voluntarily choose to come to the House of Mercy for their confinement, realizing that skilful and intelligent nurses will be in attendance, and that they run less risk from septic disturbances than in their own homes. While the managers of the House of Mercy do not propose that it shall be considered in any way a lying-in hospital, yet they are ready and willing to receive a certain number of cases every year, and the results thus far secured bear out the idea of its being a safe, wise, and above all, a charitable thing to do.

I would, therefore, wish to impress upon those of the profession who may be connected with these smaller institutions, that obstetrical work in a cottage hospital can be well carried on, and I trust that the results which I have placed before you, may induce you to make an attempt to secure to not only poor and friendless women a desirable place for their confinement, but to those well able to pay, a temporary home, which, in the majority of cases, is better adapted to their needs than their own.

A HYDROPHOBIA SCARE.

BY CLARENCE W. SPRING, M.D., FITCHBURG, MASS.

SINCE the time when the case of the Newark children was so extensively discussed in the American press, and proved so rich a prize for enterprising journalists, imaginative reporters, and dime museum managers, the subject of hydrophobia has been more than usually prominent before the public mind, and by the press has received a varied treatment. But since the opening of the Pasteur Institute in New York in February of the present year, the discussion has received a new impetus somewhat similar to what it received in France immediately following the opening of the Pasteur Institute in Paris, and the interest in the disease as it occurs in our midst may be fairly said to be on the increase.

During the last few months scarcely a day has passed without the chronicle in the daily press of one or more cases of hydrophobia to man and animals; and a large number of communities have had what may be called a "hydrophobia scare," with or without serious results.

It is the object of the writer to briefly state the sequence of events which occurred in Fitchburg during the past summer as a contribution to the study of this dread disease, and to offer a few remarks on the attitude of the profession towards its treatment.

On May 26th a lad, aged twelve, presented himself for treatment, stating that he had just been bitten by a dog which jumped upon him as he was on the street. On examination a small wound through the true skin was found on the left shoulder, and in the arm-pit and neighboring region of the scapula were several abrasions of the skin of a more or less superficial nature. The parts were well protected by clothing, though the wounds were deep enough to bleed freely. They were promptly cauterized and in about ten days were healed.

The reason for taking an unusual interest in the case arose from the fact that the dog was presumed, by his actions, and the fact that he had bitten several other dogs, to be mad. The dog was accordingly caught and tied up; but, as usually happens in such cases, the subsequent history of the animal was cut

short by his being promptly killed. His history previous to his death was, in brief, that, some two weeks before these events happened, he was bitten by a stray hound which ran about in the city for a time, and which, after biting a number of other dogs, disappeared. It was not a dog which was licensed, or which could be farther traced. Since that time little reason had existed to suspect any trouble till he began to show a changed disposition, a cross nature, and a tendency to bite people and dogs; and the culmination was reached in his attack upon the boy.

An effort was made to determine whether rabies could be diagnosticated more definitely than was possible by the clinical history, which, in itself, lacked much of being complete. An autopsy was accordingly made, but with the result of little save negative evidence, though the brain and medulla and parts of the cord were carefully examined. A further attempt was made to prove the diagnosis by a few inoculation experiments, which were carried out with kittens. Two young kittens, six weeks old, were inoculated with a fresh solution of the medulla under the skin in the region of the abdomen. They were kept under close observation for some seventy days, but the results were entirely negative, and they were killed at the end of that time and nothing abnormal found on examination. The experiments were made as carefully as possible, though of necessity lacking in the technique deemed essential by the best laboratory methods.

While these investigations were going on, the boy was watched with a good deal of interest, not to say anxiety, and the dogs which had been bitten by this same animal, were kept under restraint and closely watched, particularly a brown spaniel which was bitten on the nose immediately after the boy received his wound.

