

patient as soon as put to bed to fall almost invariably into a tranquil nap of one or two hours' duration, from which she awoke refreshed and strengthened.

Of the beneficial result of the bath treatment in this case, I am satisfied beyond any question, and had the girl not received the baths and movements, she would have, I am thoroughly convinced, succumbed to the heart affection.

In estimating the efficacy of the method in the preceding cases, we must take into consideration besides what I have already alluded to, the fact that three out of the five fatal cases had aortic regurgitation, and it has been the observation of the advocates of the method that this class of cases have not responded well to the treatment. One of the remaining fatal cases had mitral stenosis, which is also notably an unfavorable lesion under any plan of treatment. Case 2, which was one of pure mitral regurgitation, gave every promise of a favorable result before the onset of pneumonia, which complication might, I think, have been avoided under different surroundings; nor can the fatal result in Case 6, that of nephritis and arteriosclerosis, be attributed to the bath treatment, for under it the patient's condition had improved marvelously, and the end only came after he had abandoned the method for some time; so that properly speaking we should only classify four of my seven cases as apparently not being at all controlled by the bath method. On the other hand, it must be understood that reliance was by no means placed on the bath and exercises alone, to the exclusion of the older and better-known remedies, which were employed as the indications arose for their use, in conjunction with the bath treatment.

A brief summary of the foregoing seven cases with results is as follows:

Case.	Diagnosis.	Treat-ment.	Condition during treatment.	Result.
1	Mitral stenosis and regurgitation.	Baths only.	No improvement.	Death.
2	Mitral regurgitation.	Baths and exercises.	Marked improvement.	Death.
3	Aortic regurgitation.	Baths only.	Improvement at first.	Death.
4	Double aortic and mitral lesions.	Baths and exercises.	Improvement for a while.	Death.
5	Aortic and mitral regurgitation.	Baths only.	No improvement.	Death.
6	Chronic interstitial nephritis, arterio-capillary sclerosis, dilated and hypertrophied heart.	Baths and exercises.	Marked improvement.	Death some time after abandoning treatment.
7	Mitral regurgitation.	Baths and exercises.	Marked improvement.	Well.

But even a plan of treatment that will save one life and bring complete, though temporary, relief of all symptoms in another must be certainly looked upon as a valuable aid to us in dealing with a group of cases such as those just described, all which were completely uncontrollable by any of the older methods; while, on the other hand we have just seen that Camac was fortunate enough to save three out of his series of ten cases.

In conclusion, I desire to acknowledge my indebtedness to the valuable contributions of Brunton, Babcock, Camac and Gibson; also to thank Dr. Sutter and his corps of physicians at the City Hospital, especially Drs. Dean and Amyx, for their kind co-operation, and Drs. Hoge and Bryan for much valuable assistance in supervising the work in my absence.

116 North Grand Avenue.

## LOOMIS SANITARIUM FOR CONSUMPTIVES.

### ANNUAL REPORT.

BY J. EDWARD STUBBERT, M.D.

PHYSICIAN IN CHARGE.

The following report represents the work of the Loomis Sanitarium, located at Liberty, Shawangunk mountains, Sullivan county, N.Y., for the year ending Nov. 1, 1898:

The number of patients in the sanitarium Nov. 1, 1897, was 78; admitted since, 126; total, 204. The number of patients in the sanitarium Nov. 1, 1898, was 47; patients discharged cured having numbered 28, discharged with disease arrested 11, discharged improved 67, discharged who remained stationary 6, discharged unimproved 41, while 4 had died.

As to the condition of patients when admitted, 17 were in the incipient stage,<sup>1</sup> 58 in the incipient stage with bacilli, 102 moderately advanced,<sup>2</sup> and 27 far advanced.<sup>3</sup>

*Class 1* (patients who remained three months or less in the sanitarium).—The condition when admitted showed: Incipient stage without bacilli, 9; incipient stage with bacilli, 23; moderately advanced, 31; far advanced, 12; total 75. The condition when discharged showed: Cured, 10; disease arrested in 5; improved, 35; stationary, 4; unimproved, 19; deaths, 2; total, 75.

