

the hooe, located oear the knee, with oo nopleasoot effects following the operation. He aohsequently reported that the osseous tumoor hod re-attached itself to the booe, hut at different points, so that the fuoetioos of the joiot were oodistorbed.

135 East 42d Street.

AAT. XII.—*A Supposed Case of Rabies Canina treated with Strychnia and Woorara; Recovery.* By B. A. WATSON, M.D., Surgeoo to Jersey City Charity, and St. Francia Hospitals, Jersey City, N. J.

SUNDAY morning, Feb. 6, 1876, between teo and eleven o'clock, I was sommoned in great hosto to see Mr. McC., of this city, aged about forty-five, a strong, able-bodied man of temperata and industriooos habits, who had previously enjoyed aniformly good health. I foud him in his sleeping apartment, a hack parlor, aufferiog with a severa chill, which was accomponied hy chattering of the teeth, violent retching, and the occasional vomitiog of a littla dork grumous fluid. Thera was suffusioo of both eyes, equal dilatation of tho pupils, marked congestion of tha conjunctiva of the right eye, hot slighter of tho left, turgescence of the vessels of the face, giving the coontensnce a livid appearance. Respiratioo sighing, pulse frequent and irregular, and the tongue furred, grayish-white. He was highly nervous, apprehensive, and uowilling to be left alooe. Soys "there is a sensation of tightness or sqeezing" over the præcordial regioo. Io aanswer to my question, "how do you feel?" he replied, io a oervous, jerking voice, "I am all right—oothing tha matter with me." Ho then called for a glass of water, which he took and trembliogly draok, evidently to oo-vince me that ha did not have hydrophobia.

I directed him immediately to he pot in bed, well covered with blonkets, mustard draught to be applied to tho epigastrium, bottles of hot water to ha placed around him, and tha temperature of tha room to be raised as soon as possible to 80° F.

I then withdrew from the room, and lerned from the family the following history, viz.: On or about the 25th of November last, Mr. McC. was preseoted with a young Newfoandlond dog, which appeared at the tima to be in a healthy conditioo; it was ployful and good oatured, ate and slept well; hut withiu a month exhibited signs of illoess, becoming restless, frequently starting op from apporent asleep, growling, barking, and snapping at imaginsry objects. Soon after thesa symptoms were observed, the dog bit tha servaot girl, both of Mr. McC.'a childreo, and a yooog oephew. Mrs. McC., being now terribly alarmed, ioformed her hosbaad, when ha came home at noon, that tha dog was sick, and ioisted that it should be sent away froo the hooe. Tho hushond endeovoured to quiet her feors, assuriog her that he would examine the dog, and if anything were tho matter with it he would send it off. He theu proceeded to moke the examination, and, whila thos engaged, was hitteo through the index finger of the right haod near the root of the nail. The exmninatioo beioo satisfactory, the dog was drowned. The wound reodily healed. These eveots occnrred about the 20th of December last. The servant girl¹ (previously

¹ See accompanying report of this case by Drs. McLoughlin and Culver.

meotioed as the first one bitten by the dog) died at St. Francis Hospital, in this city, Feb. 1, 1876, of *unmistakable rabies*.

Mr. McC. had been complaining for a week or ten days prior to this visit. He had been low-spirited, melancholy, nervous, irritable; had taken little food, complained of shooting pains through various regions of the body, and other abnormal sensations which he was unable to describe fully.

Feb. 5th, he went to the Jersey City Opera House at the solicitation of his brother, who thought the entertainment given there might possibly dispel the melancholy, and relieve the nervous agitation with which his brother was suffering.

Having remained there a short time, he informed his brother that he was too ill to stay any longer, and then went home. The patient attributed all these symptoms to a cold with which he supposed himself to be suffering. This morning, Feb. 6th, he arose at the usual time, took more breakfast than at any time during the previous week, but feeling unwell, he lay down and soon fell asleep. After sleeping two or three hours he suddenly awoke, and calling his family, a messenger was immediately sent for me. I responded promptly to the call, and found him in the condition previously described.

