To,

Professor Henderson,

This

I respectfully

indicate

by

my obedient pupil

William H. Gregory

March 31st 1865.
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March 31st 1865.
Hydrophobia.

This dreadful malady, from which no one, after its characteristic symptoms have developed themselves, has ever been known to recover, derives its name from two Greek words — νερό, water, and πόσεις, fear. There is in reality no actual fear of water, but the dread is owing to the great difficulty, which is experienced in swallowing any fluid whatever. This arises from the spasmodic, dysphonia, and respiratory spasm, which the contact of any fluid excites.

Hydrophobia is a disease caused by inoculation, with the saliva of a rabid animal; in which animal the disease is generated spontaneously or sporadically. These animals generally being the canine or feline race. The saliva or secretion that issues from the mouths of animals so affected, contains a specific
poison, which being by them implanted in the human race, produces a similar malady. This inoculation is done either through a wound, or an abrasion, or by application to a mucous surface. In support of this last assertion, Dr. Youatt records the following statements: 'A man endeavoured to untie with his teeth, a knot, that had been firmly drawn in a cord. Eight weeks afterwards he expired. Undeniably rabid. It was then recollected that with this cord, a mad dog had been confined. A woman was attacked by a rabid dog, and escaped with the laceration of her gown. In the act of mending it, she thoughtlessly pressed down the seam with her teeth. She died rabid.' These two cases would seem to put it beyond a doubt, that no mucous surface, can come in contact with
The virus with impunity. An interval intervenes between the inoculation of the virus, and the appearance of the malady. This is called the period of incubation. This period varies. An analysis of sixty cases of hydrophobia, well authenticated, has shown, the shortest period is 15 days, the longest, from 7 to 9 months, and that the average period is from 1 to 7 weeks, and according to some authorities a much longer period may elapse, before the characteristic symptoms present themselves.

Jrofliot gives 13 cases where the patients had been bitten on the same day by a rabid wolf. Hydrophobia made its appearance — in 6 between the 15th and 30th day.

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And in one, 3 months and 18 days after the bite. They all died.
This malady is characterized by painful spasmodic actions of all the muscles of deglutition, and respiration, causing difficulty of swallowing and breathing. Uneasiness and burning pain in the diaphragmatic and epigastric regions. Extreme sensibility of the whole surface of the body is manifested to the most indispensable vital stimuli, air, and water. The attempts to bathe fluids, aggravate the symptoms. The least breath or current of air on the surface of the body produce effects similar to those which are produced by stepping into a cold bath. This illustrates the extreme sensitiveness of the body to receive the influences of impressions from the mouth, nose, and clammy palatine. There is great excitement of the nervous system. The imagination is vivid and fertile.
anxiety as to the result. This anxiety is so great that it amounts to terror. Sleep is totally absent, or if the poor patient has a sleep, it is interrupted by frightful dreams or spasmodic movements. The pulse becomes rapid, and the respiratory movements are excessively augmented. The secretory functions of the kidneys become impaired, the urine is scanty, and the secretion from the intestinal canal is diminished. The temperature of the skin falls. The restlessness reaches the highest degree. Paroxysms of delirium or uncontrollable impulsive violence supervene. Vomiting frequently supervenes. Phlegm and paraphrasis also sometimes occur. Insects and opisthotons may come on. The symptoms progress. The duration of the disease varies from
two to six days, but the case generally terminates fatally on the second or third day. This event is generally sudden and unexpected. Death ensues from apoplexy or asphyxia, during a convulsive attack of great violence, or we may have it coming on gradually from extreme exhaustion, quietly when there is every deceptive sign of incipient recovery. This is death from asthenia.

