These gentlemen evidently do not agree with Prof. Law upon the above point. Even if we assume that the disease is more common than it is supposed to be, such *facts* as are set forth in this paper concerning it, in its relation to scarlatina, have never been noticed or commented upon, and to my mind are not affected by the statement that scarlatina is very prevalent in Great Britain. Dr. J. Lewis Smith said, in discussing my former paper: "Since the time of Jenner, the hope has been awakened, that some of the other fatal infectious diseases, and especially scarlet fever, might be prevented, as small-pox has been, by the inoculation of a milder and modified disease derived from the lower animals." Now let me ask my professional brothers, in a spirit of perfect candor and honest inquiry, if in the evidence furnished by the epidemics in England, the *facts* concerning which are herein quoted, we have not a fairly secure basis upon which to build the hope, that scarlatina may be either prevented or modified, by introducing into the human system properly prepared and attenuated foot-and-mouth disease virus. Let me also ask if enough cases have not been quoted; a sufficient number of experiments performed; and the ultimate results of sufficient importance, to warrant a more extended trial being made of this proposed method of preventing the development of, or modifying, one of our most fatal and dreaded diseases? No theoretical objection, however adroit and well planned, can settle the question before us; further actual experience with the diseases in their clinical and apparently prophylactic relations to each other must be had, before any one can positively deny, or prove to be true that which *seems to be a fact*, namely, that *scarlatina* and foot-and-mouth disease are mutually protective.

Suppose some drug had been administered to certain members of eight families in Dover, England, prior to the appearance of the "throat epidemic," and that when the families were exposed to the contagium of the epidemic disease, only those who had taken the drug escaped, while every other member contracted the disease. Do you not think that drug would have a new interest, and be given a fair trial, in order to determine beyond dispute whether it would, in the majority of cases, exercise this preventive influence. Now, why not, instead of saying, How can this be true? or, This cannot possibly be realized—give the proposed method a fair, honest trial, just as you would give the drug a fair trial, or just as Jenner gave his method a trial, and then be guided in the future by the results. Suppose a certain number of children, in a children's hospital for the treatment of contagious diseases, were inoculated with a modified virus of foot-and-mouth disease, and after recovery from the effects of such treatment, should be put into a ward with scarlatinal patients, and allowed to remain sufficiently long

to be thoroughly exposed to the contagium of the disease, would not that be a fair way to settle the question? What I wish, is simply to determine positively, and as soon as possible, whether the escape from the "throat epidemic" of certain individuals, in the two epidemics in England, and of the three children from scarlatina whom I inoculated with the virus of foot-and-mouth disease, be due to the protective influence of the one disease against the other, as appears to be the case. If we learn that we may thus prevent the development of a disease so common, oft-times so fatal, and so frequently followed by distressing sequelæ, will we not confer a blessing upon those who are susceptible to its contagium? If, on the other hand, we discover that we cannot, in the majority of instances, confer this immunity, we shall at least have made a commendable effort to realize that which a large number of clinical facts seemed to indicate as possible of accomplishment.

CHATTANOOGA AS A HEALTH RESORT.

Read in the Section of State Medicine at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May 21, 1890.

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It has been said, "Earth has no sorrow that Heaven can not heal." It may be quite true, and may be otherwise. In a medical way it is prognostic rather than diagnostic. We prefer to admit it, but it does not fully satisfy. Most persons continue to seek relief in this life. The afflicted appeal to us now as ever before, and will hereafter till the causes be removed. The world is full of victims, and it is said not less than several thousand years ago, they are with us always, those with too much poverty, as also too much wealth. The consumptive, the strumous, the cachectic of wide degree, all ask to be cured *now*. The vast majority of invalids are so surrounded, and have such maladies, that they are best attended to in hospitals, or their own homes. There are, however, few practitioners who do not have some patients who would flourish best under different hygienic conditions, and are so circumstanced that they can afford to undertake a climatic change. It is in the interest of such that the following suggestions are addressed.

Chattanooga, that pushing, enterprising and plucky city of this genial Southland, numbering now her 50,000 souls, is situated on the southern bank of the Tennessee river, on the extreme southeastern border of the State. Surrounded by mountains and ridges on every side—Lookout Mountain, that grand old mountain, which stands there silent and glorious, like the Egyptian Sphinx, with its many secrets, witnessing the evolutions and translations that have, are and

will be made ; Walden Ridge, whose brow is said never to have been furrowed by a case of consumption ; Missionary Ridge, rendered historic by means of its many desperate and bloody battles ; —Chattanooga, I say, stands as the centre of the New South with her many manufacturing interests, with her cosmopolitan population, and her hills and lands in the near vicinity filled with coal and iron in inexhaustible quantities, and the necessities of life within reach of him who will but stretch forth his hand. An adopted citizen who lives here because he shares her adversity and prosperity, her climate, and loves her people, applauds this city and gives his views as to her health and invigorating climate, and the health resorts all around her borders.