Some seventeen days elapsed without any signs of trouble, when this spaniel began to develop symptoms of an interesting nature. He began to grow sulky, and showed a marked change in disposition, refused food, snapped at whatever was near him, refused his master's caresses, and showed an increasing restlessness, though not at first of a violent nature. A peculiar dragging of the hind legs when he walked soon came on, and after two days developed into a more general paralysis. The jaw dropped, could not be kept closed; abundant saliva ran from the mouth; he refused food and drink; and soon died of paralysis and exhaustion, some three days after showing the first symptoms.

These facts, of course, opened a new chapter in the history of the case, and one which gave a chance for further study.

An autopsy was made by the writer, with the assistance of a veterinary surgeon, immediately after death, and the positive points found at that examination were, in brief, as follows: The conjunctivæ were injected, the right pupil fully dilated, the left normal; the membranes of lips, nose and mouth were covered with a thick sanguinolent frothy fluid. The tongue was protruded and caught between the teeth. The whole membrane of the posterior fauces was covered with a brownish fluid, was deeply injected, and almost purple in color. The larynx and trachea were likewise covered with the same kind of fluid, which, under the microscope, showed an abundance of pus cells. These parts were, like the neighboring ones, deeply injected. The brain in the posterior region showed an increased

amount of blood, was, in portions of the pons and medulla, deeply injected, and small hæmorrhagic spots were seen here and there. The brain, as a whole, was not œdematous. The other parts of the body, all of which were carefully examined, did not show anything especially abnormal. The examination in this respect proved important, as it showed the absence of those diseases, which are said to cause symptoms similar to those of rabies—such as parasitic enteritis, gastro-enteritis from poison, and other conditions peculiar to animals.

In view of these facts, namely, the history of the case, the symptoms observed during life, the rapidly fatal result from an intensely acute nervous disease, and the conditions found after death, the probable diagnosis of rabies was made. Attempts were made with the fresh solution of the medulla to carry out some inoculation experiments, but, as in the first instance, they resulted negatively.

On the basis of this diagnosis, and after a careful discussion of the matter with the father of the boy who had been bitten, the treatment by preventive inoculation, according to the method of M. Pasteur, was deemed advisable and readily assented to. Accordingly, the boy was sent to the Pasteur Institute at New York, and placed under the care of Dr. Gibier. At the same time the writer sent the full particulars of the case, and a portion of the medulla of the dog for examination. Unfortunately a solution of chloral and glycerine was used to preserve the specimen, and it was not thought possible to make any inoculation experiments with it. The case was considered by Dr. Gibier as one eminently proper for treatment, and the inoculations were at once begun. The record of the treatment I take from notes kindly sent me by Dr. Gibier. On June 16th three inoculations were made, one at 10 A. M., one at 2 P. M., and one at 6 P. M. Two injections were made each time, consisting of twelve cubic centimetres of virus. On June 17th two inoculations were given in the same way, at 2 and 6 P. M. On the 18th the same treatment was used; and on the 19th, the fourth day, a virulent liquid was used, which was increased in intensity up to the seventh day, when a very virulent liquid was used. On the eighth day no injections were used, but they were continued on the subsequent days, one each day, till the sixteenth day, when the patient was considered as sufficiently protected.

The boy stood the treatment well, and, save a slight inflammation about one of the puncture points, no accident happened during the inoculations. The boy remains to-day (109 days after his treatment ceased) sound and well.

Of course, in a comparatively small community, a case like this could not happen without attracting a great deal of attention, and naturally causing a good deal of anxiety among all classes of people. Every effort was made to give the public a true and unexaggerated account of what had happened, and to cause the city authorities to take proper measures for the further protection of animals and men; which they did only with great reluctance, and but poorly carried out during the rest of the summer. No further trouble occurred, and the "scare" was over. The importance of correctly dealing with such cases, as they happen occasionally in a community, was most strongly impressed upon the writer's mind, and led him to consider the subject anew, with reference to some of its most

practical points; particularly with reference to the new method of treatment, an interest in which was most strongly excited by a recent visit to Pasteur's laboratory in Paris, where the matter was studied at some length.

