Gymnastic exercises, — calisthenics, military drills, — boat rowing, etc., are all serviceable in preserving health and symmetry, if used with moderation, and with special reference to the peculiarities of the individual. On the other hand, I have seen severe injury, and even disease of the spinal nerve or membranes, which has originated in their immoderate employment, or where due consideration has not been given to the pupil's idiosyncrasies.

There are other branches of this subject which should receive our attention. I had but a brief notice of preparation for this evening, and I have had only time to refer to some of the more prominent points of a theme which deserves serious consideration.

A CASE OF HYDROPHOBIA.¹

BY CHARLES EDWARD BANKS, M. D., PORTLAND.

ON the 14th of February, 1878, George McF., night watchman at the Portland Rolling Mills, was bitten in the fleshy part of his thumb by a dog. The circumstances are as follows: Mr. McF., feeling somewhat lonely in his long night patrols, and thinking that he would be better protected from danger, purchased a large watch-dog, which was said to be a cross between a coach-dog and a bull-dog. The animal was fully developed, being about two years of age, and although he was much attached to his master, apparently, yet he was very cross to strangers. It is understood that this was the reason his former owner disposed of him. The dog became suddenly ill, and hid himself away in the stable a few days before the accident, and Mr. McF. entered the building in search of him. When he had discovered his hiding-place, he began to pet him as usual, but the dog raised his head and deliberately bit the right thumb of his master severely. Mr. McF. then drove him out of the stable, and he was not seen in that vicinity for three or four days; at the expiration of which time, a son of the deceased found him again in the stable one morning, having entered during the previous day unknown to them. He was then ugly and sullen, and the gentleman drew his revolver in readiness to protect himself from any further manifestations of his anger. It was a fortunate precaution, as the animal made a spring at him while he was harnessing his horse, but a well-directed bullet finished him. Subsequent investigation revealed a place where the dog had gnawed at the stable door during the night to get free. At the time of the injury, Mr. McF. was fifty-five years of age, and, until within two years, had been in the habit of using intoxicating liquors, though his inclinations assumed the form of occasional sprees. Since his reformation the family of the deceased

¹ Read before the Cumberland County (Me.) Medical Society.

have thought that his health had not been as good as before, but the change, if any, may have been due to the sudden relaxation of the artificial stimulants. Otherwise there was nothing wanting, either physically or mentally, to make up the full measure of his general bodily health. The wound in the thumb healed very readily without treatment of any kind, and up to the day of his death only a small cicatrix was left to remind him of the unlucky bite. The fact that he had been bitten by a sick dog, however, kept clinging to him, despite his efforts to forget it, and his frequent mention of the affair and his anxiety as to the result showed that fear was indelibly impressed on his mind. About the 10th of May following, one week before his decease, Mr. McF. felt a little unwell, though there were no positive symptoms of any particular trouble. His wife noticed that he brought back about all of the lunch she had prepared for his night-watches, but he continued at his work, and the family never once thought that his indisposition was caused by the bite. On Sunday night, May 12th, he experienced difficulty in swallowing a cup of tea, but made no mention of it, and from that time till Tuesday he ate but little food. Indeed, such was his aversion to it that the aroma of the cooking in an adjoining room was so offensive to him on Monday that all culinary operations had to be suspended. Soon he noticed a peculiar nervous sensation in his right arm, which resembled a spasmodic neuralgic pain, and extended from the thumb to the shoulder. On Tuesday night he went to his watching post as usual, and notwithstanding his fast he felt comparatively well when he left home. As the morning dawned, however, he began to grow worse, having chills, pain in the stomach, and extreme nausea, and laid down before the furnace to warm himself. Obtaining no relief from this, he determined to remain till the workmen came, when he returned home, and vomited a small amount of mucus.