Hydrophobia was known to the ancients from a very early period. The first mention of it in literature may be found in the writings of Aristotle; but for the original description of the various symptoms and their development in this disease we are indebted to Calvis Aurelianus. From this time down to the present era, increasing scientific observation
and research, have been applied to elucidate the origin of the various phenomena which are presented in this terrible disease, and nothing is wanting so far as science shows us at present to perfect our knowledge of it. The means by which this disease may be overcome and cured, have not yet been found out. Its cure has hitherto equally baffled and evaded the resources of Pathology, and all ideas based upon empiricism. Our investigations of this disease must be conducted upon views based on its Physiological, and Pathological actions, in order to elucidate its peculiar phenomena, not in hopes to cure, for this seems hopeless, but that we may mitigate the dreadful sufferings of our poor patients.
Hydrophobia or Rabies originates in animals of the canine and feline races, the dog, wolf, cat, fox, jackal, and it has been recorded that pigs and even horses have communicated it. It is readily propagated amongst themselves. The malady is not peculiar to any country. We find probably that to a certain extent it is endemic and from recent prevalence in certain parts of England, also epidemic amongst the canine race. As regards the cause of Hydrophobia in the canine race nothing whatever is known. That it originates in them spontaneously and sporadically is now the general opinion of scientific observers. A certain vague popular opinion refers it to extreme heat, causing thirst and this is thought to be the exciting cause. Experiments
have been made to test the proof of this assertion, dogs have been repeatedly tied up during this period of heat, have been kept without water, yet still though they have died under this privation, Rabies has not been discovered. This martyr-like sacrifice of the poor dog, "which in our search for knowledge, we often cruelly experiment upon," has not benefited his species. But the hot weather, is not alone an incitator of this disease, for we have it nearly equal in frequency in the Spring, Summer, Autumn and Winter months. That is if the statistics on the subject are trustworthy. The following is the table from the Memoirs of the Royal Society of Paris -

In January 3 dogs in proportion are rabid.  
February 12
In March, 5 dogs in proportion are said to have died.

April 8
May 16
June 8
July 13
August 8
September 10
October 8
November 9

Missouri Trotter states that January, which is the coldest month in the year, and August, which is the hottest, are the very months in which the disease is least liable to occur. I have found that it is not peculiar to any country for we find it in Europe, Asia, Africa, and America, nor as shown has climate any limit to it. For we find it prevails in cold as well as warm ones. In the Northern and Southern hemispheres, as well as in the Tropics,
and Temperate Zones. There are some parts of the world where it is rarely met with. Barrow says that the disease is little known over the past continent of South America. It is unknown in Cyprus and in Egypt. Jamaica has been a stranger to it during a period of fifty years, but it has recently been conveyed there by importations. Dr. Heiniken states that one of the most wretched descriptions abroad in the island of Madeira, that they are afflicted with almost every disease the dog is liable to, tormented by flies, heat, thirst and famine, yet no rabid dog was ever seen there. So wrought upon are the imaginations of the people by the fear of hydrophobia, that if a dog walks with his tongue out in July and August, or runs with moderate speed in
a straight line, or turns round, or does anything but keep out of sight, popular excitement proclaims him mad, and the poor dog is hunted down, and his brains are dashed out in a fit of frenzy. This is not done for the sake of cruelty, "for the dog is cared for and often esteemed like a friend by his master, to whom he is a faithful companion, and shares the changes of fortune with him, and often his preserver from peril" but it is from gross honest ignorance. It seems that water is most essential to a dog, therefore it is commonly believed that when abridged in his supply he goes mad. The objection to this theory I have mentioned. The real source seems to be the reception into the system of a specific virus, without which as in small-pox and
TYPHUS FEVER. The disease cannot originate. From experiments made at the Hotel Dieu by M. M. Bajendic and Brechet, and which were witnessed by a large number of medical men and students convened there for the purpose, the results seem to give us great reason to fear that it is not impossible for the saliva of the human being suffering from Hydrophobia to spread the disease to another. These gentle men inoculated two healthy dogs June 19th 1813, with the saliva of a patient named Sula, who died on that day. One of the dogs got away and all history of him was lost, but the other became rabid on the 27th of July - 38 days after the introduction of the virus, and died of it. This dog whilst rabid attacked several others, they also became rabid, and they propagated
The malady amongst their species all Summer. Although this and Dr. Douall's cases before mentioned cannot be considered to settle the question definitely, it is sufficient to inspire us with the necessity of extreme caution which there must be in our attention to the unhappy sufferers from this dreadful malady so that we also become not affected.