If we are to accept the treatment of M. Pasteur as one of the rational procedures of therapeutics, a faith in its efficiency must be inculcated in the minds of the profession, as upon this faith the unfortunate sufferers, to whom the fear of hydrophobia has come, rely for their advice and counsel. It is not the purpose of the writer to discuss this method of treatment, as to its scientific correctness, or to question the accuracy of the methods by which final working results have been reached. The object of preventive medicine and curative medicine is, in the main, the same; but the methods of reaching this end are widely different in their adaptation.

The uncertainty of the occurrence of a disease, is an element which necessarily enters into a discussion of the methods of preventive treatment for that disease. But, excepting the method employed as scientifically correct, the possibility of never having the disease at all, provided no treatment is used to prevent it, if that possibility is reduced to a minimum, should not detract from the presumed efficiency of the method as shown by comparative results.

This is particularly true regarding the new method of treating hydrophobia by preventive inoculations. The element of uncertainty attaches to most cases from the very start, and it is to point out the necessity of removing as much as possible of this uncertainty that I report this case with its appended remarks. A large amount of the distrust which the public has in the treatment of this disease, and even in the existence of the disease itself, lies at the door of the medical profession. The new method of treatment is, as it were, on trial; and we owe it to ourselves to do all that can be done in making tests which will prove or disprove its value as a therapeutic agent. The first step in reaching this result would be the careful selection of cases, to determine on what basis of fact they rest in order to reduce the uncertainty of diagnosis to a minimum, if not to entirely remove it. It is by the careful selection of cases as practised by Dr. Gibier, and not the haphazard subjection of every case to this treatment, that the comparative results are made of some value. A diagnosis by clinical signs alone is not trustworthy, if possible at all, and the importance of a post-mortem on every suspicious case as it occurs, together with subsequent experimentation by inoculations by those competent to make them, cannot be too strongly insisted upon. The writer believes at the present day the medical profession owes it to itself to adopt these more careful methods of studying this disease, in order that its duty to the community at large, which it is bound to protect, may be more closely defined. If cases assume a similar phase to that of the case reported, the matter of treatment becomes a highly important one. No one can for a moment doubt the attitude of those unfortunates who have been bitten by angry or rabid animals, who has once visited the clinique of M. Pasteur, and seen the throng of all nationalities and conditions of men, some hundred or more daily, pass in one by one to receive the inoculations which they hope and expect will cure them of the disease, if the poison has entered their blood, or relieve them of the fear of it if it has not. Pasteur's record for his first four years of

treatment of 53 deaths out of 7,393 persons treated, or 0.71%, as compared with the lowest estimate of the same kind of cases not treated at all (8% according to Bollinger), means something, and is at least significant, if we only limit the efficiency of the method to curing cases of so-called nervous hydrophobia or lyssophobia and not the true disease.

If we are not to support the earnest, and I believe honest endeavors of such men as Pasteur, Gibier and others, who are using this method, and if their method is to be disproved, let it be by reason of the severe tests of clinical experience, careful observations and selection of cases, and accurate experimentation by inoculation to which all may in a way contribute their share. As such a contribution the foregoing is respectfully submitted.

COLORADO AS A HEALTH RESORT.

BY E. C. ATKINS, M.D., COLORADO SPRINGS.

SINCE the subject of the climatic treatment of tubercular disease of the lungs is occupying so large a place in the mind of the profession at present, perhaps the observations and conclusions of a physician made during a year spent in Colorado for tubercular lung disease may be of interest to some of your readers; and the more so because I am led to think, from what I have seen during my stay here, that the Eastern physicians are not sufficiently well posted on the results to be obtained here in incipient cases, and that a personal observation would lead them to be more hopeful in their prognosis of such cases.