Having obtained the foregoing history of the case, I ordered one-twelfth ($\frac{1}{12}$) of a grain of strychnin every three hours, and directly sent a messenger to Prof. Flint, of New York, requesting him to meet me in consultation at his earliest convenience. 1 P. M. I again saw the patient, and found his pulse down to 80; respirations only five per minute; inspirations deep and sighing. Complaints of a sharp lancinating pain in the left arm and hand. Retching and vomiting relieved. Less constriction of the respiratory muscles. Says he is feeling better. 4 P. M. Consultation with Prof. Flint. Pulse 76; respirations 11; inspirations still sighing. Does not complain of any "sensation of tightness or squeezing" over the præcordial region, or pain in the hand or arm. It was determined to continue the treatment with strychnia for the present. 7 P. M. Condition same as at 4 P. M. Ordered one ounce of Rochelle salt.

Feb. 7th, 9 A. M. Pulse 78; respirations 12; inspirations slightly less sighing than yesterday. Bowels moved twice during the night. Face less livid. Less coagstion of the conjunctivæ. Had some sleep during the night. Complaints of being thirsty. Has taken considerable food at my earnest solicitation. 12 M., 4 P. M., and 10 P. M. I saw him, at which times his condition remained about the same as in the morning.

8th, 9 A. M. Pulse 84; respirations 11; inspirations still sighing; has had little sleep during the night, but has taken an abundance of nourishment. "The sensation of tightness and squeezing over the præcordial region" has returned during the night, but is not constant. Punctures were applied over the thorax. He is now perspiring freely. 12 M. Not so well as in the morning. Is now suffering with asphyxia; a slight current of air causes shuddering, the countenance at the same time expressing intense anxiety, mingled with dread. He has just suffered severely with a prooxysm caused by a current of air from the door which opens into the hall from his room. There is much muscular twitching, which extends over the whole body. This door was now fastened, and every possible cure taken to avoid, in the future, all currents of air in the sick-room. Visitors entering the room from the street are admitted to the hall, this door closed behind them, then passed to the front parlor,

which is kept cooiently well heated, and then the door opeoing into the front parlor from the hall is closed, and then the door opening into the sick-room is so guarded that it can only be opened efficiently to admit the largest guest who was in the habit of entering, and no attendant is constantly ready, who closes the door ns sooo as the entrance is effected. The patient's thirst is very much incensed, and he is more apprehensive. He is no longer satisfied with the presenee of half n dozen friends in the room, hut wishes the room crowded. He is unusually talktive. 5 P. M. Condition remains about the same as nt noon. Ordered a dose of Rochelle salt. 10 P. M. Pulse and respiration unchanged since last visit. Aërophobia slightly increased.

9th, 9 A. M. Bowels moved freely during the night. A paroxysm came on nt 1 A. M., and lasted until nearly 2 A. M. This paroxysm was apporeotly excited by finding himself in the room with oo other ntendnot than his wife. He seemed greatly frightened when he awoke, looked wildly around the room, and called in frenzied tones for his brother and other ntendants who had been with him until near midnight, hut had left after seeing him sleeping. The strychnia was omitted from midnight until 11 o'clock this morning without the knowledge of the attending physicians. Patient imaginee the medicine is injuring him. Pulse 92, and more feeble than nt any previous examination; respirations 11; much muscular twitching, sensation of fulness of the stomach, gaseous eructations, and "tightness or squeezing" over the præcordial region. 1 P. M. Pulse 86, and stronger; respirations 11. It is now two hours since he took ooe-eighth ($\frac{1}{8}$) of n grain of strychnia. 5 P. M. Pulse 72; respirations 15, and less sighing; no moscular twitching. At 2 P. M. he took one-twelfth ($\frac{1}{12}$) gr. strychoie, and at this time (5 P. M.) ho took the same qnnntity. He now asked me if I would allow him to drink water, and, os I noswered in the affirmative, an ntendant asked him if he would hovo some nt that time. He refused, although ho was complaining of great thirst. I was followed to the door, while in the act of leaving the hoose, by one of the principal attendants, who informed me that the patient had not taken a drop of cold water during tho preceding twenty-four hoors, and could not be persuaded tn make the attempt, but that ho had taken warm drinks freely. 10 P. M. No change.