Dr. Vaughan and Babington say the saliva of akuran being suffering from Hydrophobia applied to an abraded surface is incapable of producing the disease. Dr. Vaughan inoculated a dog with the saliva taken from a child dying of Hydrophobia with no result whatever. There is also an idea that it is capable of being communicated by the breath. This idea was supported by Hamilton, and rejected by Vaughan and Hunter.
The poison is not of a volatile nature, but is fixed, and capable of being propagated, even in a coffee, if it has not become quite rigid. It is never communicated by the breath or by cutaneous exhalation. The ordinary vehicle is the salivary secretion before mentioned which issues from the rabid animal's mouth. Huxley has shown by experiment that unmixed saliva taken directly from the salivary duct, and applied to an abraded surface, is capable of communicating the malady. He also found that portions of the salivary glands, the blood itself also, if applied to abraded surfaces are capable of doing so too. The effect produced by the poison on the system depends in a great measure upon the peculiar susceptibility of the organism. As a general rule the
susceptibility for the poison is not very great, but the dog appears to be more liable to its influence than man or other animals. Pratt says that two out of every three dogs bitten take the disease, the susceptibility in man appears to be slight. John Hunter relates an instance where 21 individuals were bitten with the same mad dog; they took no precautions, and only one suffered from hydrophobia. In the cases before stated by Trotter where 13 out of 23 persons attacked took hydrophobia, and other writers whose statements appear to show the slightness of the susceptibility. But from careful observations of a number of authenticated cases recorded by the Royal Society of Paris, the average appears to be one in every ten bitten. Bethel collected 141 cases, and found that dogs were more liable than
bitches, out of these 141. Rabies appeared in 14 bitches only.

Breschet has made numerous experiments on the subject of
Hydrophobia, and has repeatedly infected dogs with the saliva of
rabid horses. He demonstrated some curious facts in relation to
rabbits and other rodents, and also birds, namely, that though
they are inoculated with the
rabid virus, they show no con-
stitutional effects of its action,
but very soon die. Some writers
have said that the virus loses its
power after it has been communicated
by dogs to man, or horses or to
ruminants, and is incapable of
communicating the disease. This
is negatived by facts before mentioned.

