excise, and I applied the caustic freely; there has been no symptom of the disease as yet in the man; the wound has healed, and he has been at his ordinary avocation for some time. Several cows and quite a number of dogs bitten by the same animal have become rabid.

There have been no dog laws enacted in my vicinity until recently.

So far as my observation in relation to rabies goes, I have found in the region of country I live in, that the disease occurs more frequently in the winter and spring than at any other season of the year. The extreme cold of this winter appeared to have an influence in producing the disease, as the cases have been far more numerous this winter than in former years, and this winter has been far colder than any for a number of years; in fact, to my knowledge I have not known the disease occur in warm weather in this country.

If the Committee or Association in their deliberation or correspondence elicit any information in reference to the treatment either before or after the disease manifests itself, they will confer an obligation by forwarding me the results of their investigations.

CASE 63. Reported by Dr. Jas. M. Newman, Buffalo.

This case occurred in the practice of Drs. Nichell and Weiss, German practitioners of this city, and no detailed record of the case was made at the time, my knowledge of the facts then being derived

from the certificate of the cause of death filed in the city clerk's office, and from the statement of one of the Health Inspectors; the latter I fortunately made a memorandum of at the time. For dates it will perhaps be the most certain to rely upon what written records we possess.

The certificate of the cause of death, returns the following: The patient's name, Nicholas Lang, of German parentage; aged 11 years, 5 months and 3 days; died 11th of March, 1854; disease, hydrophobia; was bitten by a large dog nine weeks and three days before death. The symptoms continued for eighteen hours. Drs. Nichell and Weiss were called eight hours previous to death.

The father makes the following statement. His son was bitten about six o'clock in the morning. The dog belonged to a neighbor or acquaintance, and was in the habit of coming to the house, being apparently attracted there by a slut, and in the visits was troublesome to some fowls the family had in the yard. Upon this morning the father saw the dog coming to the house and called to his son, "that he would eat up the hens." The boy sprang out of bed, and went to the door to frighten the dog away, and while in the act of so doing the dog sprang at him and bit him through the fleshy part of the left forearm.

The wound was dressed with some application obtained from a midwife; it healed up, and nothing was feared at the time. The father makes the length of the time of the continuance of the hydrophobic symptoms several hours longer than stated in the certificate. He says his attention was first attracted, upon the boy's complaining of some indisposition, to the condition of the wounds, which he describes as so looking, that he said to his wife that he was afraid the son's arm was going to break open again. The indisposition increasing, and the manner and appearance of the boy being such as to excite his suspicions, after some little time he offered him a glass of water to drink, which instantly induced a paroxysm. Medical aid was then called. The same result of an effort to drink was witnessed by his medical attendants, and they had not the least doubt of the fearful character of the disease they were contending with. The boy had a strong desire to bite those about him, and warned them to guard themselves, and once snapped at his mother's hand, but fortunately missed it. A few minutes before he died, he asked for some bread and coffee to be given him, which he took, and his father thinks swallowed some, when he almost immediately sprang wildly up in bed, and fell back a corpse.

CASE 64. *Reported by Dr. Jas. M. Newman, Buffalo.*

A dog was bitten by the same animal about three days after he bit the boy. On the evening of the funeral of the boy, this dog exhibited symptoms of rabies, and was shot by its owner before he had an opportunity of doing any harm.

The dog which had created all the mischief was preserved by his owner, and notwithstanding the earnest entreaties of the father after the death of his son, the owner steadily refused to destroy the dog, accompanying him about town except when he was kept concealed from Mr. Lang, until the latter, losing all patience, went at last to where the dog was, took him and hung him. He says he does not now recollect how long this was after his son's death, but thinks it was several weeks. From a memorandum I made directly after the occurrence, I find that the dog was killed on the 14th of April, 1854, thirty-four days after the death of the patient!

Does the dog usually live so long after an attack of rabies? Has not his death generally been considered certain, and that very shortly after the development of the disease?