10th, 9 A. M. Pulse 80; respirations 17. Passed n very restless night, with very little sleep. Does not tako nourishment well. 1 P. M. Has had ono prooxysm this morning. Pulse 100; respirations 15. Coosid-erable moscular twitching; nervoos nod more apprehensive. 5 P. M. Hos hod another prooxysm this afternoon. Pulse 120, ood all other symptoms proportionally intensified. 7 P. M. Has just recovered from another prooxysm; gaseous eructations are now very distressing. Has just vomited. 10 P. M. Evidently growing worse. Pulse more rapid; more nervous ond apprehensive; more moscular twitchings, and grently distressed with gaseous eructations. 11.30 P. M. At this time I was obliged to be away, hut Dr. McLoughlin, who was called in on Tuesday, and who had been in attendance with me since, remained with the patient, and describes the prooxysm as follows, viz.: "The prooxysm consisted of clonic spasms of the respiratory muscles, each lasting one or two minutes, followed in quick succession by others, and each succeeding one increasing in duration and severity, without any complete intermissions. At the end of an hoor the spasms hed become so severe eod the dyspnœo so greot, that he could oot speak above a low whisper, ond even this whis-

pering was of short duration; from the commencement of the paroxysm the voice had become gradually lower and lower, so that finally he made his wishes known to his attendants by beckonings. During and after the paroxysm he was extremely sensitive to changes of temperature, the slightest current of air causing the paroxysm to recur. At his desire the temperature of the room was kept at 82° F. During the paroxysm he was constantly calling and beckoning for poultices, which were applied at the highest temperature consistent with the feelings of the patient, as only a slight increase of temperature was needed to produce a blister. He afterwards told us that he thought the hot poultices afforded him some slight relief. The face and manner of the patient during the paroxysm indicated the highest degree of anxiety and alarm, but he was apparently conscious, and at that moment seemed to keenly appreciate the peril of his situation. When able to speak, he called on me in anxious tones for help; begged me to do something to relieve him. At 1 o'clock the paroxysm began to remit, and had wholly ceased at half past one. He was frequently expectorating tenacious saliva. Respirations were gasping and irregular. The severity of this paroxysm satisfied me at the time that he could not possibly survive for more of equal severity."

The patient had been unusually talkative during his entire illness, but, as soon as he had recovered sufficiently from the exhaustion produced by the last paroxysm he talked incessantly, appeared unable to stop, and would not allow others to speak or in any way to interrupt him. He had made up his mind to die, and seemed resigned to his fate; but when I entered the room in company with Dr. McLooghlin for the purpose of injecting the woorara, he requested us to wait, and then proceeded to say adieu to his numerous friends assembled around his bed, some of whom he admonished of future danger, and at the same time urged them to a higher and better life. He spoke on this subject very rapidly and with much earnestness, although naturally a man of few words and not possessed of fluency or eloquence. Having finished his pathetic remarks, he turned to us and said: "Doctors, proceed to perform your duty."

11th. 2 A. M. Injected subcutaneously one-sixteenth ($\frac{1}{16}$) gr. woorara. During the previous twenty-four hours he had slept very little; twenty minutes after the injection he fell asleep, the sleep being disturbed and restless, occasionally starting up and then falling asleep again. 5 A. M. Being at this time in an adjacent room I heard the patient wrangling with his friends, having already thrown off the poultices and bedding, in opposition to their remonstrances and even resistance. When I entered the room he immediately recognized me; asked me where he was and what was the matter with him. I informed him that he was at home and that he was very ill. He replied "this is very strange! very strange! I can't understand it," and then asked "how long have I been sick?" and immediately following the question with the declaration "I am no longer sick; I have only a sore throat." He was now constantly putting his hand to his throat, hawking and making a great effort to clear the same, but apparently with little success, as he failed to expectorate any considerable quantity of sputa. We finally persuaded him to lie down in bed, and to permit the bedding to be again placed over him; and within a few minutes he was able to recall the past, and soon became perfectly rational. This delirium was of short duration, did not continue more than half an hour, and was the only attack of the kind from the commencement to the termination of the disease, and had been preceded immediately by retching

and vomiting. I now injected as before one-ninth ($\frac{1}{9}$) gr. woorara, after which he slept better and exhibited less nervousness. 8 A. M. Injected one-sixth ($\frac{1}{6}$) gr. woorara, which was followed by a quiet sleep. 10 A. M. Patient now quiet and rational; pulse 96; respirations 17; no sighing. Declares that he is feeling perfectly well; wholly indifferent to currents of air, in fact all unfavorable symptoms have disappeared. Thinking it better to continue the use of the woorara lest the symptoms should reappear, I requested Dr. McLoaghlin to inject one-sixth ($\frac{1}{6}$) gr. at 11 o'clock, at which time I should be necessarily absent. The patient refused to allow the doctor to give the injection, but took a bottle of citrate of magnesia without the advice of his medical attendants. He has had no return of the symptoms of the disease from that day to this.