One of the most important points in favor of a spot as a health resort is its accessibility, and, indeed, what more could you wish than is shown in Chattanooga? Extensive systems of railroads, that reach out to all points of the compass ; one may come from the North, East, West, or South. A visitor procuring for himself a sleeping-car berth at his former home reaches this city in a few hours' travel with the minimum of inconvenience ; and once in the city, he may go by rail to any of the mountain tops that I have mentioned, in a few moments' time.

Lookout has its cable incline and its standard gauge steam railway, each having just completed large and magnificent hotels at its terminus.

Missionary Ridge, dotted with its many handsome residences, is reached by an electric railway, cars leaving the centre of the city every few minutes. Walden's Ridge, across the river, which is now being spanned by massive iron bridges, is surveyed for electric and steam railways, requiring less than an hour to reach its broad plateau.

From these conditions you will see the city has within easy reach plenty of elevations, cool and exceptionally healthy, to which its people can go in all seasons. On the plateau many of the citizens now have summer cottages, some who take boarders, and hotels are convenient, well equipped and plenty ; and in these various houses all the luxuries and comforts that the invalid may require are to be had at fair and moderate charges.

The scenery in and around Chattanooga is ever varying and beautiful. The air is exhilarating and invigorating to those who need and desire it. There is ample opportunity for mountain climbing, with all its resultant benefits : expanding the chest, exciting respiration, increasing muscular vigor, and sending the blood bounding through the capillaries, giving tone to the system, firmness to the flesh, and health to the invalid ; and to those who are not so afflicted, making the weak strong, and the strong robust.

Boating excursions up and down the Tennessee river may be, and are often, indulged in, giving a change of beautiful and attractive scenery equal

to, and in many respects surpassing, that along the Hudson and the Rhine, except as to the historic interest in the one, and ruined castles in the other, both of which I have seen.

Suitable climate is a paramount necessity for invalids, but the accessory advantages of social surroundings are quite as important ; in order to obtain the maximum benefit of climatic influences, mental repose and pleasant companions are indispensable. Many an invalid who leaves home and friends to regain, at some distant resort, the health which is denied him among those who are dear to him, finds himself among strangers, from whom he fails to derive the sympathy and attention that his state of health requires ; he becomes despondent, and returns home unbenefited and blaming the resort for his unimproved condition. To those who are unable to be accompanied by friends or relatives in their search for health, the hospitality and social temperament which pervades this cosmopolitan Chattanooga district generally will go very far to relieve the sense of loneliness and consequent yearning after home that oppresses the mind and retards physical exercise and recuperation in most of the hygienic and sanatory resorts.

The purification of the atmosphere, and the oft repeated renewal of the tonic and electric conditions, are processes constantly impressed upon the mind of the inquirer into high altitude effects, whether he explains it on the theory that the mountains are constantly giving off the electrical force engendered nearer the center of the earth, or whether he sees in the positive electric state of the dry air the facility in the mountains for an easy interchange between this and the negative electric state of the ground.

We find, too, that the therapeutic conditions of the dryness and atmospheric rarefaction affect him in proportion to the elevation of his abode above the sea-level and above the underlying lands.

And here in Chattanooga do we find these conditions well exemplified. The city, which is protected on all sides, lies in a basin with an elevation of 640 feet above the sea-level. The highest point of Lookout Mountain is 1,780 feet above the river, and Walden's Ridge is about 1,000 feet, and Missionary Ridge 490 feet, giving, you see, complete protection to the city on all sides.

The city is subject to very little cold, as compared with others of similar size in our neighborhood, for instance Memphis, Nashville and Birmingham. These cities have no mountains which ward off the winds, and when they blow over the country these various places feel the chilling effects, while in Chattanooga we have only a moderate fall of temperature—enough to let us know that a cold wave is passing over the country.