CASE 86. *Reported by J. Perkins, M. D., Castleton, Vt.*

Miss Sarah Crehore, of Newton Corner, Mass., of sanguine nervous temperament and healthy constitution, and cheerful disposition, aged 28 years, was bitten by a large mastiff dog on the 22d of August, 1849. The wounds inflicted, two in number, were on the anterior part of the right ankle; the inferior one, one inch, and the superior one, two inches above the articulation, both having considerable depth, and penetrating between the extensor tendons of the foot. The dog had acquired the character of ferocity by repeated attacks upon strangers who entered upon the premises of his master (in this instance, Miss C., with a friend, was crossing the garden of his master), but, as he was under perfect control of the family, was not suspected of madness. Yet, as he had in this way become very annoying (Miss Crehore's wound being a severe one), food was given him, which he ate in his usual manner; this was regarded as proof of his freedom from the canine disease, and the dog was killed; and, no apprehensions existing on this ground, the wound of Miss C. was only treated with simple dressings, and slowly healed so as to become completely cicatrized in four or five weeks.

The following winter, Miss C. resided a few weeks in the family of her sister, in this place (Castleton, Vt.), apparently in perfect

health; but probably entertaining some apprehensions in regard to the previous misfortune, which was inferred from her aversion to speak of the subject.

On the 16th of January, 1850, the 127th day from the infliction of the wound, Miss C. read in a Boston paper the obituary notice of Mr. Bean (of Boston), who died of *rabies canina* six months after receiving the bite of a dog which was supposed (at the date of the bite) not to have been rabid. The patient was evidently alarmed by this perusal, appeared anxious, and shortly afterwards complained of severe pain in the lumbar region, and lancinating pains in the right ankle, knee, and hip. These were relieved by a liniment of soap, camphor, and opium. The following night was sleepless, but quiet; her watchfulness was known by her fellow-lodger only by a frequent suppressed sighing, without complaining. She seemed to sustain her gloomy apprehensions in silence.

On the morning of the 17th she rose dejected and nervous, and, although she had not spoken of the subject of her solicitude, her friends, tacitly comprehending it, applied to me for professional advice, and, with the above history of the case, suggested their impression that her illness might be due solely to excessive alarm, which might be aggravated by a professional visit. Yielding to the suggestion, I contented myself with prescribing a strong decoction of valerian to be taken liberally at short intervals, and advised to various endeavors to dispossess the patient of the horrible idea which she evidently entertained; also a careful observation of symptoms and an immediate report if changed. The day was passed without appetite; moderate complaint of pain in the back and limb, which were treated as before; the patient being as usual about the house and employing herself with needlework. This condition being reported to me at 7 P. M., no change was advised in treatment.

At 9 P. M., with some impatience, she asked for "some drink," saying she was "very thirsty;" but when a tumbler of water was offered her, she recoiled from it with a shudder, and motioned it from her, and, after two or three spasmodic respirations, exclaimed, "Oh, that dreadful disease is on me!" and proceeded to express fully the fearful apprehensions which agitated her mind; but shortly afterwards, with great composure, she expressed her entire submission to the dreadful necessity of the case. A message was sent me, but being out of town, I did not see the patient at this time. Without repeating the attempt to swallow or complaining of thirst, she

retired to rest with her sister at 10 P. M., and remained quiet, silent, but sleepless, until 3 A. M., the 18th, when she suddenly sprang from the bed in great agitation and apparent alarm. She could not explain the cause of her excitement, but the few words spoken indicated no mental aberration. She was soon persuaded to return to her bed, and I was immediately in attendance. Found the extremities and surface of the trunk cool; pulse 70, small and weak; bowels constipated; urine scanty and high colored; slight pain in the back; "uneasy drawing" sensation in the right leg, and also in the præcordia. Speech earnest and hurried; intellect apparently sane. No recrudescence of cicatrix on the ankle. Tongue covered with a thin, moist, ash-colored coat, darker in the centre. Prescribed musk 20 grs., camphor 5 grs., in simple syrup, which was swallowed with some effort, attended by a slight spasm of the pharynx and sighing respiration. The patient also, in like manner, swallowed several spoonfuls of tea. Give calomel in pill, iv grs. each fourth hour, until dejection takes place; also continue valerian.

This success in again swallowing liquids was evidently unexpected to the patient, and appeared so to corroborate to her mind the advice of her friends, that her malady was *not* rabies canina, but a simple hysteria or nervous affection, as greatly to diminish her anxiety. This impression was followed by a tranquil sleep, which continued two or three hours.