That this interesting case may be more thoroughly understood, I shall now review so much of the daily reports as may seem necessary to enable the reader to appreciate the value of the symptoms, and establish the true nature of the disease. In the above report symptoms are mentioned, not their duration is often left to conjecture or at least not definitely stated. The chill from which the patient was suffering when I first saw him, had disappeared previous to my second visit, and did not again appear. The retching and vomiting present on the first day, returned on the third and fourth days, and became so troublesome on the fifth day that the patient was unable to take any appreciable quantity of food, and less than half the quantity of brandy which he had taken during either of the two preceding days.

He also complained very much of the strychnin; said "it asscated him," and owing to this condition only a small quantity was taken, and a still smaller quantity remained in his stomach, probably less than one-fourth ($\frac{1}{4}$) of a grain during the entire day, was retained, as he vomited occasionally immediately after taking this medicine. There was a gradual increase in the severity of these symptoms during the whole disease, and no cessation until after the woorara was administered. The congestion of the conjunctivæ and the turgescence of the vessels of the face, steadily diminished, and had entirely disappeared on the morning of the fourth day. The constrictions of the respiratory muscles were paroxysmal in character, confined entirely to this group, at least affecting only the larynx, trachea, and lungs, and are sufficiently described in the daily report. The dilatation of the pupils existed three days. The nervous excitability, apprehensiveness, dread of being left alone, and the sighing respiration, were present during the entire disease; although varying in intensity, apparently much increased by the clonic spasms of the muscles; but these all disappeared with the use of the woorara. The respirations varied greatly; at times being remarkably slow, but gradually increasing in rapidity towards the termination of the disease. The sharp convulsions of the left hand and arm was of short duration, probably lasting two or three hours. Pulse variable; always more rapid during and immediately after the spasm, and more irregular and feeble.

The aerophobia made its appearance on the third day of the illness—increased uniformly until the injection of woorara put an end to all further trouble.

The patient was not apparently affected by bright light, the light of any shining object, or by bathing the hands and face in water. The aerophobia alone indicated the excessive hyperæsthesia.

He complained slightly of thirst on the second day, which gradually

increased until the morning of the sixth day, and on the fifth day gave him much suffering. Soon after the beginning of the thirst he endured very much pain from a sensation of fullness, and great distress in the præcordial region, which were accompanied with gaseous eructations. The last-mentioned symptoms followed the same course as the third—especially the gaseous eructations, which became extremely troublesome on the fifth day.

Early in the disease he began to perspire freely—day after day it increased until finally the bed and bedding were thoroughly saturated with the perspiration, thus giving the patient the benefit of a continuous hot bath, but here again the cessation came when the woorara was injected.

The only aversion to fluids was manifested by the patient refusing to take cold water on the third day of his illness, and persistently thereafter until his recovery was established—although constantly complaining of thirst during this period, he only drank warm fluids in considerable quantities. I am not aware that water or other fluids were offered to him at any time during the existence of a spasm. I incline, in fact, to the opposite opinion.

The patient endeavored to convince himself and friends during his illness, that he was not suffering with rabies; especially was this the case when free from pain and distress, and a few hours free from a paroxysm, but on the fifth day the paroxysms being frequent, the suffering severe and continuous, his countenance became greatly dejected, and he now apparently abandoned the only hope that had previously cheered him.

He had previously imagined that all his illness was caused by the medicines, and consequently blamed his medical attendants, but during this day his confidence in them seemed to be fully restored, and he begged them frequently for relief, and desired them constantly at his bedside. The most singular part of his conduct is, that so soon as he found himself completely relieved, and again placed on the highway to health, his old fancy returned, and he now *pretends* to believe that the only cause of his suffering was due entirely to the medicine.

The important question to determine in connection with this case now, is entirely one of diagnosis. Do the facts and symptoms warrant the conclusion that this patient suffered with genuine rabies canis? This question raises another which has a prior claim on us at this time. How is the diagnosis of rabies made? Is there any pathognomonic symptom of this disease? The last question *must certainly be answered in the negative*; although the vulgar belief is, that the inability to drink water, or, at least, great aversion to it, constitutes the principal phenomenon, and even among physicians it is not unusual to speak of this symptom as the characteristic one of the disease.