*Class 2* (patients who remained in the sanitarium more than three months).—The condition when admitted showed: Incipient stage without bacilli, 4; incipient stage with bacilli, 24; moderately advanced, 44; far advanced, 10; total, 82. The condition when discharged showed: Cured, 18; disease arrested in 6; improved, 32; stationary, 2; unimproved, 22; deaths, 2; total, 82.

The number of patients whose sputum contained bacilli on admission was 187, with 37 whose sputum was free from bacilli on discharge, while 53 had hemorrhage before admission, 10 had hemorrhages in the sanitarium, 153 gained in weight, 25 remained stationary in weight, and 26 lost weight. The average gain per week per patient was two pounds, the average loss per week per patient was one pound, the greatest monthly gain was fourteen pounds, the greatest monthly loss ten pounds, and the greatest gain for one patient thirty pounds.

During the year there were in the infirmary 83 patients, of whom 12 were in the infirmary twice.

A summary of the condition of patients still in the sanitarium shows that the bacilli disappeared in 3 cases, diminished in number in 11, while cough decreased in 32 and disappeared in 2 cases, and the physical signs improved in 33, weight was gained in 38 cases, remained stationary in 3, and was lost in 6.

By comparing these figures with my annual report for 1897, published in the *Philadelphia Medical Journal* of March 12, 1898, p. 467, the following increase in good results among patients discharged during these two years will be noted: During the first year 8 per cent. of the patients discharged had lost their tubercle bacilli; during the past year 23 per cent. of those discharged had lost their tubercle bacilli. During the first year 73 per cent. of those discharged gained in weight, while during the past year 97 per cent. of those discharged had gained in weight. During the first year 13 per cent. of those discharged were cured, while during the past year 17 per cent. of those discharged were cured. During the first year 10 per cent. of those discharged had their disease arrested, while during the past year 7 per cent. had their disease arrested. It is interesting to note that of those patients discharged after a residence of three months or less at the sanitarium, 6 per cent. were cured, while among those remaining longer than three months, 11 per cent. were cured.

The basis of treatment in all cases has been *climatic, hygienic and dietetic*. The climate of Liberty is well adapted to the treatment of tuberculosis throughout the year, but there is even more marked

<sup>1</sup> Incipient stage.—Slight localized involvement of lung, with little or no constitutional disturbances.

<sup>2</sup> Moderately advanced.—More general consolidation of lung, with constitutional disturbances and beginning of softening, or single cavity.

<sup>3</sup> Far advanced.—Softening and excavation, with marked constitutional disturbances.

improvement among the patients during the winter months than in summer. The elevation, 2300 feet, is within those limits generally conceded to be most advantageous for lung troubles; this altitude, with the peculiarly dry atmosphere and abundance of sunlight, furnishes all the conditions necessary in the climatic and hygienic treatment of incipient cases of tuberculosis. Malarial fevers are unknown here excepting when imported. A clinical fact that has struck me rather forcibly is that while strong winds are generally supposed to be detrimental to the class of patients under consideration, our patients brave with impunity cold and northwest winds. I have seen eighty patients gather for their meals three times a day, from their various cottages at the Administration Building when the snow has been one to two feet deep, and almost a blizzard blowing, without the least detrimental effects. On the contrary, it seemed to improve their appetites and digestion. I have not seen one case of bronchitis or influenza among our patients that could be attributed to braving the elements. The experiences encountered and the results obtained during three cold seasons at this Sanitarium seem to tend to revolutionize the popularly accepted ideas of the injurious effects of winds and stormy weather upon incipient cases of tuberculosis. In this connection I wish to refer to the question of exercise. Much has been said and written against allowing tuberculous patients to walk or exert themselves to any great extent, especially if the temperature ranges above the normal point. It is a rule with me to allow all patients whose evening temperature does not reach above 100 degrees F. to walk moderately, and if the temperature is not above 99 degrees F., no restrictions at all are placed upon them in this respect; but they are encouraged to gradually accustom themselves to pedestrian tours extending from two to ten miles daily. I have never seen any untoward result from this exertion on the part of patients, and I am fully convinced that it is a mistake to encourage any such patients in taking the rest cure. We are seeking to improve the general nutrition of our patients in order to enable them to overcome a specific poison, and it would seem unwise to impair their general nutrition by compelling them to do nothing but eat, sleep and sit.