9 A. M. patient more cheerful; surface warm; moderate perspiration; pulse 74; pain in back, and uneasy sensations in limb and præcordia diminished; tongue unchanged; sits up, swallows liquids from a spoon with less difficulty. Same medication continued. 9 P. M. patient more quiet and cheerful; has swallowed with but slight inconvenience at three several times to-day, a cupful of gruel; takes liquids from a spoon with comparative ease; pain diminished; pulse same in frequency, stronger; tongue and skin as before; has had free dejections from the bowels; converses cheerfully. From this time forward Miss C. evidently believed that her disease was hysteria, or some anomalous nervous affection, and *not* rabies canina, and hence was relieved from the fearful forebodings with which it was ushered upon her. Discontinued calomel; give $\frac{1}{4}$ gr. sulph. morphia; continue valerian, musk, and camphor.

Patient retired to bed at ten; desired to be left alone and without a light; was found asleep in half an hour; slept until 12;

awoke somewhat agitated, but slept again quietly nearly an hour, then awoke suddenly greatly excited; seized and held with great strength the nurse's hands; spoke loud and rapid, but distinctly and rationally for a few minutes, recognizing all in the room. Her speech soon became constant and increased in volubility, until it seemed impelled by a rush of incoherent recollections, pronouncing disconnected words, and at length disjointed syllables, and at last a rapid succession of inarticulate sounds. In this condition I found her at 2 A. M. the 19th. The saliva was abundant and constantly foaming on her lips or scattered around by alternate retchings to vomit, and spasms of the respiratory organs, mingled with attempts to speak. Pulse weak, 130; profuse perspiration; extremities cold; great heat of the head; wishes to get up; requires great effort to keep her on the bed; jactitation incessant; motions apparently voluntary, but accomplished with the rapidity and force of spasm. In short, the patient is in an agony of excitement, which is now aggravated by the sight of liquids and currents of air. With much difficulty, an uncertain part of $\frac{1}{2}$ gr. sulph. morphia was given. Attempted to administer sulph. ether by inhalation; patient at first excited, followed by slight anæsthesia. After a little delay, administered chloroform in like manner, imperfectly at first on account of resistance; attempts several times repeated through 15 to 20 minutes, were at length attended with complete success; spasm and jactitation ceased; patient became silent, drowsy, unconscious. The last state continued but a few minutes, when she awoke as if from sleep. $5\frac{1}{2}$ A. M. recognized those around her; wondered much at the disarrangement of her bed, dress, the presence of her friends and physician, &c., about which she asked several questions, but appeared easily satisfied by the reply that she had a severe attack of a nervous disease; she was evidently unconscious of all that had passed for the last few hours; she conversed rationally but with unwonted cheerfulness and exhilaration, apparently free from any unhappy apprehension; pulse 110, moderately full, soft; surface moist and warm; muscular strength much diminished, but arose from her bed with the aid of the nurse and reclined on an easy chair; took toast and tea without inconvenience; patient thus reclining was expressing her pleasant anticipations of returning to her home, whither she invited her friend, who was arranging her hair, to visit her. In the midst of a sentence her voice faltered, stopped, her head reclined, lips and nails were livid, and without a struggle she quietly ceased to breathe, about one

minute after she ceased to speak, and at 7½ A. M. of 19th Jan. No *post-mortem* examination was permitted.

CASE 91. *Reported by Dr. W. B. Gould, Lockport, N. Y.*

I was called to this case on the 13th of Nov., 1855, the day on which the child was bitten.

The child was 3 years of age, a boy, was bitten by a rabid cat (as was supposed), having belonged to a family whose dog had been killed after giving evident signs of having been rabid.

I went prepared to cauterize the wounds, which were upon the forehead and inner canthus of the left eye; but upon further inquiry the parents thought the cat not mad, and did not wish to have anything done.

The child sickened on the thirty-third day after it was bitten, on Saturday, and died on the Wednesday following.

I obtained the following history from his mother:—

The child appeared perfectly well up to the thirty-third day; it was then taken with vomiting, followed by fever, which lasted twenty-four hours. During the fever there was much thirst, and the child drank freely; slept some the first night after the attack; on the second day walked around the house, but was easily frightened; appeared watchful; if touched would start and scream out. From this time he could not partake of liquids or solids. On attempting to drink would experience a convulsive shudder, and was similarly affected, but to a less extent, in any effort to partake of solids. Slept none after the first night, but was constantly shifting about from place to place, and much of the time talking incoherently.

The day on which it died these symptoms were aggravated to paroxysms of raving, in which it appeared frantic. This would last an hour or so, succeeded by more or less quiet. It had three of these paroxysms, the last of which was followed by constant efforts to shift about, talking and shrieking, until exhaustion and death ensued.