Inability to drink water is, however, found to exist in many other diseases, particularly hysteria, spurious hydrophobia, and many morbid conditions of the throat. Thus Prof. Elliott says:—

“People will take no antipathy to all liquids; and sometimes, in common sore throat, there is such a spasmodic disposition in the throat, that the attempt to swallow excites great irritation; and the recollection of it excites fear at the very sight of water, while the attempt to drink it is terrific. On the other hand, the fear of water, the fear of swallowing, is not universal in hydro-

phobia. Persons sometimes swallow very well in hydrophobia, and put their hands into cold water; dogs will swim across a stream, and some persons, it is said, drink quite well to the very last. I believe I have seen this occur myself."¹

Prof. Samuel Cooper says :—

"The question has sometimes been entertained, whether rabies can ever exist quite unattended throughout its course with a dread of liquids? The possibility of such a case was believed by Mead and others;"² and the same author adds: "The dread of swallowing liquids, though the most singular symptom of the disease, constitutes but a small part of it."³

A. Poland, Esq., says :—

"The dread of water, the almost characteristic symptom in man, is not always present, as may be proved in recorded cases. On the other hand, this symptom may be met with in other diseases: thus in hysteria we may have what is called hysterical hydrophobia, where the sight of water induces a paroxysm of hysteria, but this only lasts a short time; in inflammatory affections about the throat, larynx, and oesophagus, and in certain diseases of the brain, there may be a difficulty and dread in swallowing fluids, which is called symptomatic hydrophobia; in hypochondriasis and melancholia there is sometimes painful and convulsive deglutition."⁴

Prof. Romberg says :—

"A negative, but no less important symptom, is the absence of fear of water or hydrophobia."⁵

Prof. Abraham Colles, speaking on this subject, says :—

"You see, therefore, that the popular notion of the horror of water forming the great diagnostic of hydrophobia is incorrect; we have the same horror of drinking in some cases of hysteria, in some affections of the brain, in tetanus, etc., while, in some cases of hydrophobia, they drink with little reluctance or difficulty."⁶

Prof. Frank H. Hamilton, speaking on the differential diagnosis between this disease and tetanus, hysteria, etc., says :—

"It is not, however, so much the presence or absence of any single phenomenon that determines the diagnosis, as the complete history and concurrence of symptoms. Nowhere else, it can safely be affirmed, is the same or even a similar group of morbid phenomena presented."⁷

Having thus cited a few authorities for the purpose of showing the incorrectness of the popular idea that the dread of water is the pathognomonic symptom of rabies, I shall now call attention to a few well-authenticated cases—terminating fatally without the presence of this symptom. The case of Robert Hodson, who was bitten by a rabid dog, which died soon after inflicting the wound, is reported by Samuel Cock, who says :—

"He had no dread of liquids, nor did he ever refuse drinking what was offered to him, when he was sensible enough to understand what was meant by the offer. . . . He was now put into a tub of warm water, up to the chin,

¹ The Principles and Practice of Medicine, 2d edition, London, p. 711.

² Cooper's Surg. Dict., 2d edition, London, p. 790.

³ Ibid., p. 791.

⁴ Holmes's System of Surgery, vol. i. p. 691.

⁵ Diseases of Nervous System, vol. ii. p. 147.

⁶ Lectures on Surgery, Phila. 1845, p. 48.

⁷ Principles and Practice of Surgery, p. 131.

which did not the least discompose him, and when he got to bed again, he said he had no pain anywhere."¹

Mr. Holmes Coote, writing to *The Times* in regard to hydrophobia, says, that "in the course of thirty-five years' observation at St. Bartholomew's," . . . he "saw only two cases of it; and one of these so far belied the vulgar pathology as to the patient's repugnance to water, that the sucking of ice gave him the greatest relief."²

Another symptom of rabies—the clonic spasm—is of sufficient importance to demand our brief attention.

The authorities who have written on the subject of rabies, do not fully agree in regard to the muscles principally affected by the spasms in this disease; probably for the reason that it seldom happens that the same group are equally affected in different cases, although there are very few, if any, cases in which the muscles of respiration are not largely involved.