In the way of auxiliary treatment of individual cases the following remedies have been used; anti-tubercle serum, antistreptococcic serum, ichthyol, ichthalbin, kalagua, creosote, guaicol, cod-liver oil, oil of cinnamon, hot medicated air inhalation, pneumo-chemic treatment, multinebulizer, ozone inhalations and electric treatment.

#### SERUM.

Our investigations in the use of anti-tubercle serum have been continued with the following results:

Of the 48 patients treated, 18 were in the incipient stage, 30 moderately advanced. The physical signs improved in 38, remained stationary in 2 and were unimproved in 8. Expectoration decreased in 40 cases, and remained stationary in 8, while the temperature decreased in 26 and was unchanged in 22. Cough decreased in 40 and remained stationary in 8, while the appetite improved in 40 and remained stationary in 8. Tubercle bacilli disappeared in 10 cases, while 3 had none, 21 decreased and 14 remained stationary. Weight increased in 38, was stationary in 7 and 3 lost weight. Summary: Cured 27 per cent.; improved, 43.75 per cent.; stationary, 23 per cent.; unimproved, 2.25 per cent.

As will be seen from the foregoing table, 13 of the 48 cases treated, or 27 per cent. have lost their tubercle bacilli; in 43.75 per cent. the tubercle bacilli have

decreased, as against 20 per cent. of last year. I have lately examined between 15 and 20 cases treated with serum, and have not found one that had re-developed the disease; on the contrary, all have been enabled to remain in their homes and at their work; all these cases have been away from the Sanitarium for periods varying from 6 months to a year and a half. The general effects of this United States Government serum of de Schweinitz during this year upon cough, expectoration, temperature, tubercle bacilli, etc., are more or less the same as reported last year. As I stated at that time, I am not ready to pin my faith to serotherapy in tuberculosis; but in view of the fact that as far as bad results are concerned it has proved negative, and that a comparatively fair number of cases have apparently improved under its administration, I believe it to be the duty of the profession to continue clinical investigation along this line.

A few cases that have been treated in New York City with this serum have been examined periodically by Dr. Loomis and myself, without our being able to arrive at any positive opinion. Dr. Loomis' experience with serum among hospital patients has been, I believe, absolutely negative as far as good results are concerned. Concerning those patients treated in private practice in this city and Brooklyn, reports of attending physicians have varied. It is difficult in these cases to separate either climatic or moral influences from any that might be exercised by the serum. The three apparent effects noted above all others, from the use of this serum, have been *reduction of temperature, decrease of tubercle bacilli, and possible immunity* conferred upon patients after returning to their homes. I have discarded its use at the Sanitarium in all but incipient cases. To my mind the effects of this serum are: 1, not deleterious; 2, patients show a better percentage of results than under creosote or any other drug, without their deleterious effects; 3, the moral effect is such that even if we gain nothing in the way of specific action by its use, we are contenting the patient while he is under good climatic and hygienic environments.

*Fischer's serum.*—During the year we have placed four cases upon Fischer's serum, but as none of them did well upon it, they were placed upon other lines of treatment.

*Oxytuberculin.*—Dr. Hirschfelder very kindly forwarded us some of his oxytuberculin, which was faithfully tried in one or two cases, until the patients rebelled against having such a large quantity of fluid injected. The Doctor has informed us that if we would use hot water massage after each injection, the patient would not complain of any discomfort; however, it has been impossible to devote the time for this purpose.