The child took "Moore's medicine," in three days after being bitten, and continued it as long as deglutition could be performed. Did not see any effect from it whatsoever. Dr. Moore is an irregular practitioner, and claims to have a specific for hydrophobia.

I did not see the child from the day on which it was bitten until it died; I was then called to see it, and was told it was dying; Dr. Leonard accompanied me. We found the child pulseless at the wrist, and in the greatest possible agitation; we administered chlo-

reform, which gave temporary relief. Death closed the painful scene in a short time.

CASE 92. *Reported by Dr. C. W. Higgins, Abingdon, Ill.*

The first case of which I shall speak, is that of a Mrs. White, living two and a half miles southwest of this place, age 25; temperament nervous sanguine; taken March 29, 1855.

The attack was sudden; previous to it, however, she appeared irritable and melancholy. When called to see her, she had well characterized symptoms of hydrophobia. The sound of liquids would cause violent spasms; a current of air would also produce the same effect; so sensitive was she, that any one on approaching her, and causing an almost imperceptible motion of the atmosphere, would cause the spasms. Saw her on the following day (March 30); symptoms had increased so much that she was unable to swallow either liquids or solids; and I had at no time the opportunity of administering anything, and could not get near her without causing spasms. She died next day, Sunday, 31st, having been sick about forty hours.

In regard to the manner of inoculation, I know of no other means than the following: About one year previous, a dog, belonging to the family, became rabid, and bit two calves; the dog died, and a short time afterwards both calves. One of the calves belonged to the cow which she was in the habit of milking, and my supposition is that the saliva of the calf came into contact with some part of the hand, which was abraded, and thence introduced into the circulation.

CASE 93. *Reported by Dr. C. W. Higgins, Abingdon, Ill.*

December 10, 1855. Called to see Zulick Clarke, the case to which you refer; found him laboring under well-defined symptoms of hydrophobia; made inquiries of the family, and found that on the 10th of November, 1855, he was bitten on the right hand by a cat, which he was obliged to choke off. He killed it immediately. At the same time his daughter, a little girl of 8 years of age, was bitten. The wound on his hand healed kindly, but that on the child suppurated and healed by granulation, and she has since felt no effects from it. The first symptom peculiar to hydrophobia, appeared on the 10th of December, about four weeks from the bite of the cat; upon interrogating his wife, found he had been irritable, and complained of a pain in and difficulty of using the arm; symp-

toms increased rapidly, until the 12th, 10 o'clock A. M., when death relieved him of further pain. Tried chloroform, which produced asphyxia. His age, 55; temperament, nervous-sanguine; residence, one-half mile north of this place.

CASE 94. *Reported by Dr. C. W. Higgins, Abingdon, Ill.*

Two other cases of hydrophobia have occurred in this place; one of a horse taken June 10th, 1855, sick about forty hours, died; do not know the manner of inoculation. During the attack he would attempt to bite everything that came within his reach; he succeeded in biting one man severely. I immediately cauterized the wound; no unpleasant effect has since been experienced from it.

CASE 95. *Reported by Dr. C. W. Higgins, Abingdon, Ill.*

The other of a cow taken about a month ago; lived twenty-four hours after the attack; know of no means by which the disease was contracted.

There is no dog law in operation in this vicinity.

CASES 98 and 99. *Reported by Dr. R. D. Mussey, Cincinnati, O.*

I have been called to witness two cases of this terrible disease.

1st. That of a girl 15 years old, bitten on the cheek by the family dog, not known to be mad. Six weeks afterwards she sickened, and died on the third day, with all the characteristics of hydrophobia.

2d. That of a young man; I do not remember where he was bitten, whether on the hand or leg, in July. Sickened the following February, and died the fourth day after the attack.

Should I again be called to a person bitten by a rabid animal, I should apply to the wound very freely the tincture of iodine; especially if the wound was on a part which could not readily be excised. My son has tried it in several cases of bites from animals supposed to be rabid; but inasmuch as not more than one in twenty of those bitten by rabid animals have hydrophobia, we cannot regard iodine as a sure prophylactic, without a far more extended experience.