Dr. J. Lewis Smith, in an "Analysis of One Hundred and Thirty-one Cases of Hydrophobia," in speaking of the paroxysm, says:—

"The proximate cause of the attacks was a spasm of certain muscles; though, from the nature of the disease, it was difficult to tell exactly which or how many. The sufferer often referred to the throat as the seat of his distress, and the muscles in this region were, sometimes, visibly in a state of spasmodic action. Occasionally a constriction of the chest was complained of, as in Nos. 18, 42, and 44; or, across the abdomen, as in Nos. 43 and 50, leading to the belief that the thoracic and abdominal muscles were involved."³

Prof. Thomas Watson says:—

"There may be a spasm of the glottis, but I doubt it."⁴

Mr. Robert Druitt says:—

"Hydrophobia is a disease brought on by inoculation with the saliva of a rabid animal, and characterized by intermitting spasms of the muscles of respiration, together with a peculiar irritability of the body and disturbance of the mind."⁵

Having already given some attention to certain symptoms, let us now proceed to examine the question of diagnosis.

The correct diagnosis of a disease can only be made by giving to every symptom and group of symptoms their proper place and value. This may be aptly illustrated by supposing ourselves in possession of numerous blocks of wood, or other material, of various patterns and dimensions. The blocks being of various patterns and dimensions may represent not only symptoms, but also the value of the same. Let us now suppose ourselves in possession of a certain number of images—each image representing a particular disease, and also in possession of the knowledge that only a single fac-simile can be possibly made with the blocks in our possession. The effort to make a diagnosis may now begin; the symp-

¹ Medical Histories, edited by Ferriar, 1st Amer. ed., p. 313-4.

² Lancet, Dec. 1868, p. 754.

³ N. Y. Journ. Med., vol. xvi., No. 1, p. 52.

⁴ Pract. of Physic, edited by Condie, p. 405. New Amer. edit., Phila. 1858.

⁵ Modern Surgery, edited by Sargent, p. 164.

toms are arranged in groups—each examined critically to ascertain that each symptom fits perfectly in its place, and should this be the case, then we have succeeded in demonstrating one stage of the disease. The same care should now be taken in putting together the different groups, and if the groups are found to fit together perfectly, then the image will be perfect, and the question of disease settled. In accordance with the suggested system, I have carefully examined the symptoms of this case, but have failed to produce anything like a satisfactory image of tetanus, hysteria, pseudo-hydrophobia or phrenitis. Had the case terminated fatally, probably no physician could have been found who would have questioned the correctness of the diagnosis rabies canina, but notwithstanding the fact that the patient is now alive, I am still firmly convinced that the diagnosis was correct.

In reviewing the development of this case, which has terminated thus favourably, so unexpectedly to myself and the medical gentlemen who have seen the case with me, I shall detail the management from the beginning to the end of the disease, and also mention some of the reasons for the selection of the remedies used. The strychnia was intended to be used regularly in the prescribed doses throughout the entire day, except while the patient was sleeping. I am, however, satisfied that it was not at all times taken with perfect regularity. The entire quantity of this drug used during the five days' illness of the patient was about two and one-fourth ($2\frac{1}{4}$) grs. It was our intention when we commenced the use of the strychnia to continue it in gradually increasing doses until its specific action was produced, but the patient did not take the medicine with that degree of method which inspires confidence and enables a physician to push the use of such powerful remedies until the desired effect has been attained. I am now satisfied that the plan of administration adopted by Dr. Fell in the treatment of tetanus with strychnia is highly advantageous, and should be followed in all cases of hydrophobia where this drug is used.

The selection of this remedy for this case was based on the following reasons: 1. Rabies and tetanus belong to the same class of diseases, and the medicines used advantageously in the latter ought, therefore, to be beneficial in the former. 2. If we can rely on the published reports of cases of tetanus cured with it, then we are fully assured that no remedy has ever been previously used with anything like the same success. Finally, the treatment of rabies with the remedies heretofore used has not been sufficiently successful to justify a very strict adherence to any particular drug or method. Prof. Alfred Stillé says:—

“Even in *tetanus* its power has been unequivocally displayed. In 1847, Dr. Fell, of New York, published seven cases of tetanus, six of which were certainly of the traumatic variety, and which all recovered under its use. His plan of administering it was to give one-eighth or one-tenth of a grain, and in two hours one-sixteenth of a grain, then reducing the dose still further, and only to the extent of producing specific signs of its influence after each one. Dr. Kollock

also relates a case of traumatic tetanus occurring in a negro girl, which was cured by strychnia, given in doses of one-twelfth of a grain every two hours. Another cure of the same disease, by the same means, is related by Dr. L. Bartlett."