Dr. Boult, gives a case of a groom
who was attacked with hydrophobia
in consequence of having caused
an abrasion on his hand whilst administering a dose of medicine to a mad horse. Of all rabid animals, wolves are most to be dreaded. Mingled with their natural cunning and cowardliness, rabies seems to change the animal's disposition, he loses "a rabid wolf" his natural cowardliness of disposition which keeps him from places frequented by man, except in cases where starvation threatens or where his cowardliness is stimulated into false courage by the company of his fellows. He will lurk at the entrance of some hamlets or villages, and will attack and bite every living thing that chances to cross his path. A badger, from his nature when rabid is a ferocious and terrible animal. There is a case recorded by Hufeland, where a rabid badger
attached and bit two boys. One of
the boys became the victim of
Hydrophobia, the other escaped.
It has been said that an attack
of Hydrophobia has sometimes
gone off, after the premonitory
symptoms have commenced.
There is mention made of it in the
Santet for May 1829, where D.-Bliss
relates the following instance -
Two little girls were bitten in the
face by the same dog, while they
were standing at their father's door.
The died of Hydrophobia, the one
that was bitten the last. The other
had exactly the same premonitory
symptoms as her sister, and these
occurred at the same time, but these
went off and she escaped.
Mr. Youatt, to whom pathologists
are greatly indebted for his acute
powers of observation and records of
Hydrophobia in domestic animals
has given a vivid and graphically detailed history of his experience of hydrophobia in cats, limited to two cases. If these two cases have not been overdrawn, then the symptoms shown must make the rabid cat an animal far more to be dreaded than the dog with the same disease. The first stage of rabies in the cat, according to W. Croatt, seems to be a suddenness of dispositions seems to take as notice whatever of what is going on around and if not disturbed in this state would probably die in it, but use to him who attempts to arouse it from its dreamy musing, then the innate ferocity of its species becomes fully developed, and it has no bounds to its tiger-like rage. It is highly perilous to interfere. The rabid dog on the contrary may be generally aroused from
his dreamy state to consciousness
by the sound of his master's
voice, or of one with whom he
has been on terms of affection;
and he appears as if he rather
liked to be thus aroused.
The symptoms of Hydrophobia as
presented in the dog are as follows:
According to M. Youatt the disease
presents itself under two forms:
First. The furious. Secondly. The
sullen. The first is characterized
by increased activity of the various
senses, and of the powers of locomotion.
The dog appears unsettled, and does
not follow his usual habits, he becomes
restless and irritable, and is continually
changing his position, and suddenly
snaps at an imaginary object in the
air; he becomes suspicious of any
kindness, and will flinch off to his
kennel, where he will suddenly lie
for hours, his face buried in his
flanked or between his jaws and gazing strangely about, or he will wander about and whilst thus wandering shows a peculiar fancy for inedible substances, picking up straws, stones, etc. He appears to be fond of licking the noses of other dogs, his own genitals and anus, and licks its ears. When the animal has been bitten, it constantly licks and scratches the wounded part, and with such a degree of violence that severe laceration results. Still the animal is obedient and attached. The digestive system soon begins to fail. There is anorexia and thirst. The eyes become dull, red and half closed. The bark becomes peculiar in its tone, it does not consist of a definite bark, or a rapid succession of sounds, but it passes into a howl indicative of distress, a mournful sound, while doing this the head is generally elevated. The face is
peculiar in its expression, the skin being thrown into wrinkles over the forehead, the coat is rough and dirty looking. His ears are laid down, and his tail droops. Soon the mouth and become swollen, the face become inflamed, there is reaction of rough saliva, which sticks between the teeth, and on the animal's endeavours to loosen it, there is a peculiar pain given to the expression of the countenance, he becomes feverish. The dog now begins to stagger about in this state it is rather remarkable that there is not the dread of fluids exhibited, as in the disease occurring in the human subject, for many dogs run to the water and try to lap, and not proceeding in this from the inflamed state of the tongue, will bring their noses in it and appear to like it. At this period the dog begins to bite and
When anything that comes in his way, he becomes cunning, and will approach apparently in a friendly manner, and when near the individual, snap at him either in a quiet way, or suddenly rush at him furiously. The disease increases, and now the powers of digestion fail, the respiratory system becomes affected by spasms. The locomotive powers begin to fail, paralysis setting in. Exhaustion sets in gradually. The external surface becomes irritable. The senses become inhaled and perplexed. Convulsions often come on, and ends the scene. These symptoms are paroxysmal in character, are easily excited by various methods; the shaking of a stick in the animal's face, or any attempt to intimidate him.