CASES 102, 103. *Reported by Dr. Jno. W. Green, New York.*

Miss Bassett, et. 11 years 11 months, bitten on the lip by a small dog, on or about the 10th April, 1855, was sent to New Jersey, where she underwent some kind of prophylactic treatment, and was

pronounced out of danger by the empiric officiating. Brought home, and on the 7th July, 1855, was attacked in the following manner:—

About 10 P. M., Saturday. Bolstered up in bed; great difficulty in breathing; constriction about diaphragm; pulse 120 to 125; tongue coated; difficulty of spitting, requiring great effort; nothing said about her having been bitten; almost impossible to swallow either liquids or solids; skin cool; eyes watery and staring; had a lump, as she expressed it, in the region of the heart; was induced, after much persuasion, to swallow a teaspoonful of sol. tart. ant. et potass. Sunday, July 8th, 9 o'clock A. M.; has not slept; obliged to stoop forward to breathe; tongue thickly coated; pulse 120; great difficulty in swallowing; antimony produced slight emesis during the past night; after midnight she refused to swallow; complains of pain about the right eye; could not bear to be fanned or have a current of air upon her; shudders, and has *spasms*, if paper is rattled near her, and requests that it be discontinued. 2½ P. M.; no better; springs out of bed, froths at the mouth, and endeavors to bite those standing around her; was induced by a physician who saw her, to wash her hands in cold water, which produced convulsions, and made her scream violently; has not slept. Monday, 9th, 8 o'clock A. M. Violent convulsions; hands thrown up above her head, when she attempts to free the mouth of the viscid saliva; almost impossible to control her, or prevent her from jumping out of the window; has had, at intervals, 12 drops tinct. belladonna, in two-drop doses, during the last eight hours. 2½ P. M.; quiet, and amused herself by looking at her books and pictures; relieves herself of saliva with less difficulty; dislike to fanning still continues; cannot go out doors; was more comfortable; conversed naturally with those around her. Could see water poured from a spoon without a spasm; would not drink or take nourishment, the endeavor so to do producing spasm; pulse 112; walked about the room; stirred lemonade with a spoon, but did not drink.

Tuesday, July 10, 6 o'clock A. M. Learned that at 11 o'clock last night she drank warm lemonade, and after slept an hour; ate this morning soft boiled eggs, soda crackers and tea; drank also lemonade. Tongue clean; pulse 120. At 7 A. M. washed her pet chicken's feet in warm water without a shudder. At 10 A. M. was moody and cross; wished to get out of sight. Head bent forwards, would not eat or drink, spit and bit at every one who approached; could not control herself; complained of pain along the course of the spine; great tenderness on pressure; unable to swallow; spasms

every two or three minutes; tried to bite. 8¼ P. M. Eat bread and butter and drank tea from a saucer. Pulse 100, tongue clean, skin comfortably warm. Head inclined to the right side; quite cheerful; ate some strawberries brought by her medical attendant; went up stairs alone; shook hands with her friends who came to see her; did not complain of her back. Takes the tinct. belladonna at intervals; seems sleepy. Has lain in bed during the afternoon; drank a little wine and water. At 9½ P. M., she became delirious, at 10 was put to bed. The spasmodic action was very severe, "frothed at the mouth," and bit at her attendants. Rattling and choking in the throat. Tore away the clothing from about her neck. Head and body hot; her mother attempted to wet the head with cold water but found it increased the violence of the paroxysms so much as to oblige her to desist. After 12 at night symptoms all increased in violence; two or three men were required to hold her. She cautioned her father against coming near her, as she would bite him. At 3 A. M. she became blind; frothy saliva ran from her mouth. Continually she attempted to tear everything within her reach, and clawed at the air. At five minutes past 5 o'clock A. M., July 11th, she died; cadaveric rigidity came on within a few minutes. No post-mortem could be obtained.

The basis of the above is from a note received from Dr. Freeman.

Mr. Taylor, a patient of mine, residing at Morrisania, had two children bitten at the same time with the Bassett girl. As soon as she was attacked I had them sent away from the neighborhood; they were taken to Long Island, about seventy miles from their home, and kept until all the excitement natural to such cases had passed away. Neither of them so far has exhibited any hydrophobic symptoms, and, as you can see, it is now over fourteen months since the time of wounding. I shall keep them in view, and should anything occur will let you know. As to the Bassett case, I saw the patient myself, on Monday, the 9th, about 1 o'clock P. M. Found her sitting up amusing herself with her books and pictures. She appeared to me to be suffering from nervous exhaustion. She was wayward and expressed strong likes and dislikes to different persons; said she was glad to see me and would let me stay, but "that other man (alluding to another physician) must not stay." The only experiments I made were rustling paper near her and fanning her. The former produced great uneasiness, but no marked spas-

modic action. She turned to me and wished me to desist, as she said it made her feel badly. I then took up a magazine, engaged her in conversation, and with the right hand (I was sitting at her left side) which was hidden behind her chair, commenced to fan her gently and from a distance, as I brought the paper nearer she became more and more agitated, until when quite near, she grasped the fan, was slightly convulsed, and she turned in an irritable manner to me, saying: "Stop that, you are blowing on me."