The injections of woorara were given by myself, and I am, therefore, able to speak positively in the daily report. The specimen was procured through the kind assistance of Prof. Austin Flint, and was in a solid state. I requested Mr. Phillips, of this city, to prepare it for use, and have received from him the following note:—

Dr. B. A. Watson, Dear Sir: The solution of woorara for hypodermic injection was prepared as follows: one grain of woorara was first reduced to a fine powder, and to it was added with constant stirring one fluidrachm of distilled water. Alcohol of 95 per cent. was now added, drop by drop, till a nearly perfect solution was obtained. Sufficient diluted alcohol of the U. S. P. was then added to make the solution measure two fluidrachms. Prepared in this way, twelve minims of the solution should represent one-tenth of a grain of the drug. The slight turbidity of the preparation was probably owing to extraneous matter which existed as an impurity. Yours, truly, Geo. W. C. Phillips, 124 Newark Ave.

The woorara was finally used because of its well-known physiological action, and also for the reason that the strychnin, which at first seemed to be highly beneficial to the patient—and I am fully satisfied that it did delay the progress which the disease would otherwise have made—could no longer be given on account of the vomiting.

The conviction that I have just expressed in regard to the action of the strychnin is based on the fact that the patient after each paroxysm suffered with nervous twitchings, and at the same time the pulse was observed to be much more frequent and feeble than before the spasm. In this condition, it was invariably the case that, if the strychnia was taken immediately after the spasm, the twitchings rapidly disappeared, and the rapid pulse became slower and fuller; but when the remedy was omitted the nervous and depressed condition continued much longer. Beside the medicines already mentioned, the patient drank freely, during his entire illness, of a decoction of *Scutellaria lateriflora*.

He commenced the use of brandy punch on the second day of the disease; and on the third and fourth days, used each day one quart without showing any symptoms of intoxication, but during the fifth day he could not be prevailed on to take even one-half this quantity. During the first part of the illness he ate and slept well; but during the latter part he took less food and had much less sleep.

The profuse diaphoresis, which has been previously mentioned, I think may have had a beneficial effect, and I find on examination an article written forty-six years ago, entitled, "Proposal to employ Heated Air in Hydrophobia," in which appears the following recommendation:—

"It is my wish to propose, through you, to the public, that future cases of this disease may be submitted to the full influence of highly heated air, so as

¹ Therap. and Mat. Med., 4th edit., vol. ii. p. 187.

to produce from the skin and lungs a copious exhalation. This treatment affords to my mind a hope of success, because in all the more virulent and manifestly contagious diseases, as plague, smallpox, measles, and scarlatina, there is an effort to throw off the poison by cuticular action; and, in the plague, those who get habn and cuticular disease early do for the most part recover, and in some instances *spontaneous sweating has appeared to carry off the disease.*"¹

I will only say, in concluding the report of this case, that I am now fully satisfied that the diagnosis of the disease made during the illness of the patient is correct, even without the aid of a post-mortem examination; and were I to assume the responsibility of managing a case of rabies to-day, I should not materially change the treatment from that followed in this case.

[Since the preparation of the above report, a case of "Rabies Successfully Treated by Woorara," by Offenbergh, of Berlin, is noted in *The Medical Record*, March 18, 1876.]

I have also received the following letter from Prof. Flint, and with his permission to publish the same:—

New York, April 26, 1876. Dear Doctor: I saw your patient, McC., with you in consultation, Feb. 6, 1876. I received from you an account of the case, as you have detailed it in your report up to that date, and also the statement that a servant maid in the family had died with unmistakable rabies. The symptoms which the patient presented at my visit, as I recall them, were as follows: The face was flushed, and the eyes somewhat injected. His expression denoted excitement and anxiety. He was restless; his hasty movements were somewhat like those in delirium tremens. Brief paroxysms of rapid breathing occurred at short intervals, and there was frequent sighing. When I asked him how he felt, he answered, "I am awfully well." He showed no disposition to enter into any account of his feelings. The name hydrophobia was not spoken in his presence, nor was any reference made to his having been bitten by a dog. I requested that he should drink some water, which he did without any reluctance or difficulty.