*Antistreptococcic serum.*—While the results from the anti-tubercle serum have been somewhat gratifying, its use would generally seem to be restricted to the incipient stage and those cases showing a pure culture. The most alarming symptoms and trying complications with which the physician meets in tuberculosis are due, not to the tubercle bacillus, but to the cocci of mixed infection. The most virulent one of these seems to be the streptococcus, and the profession is watching with great interest the result of the use of Marmorek's antistreptococcic serum, in the hope that in tuberculosis with mixed infection (the most common variety met with), the disease may

be reduced to one of simple tuberculous infection that might more readily yield to antitubercle serum. This hope is a legitimate one in view of the excellent results reported from its use in erysipelas, active abscesses, pelvic inflammation, otitis media, and acute and chronic suppurative processes generally. With this end in view we were led to employ, in ten cases, Pasteur's antistreptococcic serum (selecting, of course, only such cases as showed streptococci), believing that, if we could neutralize the secondary infection, we would leave a clear field for the supposed action of the antitubercle serum. In the first case only one injection was employed; expectoration ceased immediately for a number of days, and then returned in diminished quantity; on examination the streptococci were found to be far less numerous and smaller in size. The next case had suffered from chronic bronchitis for three or four years, and developed tuberculosis a short time before entering the Sanitarium, about two years ago. Tubercle bacilli disappeared under treatment, but bronchitis remained. The sputa were mucopurulent in character and contained streptococci. One injection of the antistreptococcic serum was given after which the expectoration increased materially. After a few weeks the patient began to improve, expectoration decreased somewhat in quantity and became very markedly less purulent in character. This patient is now living in New York and I have lost trace of her. The next patient had a dry cavity at the apex of one lung, and had done very well here at the Sanitarium. She was given four injections of the antistreptococcic serum, after which the streptococci disappeared. This patient is still an inmate of the Sanitarium, and the sputa still contain tubercle bacilli. The next case was that of a young lady whom I had treated first as a private patient, then as an inmate of the Sanitarium for fifteen months. Tubercle bacilli disappeared from her sputum, the physical signs cleared up, and she was about to return to her home cured of tuberculosis. However, she also had a history of chronic bronchitis, but with scanty expectoration. About the time she was about to be discharged from the Sanitarium, numerous and long chains of streptococci were discovered in her sputa, and she was immediately given an injection of 10 c.c. of antistreptococcic serum, and two days later, a second injection of 10 c.c. After the first injection a slight increase of expectoration was observed, but a few days after the second injection no streptococci could be found; they remained absent about four months, at which time they reappeared. In a fifth case three injections were given, but without effect. The sixth case was given two injections at intervals of ten days; after the first injection the streptococci were greatly reduced, and after the second they disappeared entirely; they had not reappeared at the end of six weeks, when the patient returned home. Case 7 had one injection of antistreptococcic serum, after which the streptococci disappeared and remained absent for two months, then reappeared in large numbers. About half an hour after the injection the lobes of both ears swelled; this condition lasted about an hour, and then subsided. Case 8 had one injection of the serum, after which the streptococci disappeared; however, after a few weeks a few were again found in the sputum. Case 9 was a man with numerous streptococci; he was given three injections of the serum at intervals of two days; the streptococci gradually decreased in number until none were found. In this

case, however, annoying neuralgic and rheumatic pains followed the use of the serum; they were finally relieved by purging and massage. Case 10 was a patient whose sputum contained a moderate number of streptococci, which entirely disappeared after two injections of the serum; cough and expectoration decreased materially, while tubercle bacilli remained numerous. If, as some of the advocates of antitubercle serum contend, the cause of failure in many cases is due to mixed infection, the successful use of Pasteur's serum would solve a great part of this riddle before us. One point that I suppose will be immediately noted is the apparent slowness of action of this serum upon the streptococcus in these cases of chronic infection, as compared with the reports from time to time of its rapid action upon the same germ in cases of acute infection.

*Throat cases.*—During the past year forty cases of tuberculous laryngitis have been treated at the Sanitarium; twelve of these patients are still in the Sanitarium, and twenty-eight have been discharged. The combined statistics that I have been enabled to gather from all points in Colorado show 25 per cent. of cures among cases of laryngeal tuberculosis in the ulcerative stage. It is gratifying to be able to report that at the Loomis Sanitarium 43 per cent. of the ulcerated cases were discharged *cured*, as follows: fourteen cases were infiltrated and ulcerated; of these six were healed; in three the ulceration was lessened; three remained stationary, and in only two was the ulceration worse. Of the remaining fourteen discharged, namely, those with infiltration without ulceration, four, or 29 per cent. were cured; five, or 35 per cent. were improved; two remained stationary, and three were unimproved.