The pulviniform, as its name implies, is characterized by the dog showing an inclination to be quiet, reserved, and depressed, he appears unusually
quiet and shows no disposition to bite. He is easily frightened, and slinks away to his kennel. He does not appear as before mentioned to fear water, yet he shows no inclination to drink, and will not notice his food. He appears melancholy and depressed in spirits, he lies all day in one spot seeking not the companionship of his fellows, he looks haggard, and whines continually, and when he barks, the tone is altered, rough and harsh, slight fever sets in, the breathing becomes harsh and laborious. The tongue is protruded, and turnet, partial paralysis of the maxillary muscles comes on, and the jaw drops; saliva begins to drop and increases in quantity. Hering says that the mouth only gets filled with saliva and mucus, when there is inflammation of the Pharynx. The saliva begins to be excessive about
The second day. The respiratory system now begins to be more affected. The breathing becomes very laborious. Convulsive twitches attack the body, biting and often seizure, and convulsions come on. The poor dog dying generally on one of them. Virchow believes that there are not these two divisions, but believes them to be mere stages of the disease. He divides Hydrophobia into three stages, namely. 1st. The Melancholic. 2nd. Furious and 3rd. the Paralytic. Blaine says that constipation is always present, and this statement seems correct, for a friend of mine, a veterinary surgeon, has had several cases of Hydrophobia in dogs, and he says obstinate constipation was present in all of them. This I can confirm as far as regards one case which I saw, and this happened in a dog belonging to the family. The stools were very
constipated. The stools were scanty, and appeared quite devoid of biliary secretion. It was the opportunity which I had in observing this case, which induced me to write on this subject. The disease rarely lasts longer than six days, death putting an end to the animal's existence. In the case before mentioned, the animal died on the fifth day. The description which I have given serves to show the absurdity of popular errors, as regards the insanity and the alleged fear of water, which dogs labouring under Hydrophobia are supposed to possess. Indeed, some dogs which have been educated, such as setters, pointers, have been known to perform their several duties quite as efficiently while in this rabid state as when they were unaffected. After a person has been bitten by a rabid animal, there are the usual methods of healing in the wound, as
in any other wound, where there is loss of texture. It generally heals by granulation, but after a time, symptoms arise which are called the premortemary. They are briefly the following: The patient feels unwell, chill and low spirited, becomes restless, then febrile symptoms set in. Disseminate sensations come on in the cicatrix of the bite, pain and itching in it, and its vicinity. This pain is often from its peculiar character, regarded as neuralgic. This pain increases, and usually takes the course of the nerves. The cicatrix becomes discoloured, but there is no discoloration in the tract of the pain. Loss of appetite is experienced. The patient has chills and flushes alternately, and headache torments the sufferer. He becomes ill tempered, and experiences a feeling of slight secesions in the throat, the
neck appears to feel stuff, and the patient is apt to think that this arises from catching cold. The cicatrix now begins to be swollen and discoloured, inflammation setting in, ulceration generally soon begins, and a thick unhealthy pus is eliminated. The pain often takes on the character of Chronic Rheumatism, and follows the course of the nerve towards the trunk, shooting towards the precordial region. Pain however is not always present. In the meantime the febrile symptoms have increased in intensity, nausea and vomiting come on, the headache gets accentuating, there is disturbed sleep and much excitement of the senses. The senses becoming very acute, the eyes are clear and bright, but averse to light, the imagination is vivid and fertile, the countenance is animated and cheerful, and the
patient will talk with great animation of passing events. This excitement is however only transient, and is soon followed by fear and deep mental depression, then follows the inability to swallow fluid. The pulse although not inflammatory is generally more rapid and stronger than in health. These premonitory symptoms last only a few hours, or a few days at the most, or may have been almost absent, then come on the actual symptoms, which I have described in the fore part of this paper. It has been said by some medical men, especially by veterinary surgeons amongst whom I believe Professor Buck of this city ranks, that *Hypochondria* does not occur in the human being, but that the symptoms which are often seen are to be attributed to purely nervous unea-