The observations as given by the U. S. Signal

Service show that the lowest temperature generally occurs in Chattanooga about January 1 to 12, and the highest in July. The average temperature for each day in the year is 59.7° ; at Toledo, 50.5° ; Albany, 48.4° ; San Antonio, Texas, 69° . This last station is considered by the U. S. Government as the healthiest place in the States, but the official records show it to be 9° warmer than Chattanooga. A lower mean annual temperature can be obtained from any of the mountain tops in the vicinity of Chattanooga, the temperature between the city and Lookout Mountain being 8° . The mean annual range of temperature for this city is 18° , while for the cities mentioned above it is from 20° to 16° . The highest temperature for Chattanooga is 101° in July, 1879, the lowest temperature on January 11, 1886, 7° , showing a range in nine years of 91.7° ; in San Antonio the highest (1880) showing a range of 98° .

Now, if we take the city of Nashville we find the official records show that the highest temperature recorded in twelve years was 104° in 1874, and the lowest 10.2° below zero in 1884, giving a range of 114.2° , or a range of 22.5° greater than at Chattanooga.

An item of practical importance is the dew-point, since it shows the point near which the descent of the temperature of the air during the night will be arrested; for when the air has been cooled down by radiation to this point, dew is deposited and latent heat is set free. The amount of heat thus freed being great, the temperature of the air is raised; but as the cooling by radiation proceeds, the air again falls to a little under the dew point; dew is again deposited, heat liberated, and the temperature raised. Thus we can determine the dew point and the minimum temperature.

The relative average annual humidity of Chattanooga is 71 per cent., Cincinnati 67.7 per cent., Bismarck 82.8 per cent., Nashville 71.1 per cent.

The average annual number of clear days in this district is 117, fair 147, cloudy 101, giving a number in favor of Chattanooga, as compared with the above mentioned cities, ranging from sixteen to twenty-one days.

Now, gentlemen, you will see from the facts and figures here stated that Chattanooga is well located and sufficiently elevated and varied in its scenic attractions, and is destined to become one of the most renowned of health resorts. Allow me to close this section on climate by quoting the words of a Northern physician, made in a public speech some time since:

"Who among us is not mindful of the rich delights of our usual March climate? March, that month of terror in other latitudes, brings us the blossoms of Spring in rich profusion, the working days in our gardens and flower-beds, and gives us a noonday warmth of 80° , while the coolness

of night rarely causes the mercury to fall to 40° . April follows with its luxuriant wealth of flowers: in field, forest and lawn; the rich and varied verdure of the mountain slopes; the grand picnic days; the profusion of blossoming laurel and azalea; the time when we feel most the exhilaration of a tonic atmosphere, and youth comes again to age. And then follows May; beautiful, beautiful, glorious May! Who can describe an East Tennessee May in any other way than by exclamations? May flowers? No, indeed; we squander those in March. We hurry past our roses of the commoner sorts in April, and come into realization of the complete bliss of living in the real native land of the continual blossoming rose in the early days of May, when the black boys peddle young mocking-birds through the streets, and the luscious red strawberries come, so sweet, so plenty, and so welcome. And then comes June; young summer, older than May, wiser, larger, fuller, and bringing the first harvests of ripened grain; holding in its provident lap the most liberal bestowals of the Almighty in rewards for the labors of man, with a great bonus of earth's spontaneous fruits.

"Can a better summer resort be pictured? If consumptives want altitude and mild climate together, and upon that all authorities agree, it is to be found here. These mountains are so common to us, who use them for daily, weekly and monthly convenience in the summer days, a sleeping place away from the dust and mosquitoes, as well as cooler home quarters, that we have no just appreciation of them; but the mountains of East Tennessee are destined to occupy a high place in the public estimation, in future, as a living-place for invalids."

Now, more than three years ago Chattanooga had one mile of brick sewer, with no paved street. The garbage and refuse matter was thrown into the streets and alleys, and had a death-rate of twenty-two to the thousand population per annum. At the present time she has over fifteen miles of main and lateral sewers made of brick and clay pipe ranging from 12 to 15 inches in diameter. Since the sewers were well started and the work of the health officer, with his corps of scavengers, was duly organized, the death-rate of the city has steadily decreased until it now stands in the winter months at 8 per 1,000, with 62 per 1,000 per year for both races; but you must remember, gentlemen, that this number is greatly increased by those who meet with violent deaths from whatsoever cause, and by those who come here from other places nearly dead of their disease, and by those who are shipped here for interment.

The following table shows you the comparative mortuary reports for November, 1889:

Chattanooga	12	per 1,000 per annum.
Knoxville	13.44	" "

Nashville	14.45	per 1,000 per annum.
Memphis	22.04	" "
Chattanooga, April, 1890	12.6	" "

If our population were entirely white, the rate would run in ordinary years below 8.5 or 9 per 1,000.

