

ment was begun during the first week, even upon the uncertain basis for diagnosis that was generally found at the time. I respectfully report that two of these cases proved to be of the abortive variety—one reaching normal temperature on the ninth day and the other on the fourteenth.

In one case, that of a physician, a single relapse occurred; total duration thirty-eight days.

In another, that of a student, a second relapse occurred, total duration sixty-four days. The first relapse was engrafted on the primary attack and was indicated by the occurrence of epistaxis, abrupt rise in temperature and pulse rate and the appearance five days later of a rather coarse, but sparse, roseolous rash. A similar train of phenomena appeared during the seventh week. The primary course of fever was of moderate severity but the first relapse was uncommonly violent. Pneumococci were abundant in the sputa but no pulmonary consolidation was discovered. During the second relapse several small abscesses appeared, subcutaneous and submucous (buccal).

The remaining nine cases were singularly mild and free from bronchitis, meteorism, offensive discharges, dryness of the mouth, apathy, delirium, subsultus, hemorrhage and other disturbing manifestations. The usual pulse rate was between eighty-four and one hundred, and in no case did it go beyond one hundred and four. After the third day of treatment in no case did the temperature go above 102.5 degrees. The average duration of the nine cases was seventeen days.

It is not assumed that this inconsequential showing proves anything. It is merely in line with the ordinary observation of medical men in respect to the mildness and benignancy of typhoid fever during the past two or three years. Nevertheless there is enough merit in the conception of intestinal antiseptics and drainage, as a means of obviating continuous intoxication, to warrant one in giving it free and fair play. No one has a right to condemn it without proof.

## ORIGINAL ARTICLES.

### CAN WE IMPROVE UPON THE SANITARY CONDITION OF OUR CARS?

Read at the Second Annual Meeting of the American Academy of Railway Surgeons, held at Chicago, Ill., Sept. 25-27, 1895.

BY WM. T. DALBY, M.D.

ASSISTANT SURGEON UNION PACIFIC RAILWAY.  
SALT LAKE CITY, UTAH.

I take it that every physician is a sanitarian; if not, he should be. The doctor's true sphere of action is not confined to disease alone, but embraces man's whole life when in a state of health as well as when in a state of disease.

A knowledge of the laws of hygiene is essentially necessary to the education of every physician, and its worth as a true science is of no less importance to the general public. We find in searching the archives of the past that those who preceded us in our noble calling recognized the science of sanitation as a true sister to the art of medicine as well as her greatest, brightest ally. Every civilized government has assumed the inherent right to protect the health and provide for the safety and welfare of its people; and this is not merely a presumed right, but it is a duty and obligation which the sovereign power owes to the public. That this is true and that sanitation has

been from the remotest period of history an integral part of medicine and accorded a place of distinction in the councils of ancient governments can not be denied. Let us for a moment, as a prelude to this paper, look into the realms of now almost forgotten history with reference to the laws governing public health.

This department of science (sanitation) has received so strong an impulse during the past few decades that many persons regard it as of modern origin; but on turning back to the records of early history we almost invariably find evidence that the health of the general population was a subject of legislation.

The Mosaic code of laws, the most ancient on record, contained minute directions for cleanliness of the person, the purification of the dwellings and the camp, the selection of healthy and the avoidance of unhealthy food, the seclusion of persons with contagious disorders and various other points bearing on the physical well-being of the Jewish nation.

The Greeks and Romans—although not like the Jews, making hygiene a part of their religion—were far from neglecting it. The laws of Lycurgus, says Dr. Gairdner, "are not wanting in very pointed enactments on sanitary matters; and the importance attached by the Greek Republic, and in the Platonic polity, to physical culture is too well known to require remark."

"The Roman people, poor and apparently rude as it was in its origin, yet found time, amidst its military operations, to construct the *cloaca maxima*, an indestructible and stupendous memorial of its attention to the drainage and sewerage of the city at a very early period of its history. At a later period aqueducts were made to cover miles upon miles of the surrounding plain; and their splendid ruins, still partly used for their original purpose, attest the munificence and the abundance with which the first of sanitary requisites was supplied to the imperial city." When state physicians were first appointed in the Roman Empire is not certainly known. Their mode of election is described in the Theodosian and Justinian codes. There were ten of them in the largest towns and to each district or subdivision, seven in towns of the second order and five in smaller ones. They collectively formed a college whose duty it was to attend to public health, and they may be regarded as the earliest type of our general medical council.

We find on our own continent that the ancient and energetic Aztecs were not ignorant of the laws of sanitation; and long before the sailing of Columbus from Palos, we find that their water supply and efforts at drainage evidence their knowledge and appreciation of hygiene equal to if not superior to that in vogue in some of our municipal governments of to-day.