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...
ideas causing dread and alarm.
Science has shown us that the mind does play a great part in influencing the progress of disease. Many diseases occur frequently where there is just cause to hope for a happy termination and the patient is also hopeful, but being of a nervous temperament, and had news, or anything calculated to bring on mental depression, being told him: he begins to imagine that his disease is really worse than it is, and this idea acts on the organism and the disease begins to take on unfavourable symptoms. There are many cases on record where this simulation of Hydrophobia has been practically brought on by questions, which lead to a foregone conclusion. A nervous patient, if he has not been recently bitten by a dog, is asked if he ever was so: his nervous excitability immediately begins to show itself; he fancies
That such has been the case some time or other. This idea preys upon his imagination; the commonest faculty possessed by mankind, and he actually gets so prepossessed with the hallucination, that often symptoms analogous to Hydrophobia begin to present themselves. A case is recorded where a young man was actually dying under this idea, but who recovered, when the dog which had bitten him was brought into the room, and shown to be perfectly sane. But that the mere influence of ideas can bring on this disease is disproved by the fact that children, who cannot be supposed to reason on it, have been victims to it as well as adults, who never had any ideas of such a malady. Through losing their reasoning faculties soon in life, or who had been idiots from birth," and therefore could not have been influenced by the mental
Hallucination before referred to.
But it appears likely that accidental circumstances may arise, which by bringing to the recollection the fact of having been bitten, may favour the development of the disease, after the poison has got into the system. A case is recorded by Trotter where three months and a half had elapsed since the individual was bitten, and who had been living very quietly and abstemiously, but having occasion to be at a fair one day, whilst there got into company, and got rather intoxicated, and on returning home his horse was suddenly attacked by a dog. This circumstance brought to his recollection, his own case; fear took possession of him, and hydrophobia soon after made its appearance, and he died on the third day. Bennett also states that in animals, the poison lying dormant in the system may
be caused to activity by excitement of the organism. He noticed it to occur in hiccough very often at the period of heat, and also coming on after pregnancy, the labour appearing to excite the development of the poison. The poison of Hydrophobia, does not act directly on the organism, but is absorbed into the blood, and there seems to multiply, undergoing changes analogous to the process of fermentation. The blood gets deteriorated. Changes also take place in the cerebrum before the accession of the actual symptoms, which appear to indicate that the poison there is also undergoing a process, the nature of which is not precisely known. The intensity of the poison seems to be increased, and at last begins to act on the nervous system. Dr. Copland states that during the period of incubation, a slow and silent change is taking place in the constitution.
The patient's complexion becomes paler, the pulse is accelerated more or less degree. The eyes appear sunken. The patient is subject to be irritable, and easily excited, and gradually becomes accustomed with all the symptoms of general debility setting in. Dr Marochetti of Moscow, who took advantage of a visit which he made to the Ukraine in 1820, to investigate the disease, has brought forward another observation of peculiar interest, namely, that characteristic pustules made their appearance beneath the tongue, near the orifice of the submaxillary gland, between the third and ninth day from the inoculation of the poison. This statement is corroborated by M. Magister of Saints in 1822, who whilst at Boulay saw some cases. He however found that the pustules formed from the 6th till the 32nd day. He states that they were of
two kinds, one where the pustule was crystalline, the other opaque. When this last was opened, it disclosed an ulcerating cavity. He found them situated on the parsnum lingua, and on the inferior surface of the tongue. Many subsequent observers have been unable to discover them; some say they are never present, and Römerberg goes so far as to state that it was a hoax practiced by a peasant of the Ukraine. Independent of this statement of deception, we should always look for them to see if they actually do occur. The diagnosis of Hydrophobia, when once fully formed, cannot be confounded with any other disease. Tetanus is the disease most apt to be confounded with it, but a careful observation of the symptoms of Hydrophobia would serve to dispel every difficulty in that direction. In Hydrophobia the pangs of the muscles are of brief duration. In Tetanus the spasm are more continued.
less remitting, and never intermitting. In Hydrophobia, the jaw is often relaxed, and opens and shuts readily. In Tetanus it is fixed and closed. The spasms of Hydrophobia are clonic. Tetanus, tonic—Tetanus very rarely an aversion of fluids. Hydrophobia thirst and great aversion to fluids, even the sight, touch, or hearing fluids in motion increases the paroxysms. In Tetanus there is no great thirst, nor are the paroxysms increased by the sight, touch or hearing of fluids. The cause of Tetanus is either exposure to cold, damp, or violence from the bite of an animal. The cause in Hydrophobia, the bite of a rabid animal. In Tetanus, the symptoms come on soon after the injury. In Hydrophobia a long time may elapse before the symptoms develop themselves. The aspect of the countenance is different in the two diseases. In Tetanus, drawing up of the nose, the forehead corrugated, the angles of the mouth drawn up, the eye natural, with an
Expression of pain, and there is a peculiar appearance of the face, as if the patient were
laughing perversely. "The visis lardemicos."
In hydrophobia, there is an excited look,
the eyes are bright and flashing; there is
great distress, frightful convulsions occasionally
coming on, and great restlessness. etc.
The post-mortem appearances are as follows:
In the dog: we find various unnatural
insects in the stomach, such as hay, straw,
hair, bits of iron, horseradish, earth, etc.
sometimes the stomach will be filled and
distended with these extraneous substance
when empty. we find a dark colored
thick fluid tarry in appearance, or like
coffee, with dark patches on, and beneath
the mucous membrane owing to extrava-
sated blood. when this fluid and the
extraneous bodies are not present, Mr.
Groats says the animal will have
presented much hay straw &c the like, just
before death. the mucous membrane of
the stomach is often found inflamed.
and sometimes the inflammation extends to the duodenum and jejunum. The tongue, pharynx, and especially the tonsils are inflamed and swollen. The fauces, palatine glands, and the mucous membrane at the back of the larynx behind the epiglottis are more or less inflamed. The epiglottis is very much congested. These appearances are varied, and may sometimes be almost absent: they are not to be depend upon as very satisfactory evidences.