In my consultation with you, I expressed the opinion that, although there were not then sufficient data for the diagnosis of rabies, taking into view the facts relating to the dog, the hito, and the case of the servant maid, the present symptoms foreshadowed that disease. I thought that within 24 or 48 hours the development of the characteristic features of the disease would render the diagnosis positive. I expressed this opinion, at your request, to some of the friends of the patient. The patient himself did not ask for my opinion.

I concurred with you in the treatment which you were pursuing, and in the propriety of employing the woorara when the disease became fully declared. At your request I procured and sent to you some woorara, which was obligingly furnished by Dr. John J. Mason.

My subsequent knowledge of the case is derived from your report. It is to be regretted that the case has given rise to sensational articles by newspaper reporters; but this, of course, should not stand in the way of a dispassionate consideration of the question whether the disease was, or was not, rabies. The recovery of the patient and the employment of woorara, render this question one of much importance.

The symptoms at, and prior to, my visit, are consistent with the supposition that the patient was in the primary stage of rabies; and, as it seems to me, we were fully justified in having the opinion which we both held at that time. Under the same circumstances I should again form the same opinion. The subsequent history shows the absence of the symptom which is generally a

¹ Journ. Fr. Med., vol. ii. pp. 262-3.

marked feature, and from which the term hydrophobia derives its significance, namely, laryngeal spasm excited by the effort to drink water, and consequent apprehension in making this effort. But I suppose it to be undoubtedly true that this symptom is not invariably present in cases of rabies. While, therefore, hydrophobic manifestations would have been valuable in a diagnostic point of view, their absence is not proof that the disease was not rabies.

Lyssaphobia may certainly be excluded. The patient appeared to be resolute in the belief that he had no serious affection. There is no ground to suppose that the phenomena were hysterical.

The character of the convulsive paroxysms is of great importance with reference to the diagnosis. The point of inquiry here is, were these paroxysms due to the strychnia? From your description they were not of the character which strychnia would produce, and the doses of strychnia were not sufficient to produce convulsive movements with disturbance of respiration.

The fact of recovery naturally excites scepticism in respect of the diagnosis of rabies. I am conscious of this in my own mind. Excluding, however, lyssaphobia, hysteria, and the toxic effects of strychnia, it is difficult to say what the disease was, if it were not rabies. To say the least, the supposition that the disease was due to the virus of rabies is not without the range of probability; and the case would, therefore, lead to the employment of the woorara in cases which admit of no doubt as to the diagnosis. Whether the disease was or was not rabies, the effect of the woorara appeared to be useful; and as a contribution to our at present limited knowledge of the therapeutical use of this remedy, the report of your case is interesting and valuable. It is hardly necessary to add, that should the woorara be found to have a curative power in rabies, you will have conferred a great benefit on medicine and on humanity by venturing upon its use, and by the publication of your report. Very truly yours, Austin Flint.

ART. XIII.—*Case of Hydrophobia; Death. Early History of the Case.*

By T. J. M'LOUGHLIN, M.D., of Jersey City, N. J.

Subsequent History, with Remarks. By J. E. CULVER, M.D., Physician to St. Francis Hospital, Jersey City,

On Sunday morning, January 30, 1876, I was called to attend Lizzie M., a servant living in the family of Mr. James McC., of Jersey City. I noticed by her manner and appearance that she was quite nervous, and in an anxious frame of mind. In answer to inquiries made in regard to her previous condition, I was informed that she had been unwell for several days, but that since the day before she had been growing much worse. During this time she was known to have taken very little nourishment, but owing to the fact of her being regarded as unwell, this circumstance attracted little attention.

On the evening of Saturday, Mrs. McC., prompted by sympathy to do something to assist the girl, prepared some tea, which she wished her to take. When it was brought she showed some disinclination to drink. Being prevailed on, however, in the hope of benefiting her, she took a mouthful, swallowed it with an effort, and refused to drink any more, at the same time complaining that in the act of swallowing she had "a choking sensation in the throat," and that "it caused an oppression in her breathing." In addition I was told that she was troubled with frequent gaseous eructations, and, while I was examining her, she twice or thrice