In 40 cases treated the infiltration and ulceration healed in 6, improved in 3, was stationary in 3, and worse in 2, a total of 14 cases, while in infiltration without ulceration the cured cases were 4; the improved, 5; the stationary, 2; the unimproved, 3, a total of 14. Of the 28 discharged, weight was gained in 16, lost in 5, and 7 remained stationary in weight. Of cases still in the Sanitarium with infiltration and ulceration, 2 healed, 2 improved and 1 remains stationary, while of those with infiltration without ulceration, the cured numbered 1, the improved, 4, and 2 remain stationary.

*Ichthyol.*—Ichthyol in enteric coated pills has been used with very satisfactory results. This remedy seems to be indicated, not only in pulmonary tuberculosis, but in cases involving the intestines and genito-urinary tract. Very large doses of this drug can be tolerated by most patients without any gastric disturbances ensuing, as high as 4 grams daily may be taken in most cases. Ichthalbin seems to act better in some cases than ichthyol, and may be given in daily doses of from 3 to 6 grams.

Of the 34 cases treated, 7 were in the incipient stage, 17 moderately advanced and 10 far advanced. The physical signs improved in 23, were stationary in 5 and increased in 6, while tubercle bacilli were not present in 2, disappeared in 3, decreased in 14, remained stationary in 15; and expectoration decreased in 22 and remained stationary in 12. Again, cough decreased in 22 but was stationary in 12, while weight increased in 24, was stationary in 4 and 6 lost weight. The general condition improved in 26, but was unimproved in 8. *Summary:* Cured, 15 per cent.; improved, 53 per cent.; stationary, 15 per cent.; unimproved, 17 per cent.

*Kalagua.*—During the latter part of the year covered by this report a South American drug named "kalagua" was brought to my notice, at the same time that it was placed in the hands of specialists in Belgium, and one or two in this country. The merits claimed by the advocates of this drug are: 1, that it has no deleterious effects upon the alimentary canal;

2, small doses of the drug very soon produce saturation of the patient, evidenced by its odor in the breath, urine and perspiration. In view of the statistic report forwarded to me by the president of the Medical National Society of Colombia, I employed this drug in a few cases which had failed to improve under every other mode of treatment, with the following results:

The cases treated numbered 6, and of these 1 was in the incipient stage, 3 moderately advanced and 2 far advanced. The physical signs and general condition improved in all of the 6. Expectoration decreased in 4 and remained stationary in 2, while cough decreased in 4, remained stationary in 2, and the bacilli disappeared in 1, decreased in 3, were stationary in 2. The weight increased in all the 6 cases.

*Creosote*.—Creosote and its derivatives have been used in very few cases; as I stated last year, I am not at all favorably inclined to the use of this drug, on account of its deleterious effects upon the stomach, intestines and kidneys.

The cases treated were 23—8 in the incipient stage, 13 moderately advanced and 2 far advanced. The physical signs and general condition improved in 16, but were unimproved in 7. Expectoration and cough decreased in 16 and remained stationary in 7, while the bacilli disappeared in 4, decreased in 10, and remained stationary in 9. The weight increased in 16, remained stationary in 5, and 2 cases lost weight.

*Guaiacol*.—Twelve cases were treated, 3 being in the incipient stage, 5 moderately advanced, and 4 far advanced. Of these, the physical signs improved in 9, remained stationary in 2, and increased in 1 case. Expectoration decreased in 8, remained stationary in 4, and cough decreased in 9 and remained stationary in 3. The bacilli disappeared in 1 case, decreased in 7, remained stationary in 4, while weight increased in 9, remained stationary in 2, and 1 case lost weight under this guaiacol treatment. The general condition improved in 9, but was unimproved in 3.

*Cod-liver oil*.—This has been used in some cases during the colder months, but no series of cases has been placed upon it.