In Man. They are as in the dog various, uncertain, and are very unsatisfactory. We have generally rapid decomposition of the blood and tissues, soon setting in. The blood is dark in colour, thin, and sometimes gummy. It flows freely from divided vessels, often infiltrating the surrounding cellular tissue, causing discoloration of the muscular fibres. The heart and pericardium, are either normal, or present the appearances found in asphyxia. Caring to decomposition we have gas evolved, which we sometimes
found in considerable quantities in the blood. Trotter found a great quantity of gas in the cisterna, also in the right and left ventricles of the heart; on puncturing these parts, large bubbles of air escaped along with the blood. Morgagni had also made similar statements. The analysis of the blood has been made by Rapoty: in 1000 parts, we have: water 789.6 parts, fibrine 4.8. Blood corpuscles 133.0. Albumen 80.2. Extractive matter and parts 12.4 parts. The respiratory system is generally affected more or less, in its whole extent. There is usually great congestion and increased vascularity of the lining membrane of the lungs, larynx, trachea, and bronchiast tubes. The latter have been found to contain a viscid, phlegmy mucus. The lungs sometimes appear inflamed, but are generally as before said, greatly congested. The fauces, pharynx, and esophagus are injected and diffusely inflamed, and generally covered with
viscid, whitish, yellow, foamy mucus. The mucous membrane of the stomach also has been found inflamed. Sometimes no change whatever has been noticed in these parts. The salivary glands are sometimes enlarged and vascular. The papilla of the tongue are often found much enlarged, the submucous glands of the pharynx, larynx and trachea have been found enlarged and inflamed by Trotter, Potter & Morgan. But it is chiefly upon the nervous system that the virus appears to exercise its specific action, and yet often after death no lesion can be found to account for the phenomena present during the disease. We find the brain and membranes somewhat congested, and sometimes we find serous effusion. The medulla oblongata with the spinal cord and its membranes are congested, but there appears to be no marked lesion in these parts, otherwise than the congestion. The specific action of the virus appears chiefly to affect the medulla oblongata and the eighth pair of nerves, and subsequently
through these, the normal action of the structures supplied by the eighth pair of nerves are perverted and exal ted. Thus, the poison acting on the eighth pair, its action is transmitted by means of the aosphageal branch and hence we have functional derangement in the aosophagus causing the characteristic symptom—dysphagia. Then the spasmotic breathing, produced even when anything approaches the lips shows that the recurrent nerve is implicated. The extreme sensibility of the body to receive the influences of external impressions, shews that the functions of the spinal nerves must be also affected. The distress given to the eye by every ray of light, later in the disease, and the acute perception of the ear to every sound, lead us to infer that the central nerves are affected. Still later on in the disease, the impulsive uncontrollable violence, the suspicion, and the occurrence of convulsion and epilepsy, tend to show that the brain and medulla oblongata are affected.
The third cervical ganglion of the sympathetic on each side of the neck has been found unusually firm, dark red, and presenting the appearance of great vascular development. The choroid plexus has been found much gorged with blood by Trotter. The nerves at the injured part have been found inflamed as a general rule they are not found inflamed. The blood is deficient in oxygen. It will be seen from the above statements that the post mortem appearances are so variable and unsatisfactory as not to be much depended upon and other means are wanting to complete our perfect knowledge of them. It may be, that as chemistry and the knowledge of the microscope get better known we may perhaps some time or other arrive at a more definite comprehension of the morbid changes and their cause, but at present we are in the dark about the subject. The symptoms of Hydrophobia have a marked analogy to those induced by the physiological action of large doses of strychnia. As before observed
There is a deficiency of oxygen in the blood. Now may not the virus whilst in the blood act in some manner unknown on its constituents, combining with the oxygen, and forming a compound somewhat analogous in its action to those of the alkaloids—strychnia and belladonna? That some change takes place is evident from the character of the blood, and the presence of gas. This must be preventive and palliative, for no cure has ever been affected when once the disease has appeared. Therefore our efforts must be directed to soothe and lessen the suffering of our poor patients. When a person has been bitten by a mad dog or one supposed to be so, our first duty is to try to prevent any bad effects arising from the bite. The preventive measures usually employed are early and complete excision of the bitten part, and then the free use of caustic to the raw surface left. Excision cannot be practised, the part should be well washed with water as hot as the patient can bear, then the cupping glass should be used, afterwards strong caustic
should be applied freely to every part of the wound. Pictish acid, or potassa free. Mr. Youatt strongly advised alcohol of piper. He says that he has used it in 400 cases or more with great advantage, hardly any case of hydrophobia presenting itself after its use. If premonitory symptoms come on it has been advised to excise the cicatrix, and cause free suppuration, also to cut the nerves supplying off. To excite free perspiration by means of the hot air bath, and to act freely on the bowels and kidneys. The idea being that the premonitory symptoms are dependent on changes taking place in the cicatrix. The virus here undergoing change and forming some new compound. Which now begins to act on the organism. I think the changes here noticed are not the cause of the hydrophobia symptoms but are merely the effects of the action of the putrefied virus in the system. When the actual symptoms have set in the treatment must be energetic according to some who believe the disease to be inflammatory. Blood letting &c.
There is no medicine as yet which has been tried, that appears to have any control over the symptoms. Copious bloodletting, purgatives, mercury, oil of turpentine, opium, prussic acid, acetate of lead, arsene, belladonna, phennomum, strychnia, white hellebore, balsam and res. causticades, calomel, nitrous oxide, fear, and cold affusion have been tried and found useless. Lately Indian hemp has been much prdated, also the use of Aconite and the worea poison. The calabar bean has also been advocated.