This last topic is the most important one, and in it I wish to present to your minds the great freedom from many of the diseases that human beings are heir to, and show the method that may be adopted in the healing of the affections that we have to contend with.

Until the last three years Chattanooga was regarded as a hot-bed of malaria, but the greatly improved sanitary condition of the city has removed this element to a very great extent, and in a fair practice in and about the city I have seen but one case of malaria, though a number of cases have come under my notice who live in the other towns and cities west and south of us. For instance, Miss S., whose home is in Middle Georgia, came to Chattanooga in December, 1889, suffering from malarial fever, having chills every day. This had been her condition for nearly five months past. Under the influence of quinine, calomel and arsenic, in three weeks' time was entirely relieved, and now has gained 37 pounds in flesh.

The various acute infectious diseases exist here only in a limited number and degree, as shown in the official report of December, 1889, for the preceding year: Number of deaths from typhoid fever, 19; scarlatina, 1; measles, 2; diphtheria, 2; dysentery and diarrhœa, 51; whooping-cough, 1.

The increased number of diarrhœal troubles is among those who have recently come to the city, and being invigorated by the delightful change of air, indulge too much in the delicious viands and drinks of the table.

It has been my pleasure to witness patients suffering with catarrhal conditions of the respiratory tract derive the utmost benefit from a prolonged stay in this latitude, and many greatly improved by a month's or more visit to friends and relatives in Chattanooga.

The condition which is aided most, and in a large proportion of the cases cured by treatment here, is pulmonary consumption. Allow me, gentlemen, to tell you two cases that have been absolutely cured of their troubles, and the manner in which it was accomplished.

Case 1.—Dr. W. A. Dietrich, of Indiana, began coughing in the spring of 1888. His cough grew gradually worse, yet he paid no attention to it until August, when he had an attack of hæmoptysis. He expectorated blood constantly for one week, and then went to Chicago to consult Dr. J. P. Ross, of the Rush Medical College, who diagnosed it as phthisis with a tubercular deposit in the superior and middle lobes of the right lung. Dr. Ross advised him to go to Lookout Mountain.

Dr. D. then returned to his home in Indiana, and during the following four weeks he had several slight hæmorrhages, a severe cough, night-sweats, anorexia, and a rapid loss in weight and strength, he having lost 25 pounds in weight since he first began coughing. The latter part of September he left Indiana for Lookout Mountain, but first went to Chicago to again consult Dr. Ross, who said the deposit was increasing in size. Shortly after reaching the mountain his cough began to decrease, expectorations became less, appetite increased, night-sweats ceased, and he rapidly gained in health and strength, until now there is not a trace of tubercular trouble to be detected in his lungs, and he weighs more than he ever did in the North. The doctor now enjoys the best of health, and has made Lookout Mountain his permanent home, where he anticipates opening a sanitarium for the benefit of those afflicted as he was.

Case 2.—Mr. J. J. Heelan, of Chicago, began coughing in November, 1886, became hoarse a few weeks afterwards, and by the second week in December was so hoarse that he could not speak above a whisper. At that time he had a severe cough, with night-sweats, anorexia, and considerable emaciation. He consulted numerous physicians, who diagnosed it as tubercular phthisis. He received no benefit from their treatment, and by the second week in January, 1887, was confined to his bed, where he remained two weeks. Was then examined by Dr. Ross, who said he could not live six weeks longer if he remained in Chicago. The doctor advised him to go to Lookout Mountain, but instead of going direct to the mountain he went to Massachusetts and remained one month, and arrived on Lookout the 17th of March, 1887. The same day that he arrived Dr. Ross again examined him, and said that he not only had tubercular deposits scattered all through his left lung, but also had them in the right, and that he (the doctor) could not give him as much encouragement as when he left Chicago. The doctor told him to try the climate one month and see whether it would benefit him. When the month was up he noticed a slight improvement and concluded to remain. The following July Dr. Ross again examined his lungs and found the deposits in his left lung clearing away, with a very noticeable improvement in his general appearance. In the fall he underwent another examination by the doctor, who said that the deposits in his left lung had almost cleared up, with some improvement in the right lung. In March, 1888, just one year after coming to the mountain, the doctor again examined him and found both lungs clear, with the exception of a slight deposit about the size of a quarter in the apex of the right lung. In September, 1888, the doctor again visited the mountain and examined his lungs, and told him that it would take an expert to tell

whether he had ever had any pulmonary disease. He has coughed none since 1888, and at present there is no trace of the former tubercular trouble.