I saw her again on Tuesday morning; found her in the garden attached to the house. She was walking slowly about being supported by her father; was told that she had drunk lemonade and tea, and had eaten eggs, bread, etc.; her general appearance was still very bad; the last paroxysm was worse than any preceding one. The next day I received word that during the night she had had two paroxysms, and that death had closed the last one and her life at the same moment.

CASE 103. *Reported by Dr. Jno. W. Green, New York.*

I. B., a native of Ireland, æt. 30, was bitten by a small dog some time about the month of March. The wound remained open for six or eight weeks, when it cicatrized, to all appearance, soundly. Four months from this time he became careless (he was foreman in a large coal yard), listless, and was frequently reprovèd by his employer, who did not suspect the cause. The day of his seizure he, in company with some of his friends, entered a saloon and called for beer; taking up the glass, he found he was unable to get it to his mouth, and finally was obliged to give up, notwithstanding the laugh on the part of his companions. He returned to the yard, appeared very ill, and was sent by his employer to see Dr. David Green. He did so. Dr. Green supposed, from his symptoms, that he was laboring under the after effects of a "spree," prescribed for him with this idea, and was to call at his house in the evening. Upon calling at night found him restless, and walking the floor; was told he could not take the medicine prescribed, nor could he swallow any fluid, the mere act of offering it to him produced a shudder. The Dr. then questioned him particularly as to his having received a scratch or puncture from a nail or other instrument, and was told immediately that he had been bitten by a dog, sick at the time, and that he had killed it. He was urged by Dr. Green, who was then convinced of the case being one of rabies canina, to send for his usual medical adviser, who lived at some distance.

This was complied with, and the two physicians met late the same night. Every argument and all means were used to induce him to do something; but it was useless. He declared that it was unnecessary, there was no hope for him, he must die. The nervous disturbance increased; he could not sleep, was very restless, asked his employer to procure straps and confine him, should he be seized with convulsions, in order that he might not injure those about him. At 11 o'clock the next morning was attacked by a convulsion; four or five strong Irishmen seized him, threw him upon the bed, face down, and from fear of injury kept him there till the spasmodic action ceased; when they loosed their hold the patient was dead!!

During my travels in the East, I ascended the Nile nearly to the second cataract. The mud villages which adorn its banks are densely populated by a race of curs that seem to have little in common with the dog, as we are acquainted with him, except in name. It being a vulgar idea that heat is one of the exciting causes of madness in this animal, and as Egypt and Nubia are in such close proximity to the equator, I was struck with the idea that this would be a favorable spot for the origin of rabies. Although I made frequent inquiries, sometimes daily, I failed to become acquainted with one fact of the kind. The disease seemed to be entirely unknown.

In Turkey also, as is well known, there are large numbers of dogs which run wild about the streets. The Turks consider them unclean, and are not to be persuaded to touch them, yet they never injure them, but will throw them food at times. They are very ferocious, and yet cowardly. Should by any chance a strange dog make his appearance upon the quarter already occupied by two or three others, they will at once fall upon him, and tear him to pieces. It is told as a fact at Constantinople that a gentleman confided a valuable pointer to a servant for the purpose of having him exercised. When the servant returned, upon being asked what he had done with the dog, held up in answer his hind leg, which, he affirmed, was all he had been able to save of the unfortunate animal. At night it is dangerous to go about the streets without arms or a stout stick, as well as a lantern, for there are numerous instances where persons have been attacked while walking quietly along. Yet, with all this disposition to become irritated, I was unable to find a single case where rabies had ensued from their bite.

CASE 104. *Reported by Dr. W. L. Atlee, Phila., Pa., June 20, 1856.*

Some time ago I promised you some notes of a recent case of hydrophobia, and in order to make them more perfect I wrote to the physicians, whom I met in consultation, to aid me. I have as yet received no answer, but fortunately my young friend, T. M. Drysdale, M. D., had made some notes of the case, which he has had the kindness to hand me. He is a most accurate and reliable observer.