On the morning of Wednesday the family physician, Dr. H. N. Small, of Portland, was summoned, and his first impression of the case was that the man had become chilled, and, knowing his previous habits of dissipation, supposed it had affected him rather more than usual. Morphia powders were left, and one eighth gr. was ordered to be given every two hours. At that time he was extremely nervous, feeling as if something were choking him. The doctor strongly suspected delirium tremens, but was informed by the family that he had not drank any liquor, to their knowledge, for two years. His strange look, however, led the doctor to anticipate some new developments, and he left minute directions of procedure, and orders to summon him if any fresh complications ensued. Early in the afternoon he was again called, and the messenger reported that on taking a piece of ice into his mouth to relieve thirst he ejected it suddenly, and with so much force that it went

across the room. On arrival the doctor learned from diligent inquiry that he had been bitten, and the patient, eying him keenly as he acknowledged it, asked if it was the cause of his present sickness. For the sake of the mental effect the doctor gave him an equivocal reply, and injected one fourth gr. morphia, being now fully convinced of the character of the disease. Early on Thursday morning he was again summoned, and, in company with Dr. F. H. Gerrish, visited the patient, finding him excited, nervous, and quite weak from long fasting, loss of sleep, and spasms, which were reported as having occurred during the night previous.

To make the diagnosis certain, the doctors tried the various tests, such as the mention, the sound, and the sight of water, to all of which he responded with fearful accuracy. Full doses of jaborandi were ordered, and, after another large injection of morphia, he was left to a trial of the new drug. Early in the afternoon word was brought that the medicine could not be obtained in the city, and thus it will be noted that, to within twelve hours of his death, he had not had any specific treatment. The doctor invited Dr. Thayer to visit the patient with him, and while they were there, in the afternoon, he had a terrible spasm, which eclipsed all former ones in length and distressing character of the struggles. During all this time his mind had been unimpaired, and his conversation on every topic was calm and sensible. He was very enthusiastic in recounting his experience in the late war, and produced his journal and official documents of enlistment, promotion, and discharge with evident satisfaction. He had arisen from the bed to get some one of these papers when he felt the spasm approaching, and after warning his attendants to disperse, lest he should injure them, he went into the terrible struggling peculiar to this malady. His mouth was filled with a ropy, sticky saliva, which he would attempt to expectorate, but failing in this would claw it out with his hands. If there had been any doubt in their minds before as to the nature of the disease, this last exhibition of the latent power of his nerve force made it perfectly clear. Feeling that these hours were to be his last, and with a knowledge of the rarity of such cases in our midst, the attending physician invited Drs. Dana, Gordon, and Weeks to be present, and they all united in confirmation of the diagnosis. A consultation was then held as to the best method of palliative treatment in view of the inability to obtain jaborandi. The deliberation resulted in recommending hourly injections of one half gr. physostigma venenosum, or calabar bean, alternating with rectal injection of one oz. whisky and one scruple of chloral. The writer was then summoned to remain in attendance during the night to fulfill the directions as set forth by the council. On arrival, at ten o'clock, Mr. McF. was sitting up in the bed, which by this time was in a very dilapidated condition.

His respiration was then spasmodic, as in fact were all his movements, and his attempts to converse were at times checked by labored expectoration, or by slight spasms. The popular idea that hydrophobic patients in their sufferings bark and bite like dogs was not supported in fact or fancy in this case. By stretching a vivid imagination his spasmodic inspirations might be likened to the snapping of a dog, but otherwise nothing indicated it. He wished for all the fresh air we could allow, and insisted on having the outside doors opened. At 10.30 P. M. I informed him of my desire to make an injection by the rectum, and the attendants, misapprehending my intention, brought an empty tin dish. This induced a fresh spasm, and it was some time before I could calm him down enough to proceed. According to his desire he was smothered in the bed-clothes and held by two strong men, while I inserted the nozzle of a Davidson syringe, carefully guarded by cloths to prevent regurgitation of liquid on his buttocks. The injection consisted of one oz. of whiskey and one scruple of chloral hydrate. At 10.50 P. M. he arose from the bed, and expressed a desire to urinate, and the attendants held the vessel while he voided his water. At this time, notwithstanding the vessel contained urine previously passed, in full view, and though he heard the sound of his own water running into the vessel, there was not the least exhibition of excitement. This seems to me to be a curious and perhaps important point, and may serve some future investigator in determining the pathology of this disease, whether it is purely of a reflex nature, brought on by the action of specific animal virus, or whether it is a condition induced by mental epiphenomena of the voluntary or imaginative cerebral centres. We have seen that the sight of a tin dish induced a spasm, from the supposition that it contained water, and yet the actual sight and sound of it from a natural source produced no discomfort whatever. Possibly, as he could not associate the thought of drinking with the urine, the sight of that kind of fluid did not excite the peculiar spasms.