I wish to state that in these two cases the treatment was as follows: A tonic of iron and quinine, inflation of lungs, while in-doors, by muscular effort, daily walks to various points of interest on the mountain and ridges, and to the city when necessary, carrying luncheon with them, regardless of the weather, unless extremely inclement, always clothing themselves suitably to the season.

Should any of my hearers have the *Medical News* of Sept. 28, 1889, I should be glad to have you read the article by Dr. H. I. Bowditch on "Open Air Travel as a Cure of Consumption," in corroboration of the above treatment.

Thanking you for your patient indulgence, I will close with this brief summary: Chattanooga as a health resort presents herself as a place with a pleasant historic interest.

A city easily accessible from all parts of the Union, with a varied and extensive change of scenery; with climatic conditions, all told, unsurpassed by any point in this country.

In comparison with her neighboring cities, her death-rate is the smallest, and her sanitary and sanatory conditions greatly increasing.

And, finally, the variety of diseases is limited, they can be well treated, and with the most gratifying success in the vast majority of cases.

Rooms 133-4 Richardson Building.

PROSTATITIS AND PROSTATIC ABSCESS.

Read by Title in the Section of Surgery and Anatomy at the Forty-first Annual Meeting of the American Medical Association, Nashville, Tenn., May, 1890.

BY RICHARD H. HARTE, M.D.,

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In entering upon a study of certain pathological conditions of the prostate, there appears to exist a peculiar necessity for observing accurately its normal structure, conformation and anatomical relations with the rectum and the bladder on one hand and the urethra on the other.

The prostate is commonly said to resemble a horse chestnut somewhat in shape and size, the small extremity being directed downwards and forward, and the base upwards and backwards, in the erect position of the body. The upper surface is directed forward to the deep perineal fascia which it touches.

The base is smooth and rests on the rectum, to which it is connected by dense areolar fibrous tissue. When the prostate is thoroughly isolated from the surrounding parts by dissection, it presents something the shape of a truncated cone. The normal adult gland measures about one and

one-half inches in its transverse diameter and its base, an inch antero-posteriorly, and three-quarters of an inch in depth. Weight about five drachms, and is held in position by the two anterior ligaments of the bladder and by the posterior layer of the deep perineal fascia which invests the beginning of the membranous portion of the urethra and prostate gland, and by the anterior portion of the levator ani muscle which passes down from the side of the pubic symphysis and the anterior ligament of the bladder.

The prostate is usually regarded as consisting of three lobes, two lateral which are symmetrical, and a middle or third lobe between them and behind the urethra. It was first spoken of by Sir E. Home, although its existence was well recognized by Morgagni, John Hunter, and others. This so called third lobe is not always constant. Sir Henry Thompson considers it rather more of an abnormal condition when found in persons under 50 years of age; and he regards it as due to an hypertrophy of the large amount of glandular tissue which exists in this portion of the prostate.

Commencing at the neck of the bladder the urethra continues through the prostate downwards and slightly forwards, the larger portions of the gland lying on either side, and about one-third above and two thirds below the urethra. The vesical boundary of the prostatic urethra is the uvula vesicæ, seen as a slightly rounded prominence on the floor of the bladder. In front of this may be observed twenty to thirty small openings—the mouths of the prostatic ducts—which can be seen with a small magnifying glass, and are usually arranged on either side of the verumontanum. The length of the prostatic urethra varies from one and one-eighth to one and one-fourth inches. The utricle (vesicæ prostatica), the supposed analogue of the uterus, is a small sac opening on the anterior portion of the verumontanum, oval in shape, lined with mucous membrane which sometimes secretes a dark, reddish-brown jelly-like material. The common ejaculatory duct formed by the junction of the vesicula seminalis and vas deferens internus with its fellow of the opposite side at the base of the prostate, about three to four lines below the opening which transmits the urethra.

The prostate is inclosed in a thin but firm fibrous capsule distinct from that derived from the posterior layer of the deep perineal fascia, and separated from it by a plexus of veins. (Gray). The prostate is composed of glandular and muscular substance. The muscular substance, according to Kölliker, constitutes the proper stroma of the prostate, the connective tissue being very scanty, and simply forming the trabeculæ between the muscular fibres in which the blood-vessels and nerves of the gland ramify.