I first visited Mr. J. L., *æt.* 54, Sunday, September 2d, 1855, in consultation with Drs. C. and G., and found him laboring under unmistakable evidences of hydrophobia. I at once proposed tracheotomy in connection with other active means. It was, however, deferred until next day, when I visited him again in company with Dr. Drysdale; prepared to perform the operation, but this was peremptorily refused by the patient and friends. Since my first visit he had been tranquillized for a couple of hours by the inhalation of my mixture of chloroform (one part), and ether (two parts), but was now more excited than ever. The following is a copy of Dr. Drysdale's notes:—

“Case of J. L., *æt.* 54, *Sept.* 3, 1855. The patient was bitten in the right hand by a small strange dog, in May last, but enjoyed health until last Thursday, August 30, when, after rowing a boat, he was seized with severe pain in the bitten arm, the pain darting to the cervical regions, where it was particularly severe. The next symptom which attracted his attention was the difficulty of deglutition. This he first noticed in attempting to swallow a dose of Epsom salts, which a druggist had prescribed for him.

“Dr. S. was consulted, and, although the man was but a moderate drinker, treated the case as one of delirium tremens. The family being dissatisfied, Dr. S. was discharged and Drs. C. and G. were called in. At their request Dr. Atlee was sent for, who found the patient in this condition: Agitated and irritable; when a glass of water was offered him, he was seized with spasms. Spasms were also produced by blowing suddenly in his face.

“At 12 M. I accompanied Dr. A. to assist him in opening the patient's trachea. We found the patient walking about his garden, speaking rationally, and answering any questions put to him; but his manner was restless, and when Dr. A. desired him to tell where he had been bitten two years before by a *raccoon*, he at once lost self-control and became furious, refusing to allow any one to speak

to him. After a time he grew calm, and Dr. A. told him what he proposed to do, but he refused consenting to any operation.

"The night before he had been very violent. He could not swallow anything while we were present, although he made strong efforts. A blister had been applied over the spine, and the denuded surface dressed with morphia and lactucarium. Dr. Atlee recommended the use of enemata of beef tea, with full doses of morphia, and the mixture of chloroform and ether to be inhaled.

"Sept. 4. Dr. Atlee sent word to me that Mr. L. was dead, and the family desired a *post-mortem* examination. Accompanied by Drs. Fleming and Jackson, I went to Mr. L.'s, where we met Dr. C., who gave us the remaining history of the case, as follows: After our visit yesterday, at about 1 P. M., he became exceedingly violent, and towards evening ran out of the house, across the street and home again several times. He now desired intercourse with his wife, which could only be prevented by removing her from the house. Dr. C. attempted to apply the strait-jacket, but failed, as his assistants were not strong enough. At night he became so violent that it was found absolutely necessary to use restraint, and Dr. C., with eight assistants, managed to get on the strait-jacket. It was now observed that his pantaloons were stained as if with semen, and when the patient attempted to urinate the penis was seen to be in the state of erection accompanied by all the signs of involuntary emissions.

"He accused the Dr. of having had intercourse with his wife; became convulsed, and, after foaming at the mouth, died insensible at 10 o'clock this morning.

"5½ P. M. Sect. Cad. Pharynx very much congested; larynx slightly inflamed, and together with the trachea covered with a tough froth, about one-fourth of an inch thick; the glottis was closed; abdominal organs healthy. This was all the examination permitted."

CASE 106. *Reported by Horace Manley, M. D., of Richfield Spa., N. Y.*

Joseph Bell, of Columbia, N. Y., 35 years of age, a tanner. Habits somewhat intemperate, but laborious in the discharge of his duties, and generally of sound health. On the 5th of October, 1836, he was bitten on the thumb by his own little dog. His son, 11 years of age, and daughter, 13, were bitten at the same time by the same dog. Five or six dumb beasts were also bitten, and died from

hydrophobia. The son was attacked with hydrophobia on the 12th of June, 1837, and died in two days. This case I did not witness. Mr. Bell himself was attacked on the 16th of June, two days after the death of his son, with evident symptoms of hydrophobia. The symptoms and treatment here given are taken from notes made at the time by myself and my friend, Dr. Griffith.