11.20 P. M. He arose from the bed and started for the water-closet out-of-doors to have a passage from the bowels, and seemed quite provoked that I refused to let him proceed farther. This movement was quite free, and defecation was accomplished without difficulty.

11.45 A. M. I injected one half gr. phys. ven. into the calf of the leg; it was accomplished with ease. Soon, however, he became excitable, thrashing his hands and feet spasmodically, pulling clothes off, and talking incoherently. Several severe spasms occurred then, and the rest of the bedstead was destroyed. In one of these struggles a powerful man, weighing about two hundred pounds, in trying to hold him was thrown back with terrific force against the wall, without any apparent effort. The patient was always aware of the approach of the spasms, and requested the attendants to prepare for them by seizing him. He

told us that he could not help behaving so, and assured us that he would not hurt any one by biting or scratching. Undoubtedly he realized then the character of his illness, and knew the possibility of communicating it.

12.30 A. M. Injection, per rectum, of one oz. whisky, one scruple chloral, and one gr. morphia. He soon became quiet, and from that time till 1.50 A. M. slept well. When he awoke he was as rational as ever, and said that he had no feeling in the calf of his leg. I then gave him a hypodermic injection of one half gr. physostigmin in one dr. whisky. He then called his sons, and had a private conversation about business affairs. At 2.45 A. M. pulse 100, and patient quiet; evidently very weak and failing. Three A. M. Injected one oz. whisky, one scruple chloral hydrate, and one gr. morphia, after which there were no more attempts to use medicine. Patient soon became restless, moaning, and made many efforts to vomit and expectorate. He muttered considerably, and said, "I am roaming in my mind." This was the first indication of loss of mental activity. He called for a paper and his eye-glasses, and attempted to read, but said that "something was wrong, and things were upside down." Four A. M. He was unconscious, and there was no pulse at the wrist, extremities cold, respiration slow, stertorous, and sometimes lost. 4.15 A. M. He was suddenly seized with a frightful titanic spasm. He rose up in the bed, fell back with opisthotonos, and remained stiff in that position till his death, which occurred in about five minutes, when the tension was relaxed.

It seems to me that an important line of argument may be deduced from this case, which has reference to its production. What is the relation of animal contact to the disease known as hydrophobia? Does the character of the bite, being generally a punctured wound, acting in some occult way on the cutaneous nerves, engender general lesion of the entire neurotic system? Is not the similarity between tetanus and this disease attributable to the action on the eccentric nerves primarily? Or, with the fact in view that the peculiar phenomena of hydrophobia are produced only by the bites of certain animals who do not have cutaneous perspiration, shall we assign it to a vitiated saliva? In this case there seems to have been an important factor silently at work, for the patient told me only a few hours before he died that he had been dreading this for weeks past. Who shall say what influence this great shadow of death provoked in his bodily condition, and how much the constant consideration of a dreaded result excited the attack? It seems very probable that, in his lonely night walks, brooding over the circumstances of the accident, and counting the chances of his life, there might have followed a mental condition perfected to excite the hydrophobic spasms.