One, who is considered an authority here, says that ninety-five per cent. of all cases that come in the early stages are either cured or greatly benefited. While that statement may partake somewhat of the largeness of things in general in the West, it is safe to say that more than half, and perhaps three-fourths, of such cases do recover. This is the fact which I think the average Eastern physician does not appreciate.

The results obtained depend very largely upon the nature and extent of the lesions, and the general condition of the patient. While it is true that now and then a case, which, to all external appearances, is in the latter stages of disease, does recover, and regain a fair degree of health, it is also true that most of such cases with extensive disease are not expected to recover, but will live much longer here than in the East.

To obtain the best results patients must come in the earlier stages, and the earlier the better; before the digestion and other general functions are seriously impaired. In a case where nothing can be found by physical examination, but where a slight cough and a very scanty expectoration exist, I believe the simple presence of tubercle bacilli in the sputum should decide in favor of Colorado.

The typical case, however, for treatment here is that where sufficient hæmorrhage has occurred to convince the patient that radical measures are necessary, and when the physical examination does not show extensive disease. Such cases are usually willing to come, and almost invariably do well. Hæmorrhagic cases are more amenable to cure than catarrhal cases pure and simple, but next in line comes catarrhal phthisis with cough and expectoration, containing tubercle bacilli; or more correctly speaking tubercular bronchitis. Physical examination in such cases may

reveal almost nothing, no râles, perhaps slight elevation of pitch at one apex. Such a case should come out at once, and a hopeful prognosis be given, for his chances are good. Next, cases in the second stage of disease with consolidation of one or both apices, with or without hæmorrhage. Such cases should be sent out, and a fair or doubtful prognosis given according as the general condition of the patient is good or poor. A patient in this condition, accompanied by night sweats, loss of flesh and strength, may improve rapidly on coming here. It is well worth trying. It is all he *can* do, and many such recover.

What shall be done with cases well advanced, where the prognosis is bad, is difficult to decide. Perhaps it is as well for them to stay at home. It is a question of prolonging life a few months or a year or two, with just a possible hope of improvement. The intelligent physician must decide for there are no rules to cover such cases. I would say, however, "If in doubt, come!"

Simple prostration or weakness from loss of blood by copious or repeated hæmorrhage is no indication that the patient should not come, provided the disease is not extensive. Many such are brought on stretchers and do well.

The prevailing impression that coming to a high altitude is productive of fatal hæmorrhage is only a "bug-bear" that has grown out of a few rare instances. Now and then such a case does occur and a patient dies of severe hæmorrhage induced by the change of altitude, but among the thousands that come here, such accidents are rare and usually in cases well advanced in the third stage of disease.

The whole question turns upon the physical signs more than on the present condition or strength of the patient. It must be a very sick person who cannot be brought here with the present excellent facilities for travelling.

Such being the facts, how are we to account for them? What are the essential elements at work here for the cure of tubercular disease. I believe them to be about as follows:

- (1) Dryness of air.
- (2) Elevation of from four thousand to six thousand feet.
- (3) Purity of air.

It is difficult to know which of these to place first, for all are absolutely essential. The first and second are not sufficient alone, nor are the second and third. The first and third *might* be, as is seen in cases cured in Southern California. Add to these three conditions a climate that admits of the patient being out of doors much of the time, at all seasons of the year, and you have the conditions complete for the cure of tubercular lung disease. This state of things exists in Colorado.

One who has ever lived at an elevation of eight thousand to nine thousand feet, realizes fully the effect of altitude upon the lungs; for it seems as if the air-cells were distended to their utmost, and it is fair to suppose that this is the case and that air-cells infiltrated by disease or collapsed by disuse, are forcibly distended, giving the dry and pure air a chance to do its work upon them. That this is so is shown by the casts of cells and tubules frequently coughed up while in high altitude, which is not so common in lower.

And just here lies the advantage of Colorado over Southern California. California lacks one of the ele-