The first evidence of disease was a violent headache on rising from bed; he, however, went to his work in the tanyard as usual, and in an hour appeared to be occasionally in deep study, and at times would start up affrighted, as if he thought something was about to fall on his head. In about an hour more, he flew out of the tanyard, leaped over his garden-fence, stopped suddenly in the garden, threw away his cravat and hat, ran about twenty rods, and again stopped, and stood musingly, as before. He soon ran again, and attacked the stump of an old tree, and tore it with violence. He continued running and standing alternately until he was apprehended, say about 10 o'clock A. M. The *sight* of water would invariably bring on a paroxysm of distress, and an attempt to *swallow* water would bring on a spasm of the throat, followed by violent raving; when the paroxysm was over, he was quite rational, and would warn his friends to beware of him, as he certainly should injure some of them.

At this period, or rather as soon as I was satisfied the case was one of hydrophobia, I sent for all the physicians in our vicinity, to wit: Drs. Hannah, Griffith, Ethridge, Palmer, and Doolittle. The first four were soon in attendance, and three of them concurred with me in opinion that the disease was hydrophobia. Dr. Ethridge thought it was delirium tremens, but all agreed that they knew of no certain remedy. I proposed to try a *vapor bath* (he had already been bled 30 ounces), and they all consented. Accordingly, steam was got up, and we kept him under a temperature of 140° Fahrenheit for four hours; sweating came on in half an hour, and when one hour had passed, we tried him with fluids. Water he could not yet bear, but swallowed a little sage tea, colored with milk. His thirst was excessive, and we now gave drink often, and the perspiration flowed profusely. After the sweat started, the spasms abated in violence and frequency, and by 9 P. M., he fell asleep, and during the night slept probably five hours. This process was followed for four days, that is, the heat was kept high enough to keep up some perspiration, and when any signs of a returning

paroxysm was noticed, we raised the heat till the sweat flowed more freely.

17th, 7 A. M. Horrified at the sight of water, but thirst abated, and he professed to be getting better; thought he could go to work. At times appeared flighty, and when the subject of the bite and other circumstances of his case were talked of was agitated. He sighs often. An injection of salt and warm water was administered, which operated three times; evacuation dark and fetid; urine abundant, and deposited a sediment. Complains of *pain in the penis, which looks purple*; sweet oil applied, and pain abated. Tried to eat toast, but could not; drank during the past night a pint of water and a quart of sage tea; heat raised to 80, with relief.

1 P. M. Symptoms improving; complained of slight pain in the seat of the bite; slight throbbing, extending to the axilla.

18th, 9 A. M. Slept well; eyes less red; no sighing; had no pain except in the thumb, the seat of the bite; talks freely about his case without agitation. When water was presented, said he could swallow it, but when the tumbler was handed to him, he rose and approached it obliquely to the right, and then to the left. He now began to shake violently, and attempted to swallow it suddenly, but failed, choked, and averted his head; tried again and failed; flung himself on the bed very much agitated; his eyes rolled wildly; breathing became laborious; sighed deeply, and the headache returned. The temperature was now raised to 80 again, and an injection of salt and water administered.

12 M. Temperature continued at 80 till 10 P. M. More quiet; perspiration profuse; discharged considerable saliva of thick consistence; evacuations more natural; pulse 75, soft and equable; sighs not so often; thirst moderate.

19th, 6 A. M. Improving, rested well; took him out of bed, and walked into the next room; says things and people look more natural. Dismissed cured!

Mr. Bell is yet alive and well (10th April, 1856).

Dr. Doolittle, of Herkimer, did not see him till the second day, when his case was quite changed. He reasoned syllogistically, and said that hydrophobia was a *fatal disease*; Mr. Bell was convalescent, therefore Mr. Bell had not hydrophobia.

HYDROPHOBIA:
ITS ORIGIN AND DEVELOPMENT,

AS INFLUENCED BY

CLIMATE, SEASON, AND OTHER CIRCUMSTANCES.

BEING THE

REPORT OF THE SPECIAL COMMITTEE

APPOINTED BY

THE AMERICAN MEDICAL ASSOCIATION, AND READ AT THE MEETING IN DETROIT,
MICHIGAN, MAY, 1856.

BY

THOS. W. BLATCHFORD, A. M., M. D.

Resolved, That the Secretary transmit to the Governor of each State a copy of the statistical part of this Report, with the respectful request that he would bring the subject before the Legislature of the State over which he presides, that in their wisdom they may devise and adopt a plan by which the evil may be mitigated, if not removed."—*Proceedings*, p. 25.

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