*Oil of cinnamon*.—This, in daily doses of 30 to 40 drops, has been used with fairly good results.

Three cases were treated, 1 being in the incipient stage, 2 moderately advanced. The physical signs and general condition was improved in 3, expectoration and cough decreased in 3. The bacilli disappeared in 1, but remained stationary in 2, and weight increased in 2, remaining stationary in 1 case.

*Hot-air inhalations* have been used in 61 cases with the following results:

Cough decreased in 47, increased in 4, and remained stationary in 8; treatment stopped on account of hemoptysis, 2. Expectoration decreased in 49 and remained stationary in 12.

The following are some of the drugs which have been used, either singly or in combinations that seemed indicated in individual cases in these inhalations: Ichthyol, thymol, eucalyptol, creosote, oil of gaultheria, benzoic acid, oil pinus sylvestris, oil of peppermint, oil of camphor, terebene, naphthalin, menthol cryst., oil tar, tincture of iodine, and oil argentum.

*Pneumochemic treatment*.—This form of treatment has been used in very few instances. It seems to be indicated in a few cases suffering from bronchorrhea and excessive and irritable cough; owing, however, to the fact that it deprives the patient of an out-door life for three or four hours daily, it has been used only in extreme cases, and until such time as the bronchorrhea was sufficiently decreased to allow the patient to be treated by other methods.

*Ozone*.—Inhalations of ozone and static electricity have been used as general tonic treatment, with apparently good results.

## THE CLIMATE OF COLORADO.

### ITS INFLUENCE ON DISEASES OF INFANTS AND CHILDREN.

Presented to the Section on Diseases of Children at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY C. F. GARDINER, M.D.

COLORADO SPRINGS, COLO.

I had intended to prepare a paper for this meeting upon the difference, if any, that exists between the life history of infants and children in Colorado, and that of infants in lower and more humid climates, such, for example, as our Middle and Eastern States. I had hoped to derive my data from comparing the statistics of boards of health, both East and West, thus insuring a reasonable amount of accuracy, or, at least, an approach to accuracy, far more desirable than the often misleading deductions taken from a few observers. This work, however, I was forced to abandon—at all events as first outlined—from the fact that with the material available it was clearly impossible to construct a series of comparative tables that would be reliable or sufficiently extensive for my purpose. However, a few comparative data that fulfilled the requirements as regards number and accuracy, and which I will mention later, were obtained by this method. I then endeavored to secure the census of opinion from the medical profession of Colorado, and sent out a circular letter to nearly all the members of the State Medical Society asking their opinions, first, in regard to the effect of the climate of Colorado upon the growth and development of infants and children, as compared to lower and more humid climate, and, second, if the climatic conditions in Colorado modified in any way the diseases of children. I enclosed a list of twenty-two questions concerning the diseases of children most frequently seen. From the answers received to this circular I selected only thirty-three letters as combining enough experience and accuracy for reliable data.

No one can, I think, exercise too much care in placing reliance upon statements made regarding effect of climate. Especially is this true in the case of children, who, being in formative or developmental zones of life, are much more susceptible to the different factors of environment than the adult. Also, racial characteristics and tendencies, food, habitation, etc., have to be considered before climatic effects are studied; and even the climatic effects vary in a State like Colorado. It is true that the rainfall is scanty all over its entire area, that the excess of sunshine is unusual, and that generally speaking, all the State is at least a mile high; but during some years spent in a country practice in Colorado covering a wide area, when I often included in my professional trips the deep snows of the high passes and then, suddenly, the heated and dusty low valleys, I was frequently struck by the variations in temperature, humidity, soil, wind, etc., that exist within comparatively small sections. The sunshine, dryness and altitude are, it is true, pretty constant factors all over the State, but when in a trip of some fifty miles I have used with comfort a buffalo coat at 2 A.M. and been suffering with the heat under the shade of an umbrella, in shirt-sleeves at noon, it is needless to mention the severe and abrupt changes due to altitude or other causes in our climatology.

In our State we have people of all kinds and conditions. Far from the railroads, or in thickly-settled regions, we have a people whose children inherit