Opium appears to have been the favorite remedy. Dr. Washington has given us such as the pains of cold opium in eleven hours, without the slightest effect on the system, or in any way alleviating the symptoms. The system appears to be armed against it. Cold affusion has been tried with but little effect. Mephenie injected two parts of warm water, temperature 100° F. into the veins of a patient who was labouring under the disease, and who was almost insane, requiring treatment with the effect of soothing him considerably.
for the time; the pulse before the operation being 150, in the space of 2½ hours it fell to 80. But the good effect was not lasting. Acute cerebral effusion took place into the joints, and the patient died in great agony. Dr. Todd recommended ice to be applied along the spine. I should be inclined to keep the patient under chloriform when much convulsed; in the intervals inspire him with hope, console him, and avoid mentioning the name of the disease in his hearing. Apply a blister to the neck, and ice along the spine; administer strong beef tea or essence of beef by means of the stomach pump. He ought to be infused of warm water into the brain, after having taken the same amount of blood away. The internal administration of chlorform has been much practiced. I would rather rely on inhalation of a mixture of oxygen and air; the free use of chlorate of potash and plenty of brandy or wine to keep up the patient. We ought blister the spine and apply ice to the back.
with morphia. Cautiously, watching the effect. If opium is given at all, should be combined with a diffusible stimulant. According to Dr. Marchetti, who labored under the idea, that peculiar fluxus always made their appearance before the symptoms developed themselves, we should open these fistula and cauterize the interior with the actual cautery, giving the patient at the same time large doses of decoction of broom tops. But this have shown to be a hoax.

Many medical men give large doses of narcotic poisons, but as yet these appears to have been no good effect noticed, therefore I am led to mention the plan of treatment above recorded, if this should fail I would try some other plan.

Tobacco is advocated by some, but it is a dangerous remedy.