Gradually, however, as Christianity spread, an utter misconception of doctrine led to the neglect of all care of the human body, and the question of public health, the foundation of a nation's wealth, growth and happiness, was ignobly buried in the darkness of the middle ages. It has now been unearthed by the inexorable demands of modern enlightenment, and gaining ascendancy, has greatedened and glorified medicine without marring the luster of her scientific consort, and to-day she turns to the people and their rulers, outside the medical fold, and demands as her right a place of honor in their councils. Thus we see

that from time immemorial it has been as much the physician's duty to regard the laws of sanitation as to treat the ills arising and sure to follow a violation of her mandates.

When we find that the air of passenger cars is shown upon careful examination to be equal in impurities, greater in amount of carbonic acid than some of the sewers of our cities, and the sleeping car to be pronounced a "hot bed of infection," it is time for us as railway surgeons on behalf of our respective railway companies and our duty to the traveling multitudes to investigate and see whether or not we "can improve the sanitary condition of our cars."

Permit to quote from a recent edition of the "National Board of Health Magazine."

"Everybody knows that the aim of the car-builder of the present day is to make the sleeper a palace on wheels. The seats are upholstered with the softest material, combined with reasonable durability; the carpets are most velvety; the curtains soft and rich; the mattresses, pillows, blankets and coverlets of the best. The whole furnishing of the car is similar to a private drawing-room."

Who could ask for more in the sense of comfort? And what is here said of the sleeping car, can be with equal propriety and justice claimed for the passenger car. We know that the passenger car of to-day is the evolution and product of many years of careful study, and it would appear that in meeting the demands of the traveling public it has nearly reached the limit of perfection in dimension and compactness as a component part of the train. In many instances from the artisan's point of view it is constructed both as elaborately and comfortably as the handiwork of the mechanic can devise. In the life and competition for trade, the rapidity and comfort in transit has stimulated our various railway companies to build and improve the passenger car so rapidly that we look with admiration at the results achieved in all that is artistic and beautiful in veritable palaces on wheels, speeding over mighty domain as true evidences of the skill and enterprise of our progressive people. With all this, however, we must admit that the sanitary condition and arrangement of the passenger car is bad, and this condition is often made worse through neglect or ignorance in the use of those means at hand provided for its ventilation and cleanliness. There is no doubt that had the mechanic gone hand in hand with the sanitarian in the construction of the passenger car, greater results would have been achieved. Certainly, so far as lighting, heating and ventilation is concerned, measures have been so far neglected as to call for legislative enactments in many instances, and a world of literature looking to the correction and improvement of the existing evil.

We quote further from this article by Dr. Pattison, on "Car Sanitation." After describing the various physical conditions of those who travel in the sleeper, and noting the infectious nature of tuberculosis he says: "And the tuberculous patients travel more than any other classes in search of suitable climate. Persons suffering from phthisis pulmonalis are to be met with in the sleepers upon nearly every transcontinental train. They cough and expectorate as all such do, sometimes in the cuspidor, sometimes in the handkerchief, but very frequently on the carpet as this is not their own. When on the last, the germ-laden expectoration becomes rapidly dried and ground with dust, rises in the air of the car and is inhaled by the sus-

ceptible fellow passenger, often an innocent stranger. It is quite rational to presume that in this way the fatal disease is often spread."

The doctor then goes on to say: "What, after a time is the sanitary condition of the sleeper? It becomes simply a hot bed of infection. It can not be otherwise, for no efficient measures are taken to prevent it. The sheets and pillow cases are changed daily, sent to the laundry. Allow that they are thus purified; what is done with the mattresses, pillows, blankets, coverlets, and curtains? They are closed up from sunlight and air in the upper berth, and for months at a time they are never exposed to nature's purifiers."

"So far as the car itself is concerned, at the end of the trip, the carpet is swept, the cushions brushed in a dry condition; a profusion of germ-laden dust rises to settle again; what falls upon the wood work, and is visible, is brushed off with a duster to settle again on the carpets and cushions, where all remains in the most favorable condition to be raised into the air by the next set of passengers and the motion of the car upon the return trip. To my mind, the sleeper of to-day is an extremely active factor in the propagation of infectious diseases, more so on account of its luxurious furnishings than other cars."

It can not be said that these remarks are overdrawn or exaggerated, neither will anyone doubt the infectiousness and contagiousness of tuberculosis nor the vast numbers who are constantly traveling afflicted with this disease in search of genial climes to invigorate their exhausted frames. What an infectious field the car from such contamination becomes in spreading disease among the innocent and unprotected public. And tuberculosis is not alone in the consideration of this unwholesome state of affairs, for the germs of many other infectious diseases are lodged and housed up through this want of better hygienic measures to wreak vengeance upon the unsuspecting.

Many suggestions have been made with reference to abating this evil, including many alterations in the construction of the car, the abolishing of the draperies and tacked-down carpets and other furnishings that will not withstand the proper methods that should be used in a thorough fumigation and disinfection.

Restrictions are likewise suggested to be imposed upon invalids requiring them to have certificates from the proper authorities showing freedom from infection as is necessary in the transportation of the dead. Many of the suggestions are practicable and could be easily put into operation, and carried out with little expense.

It is questionable, however, if under our form of government, State or federal, invalids could be obliged to present a certificate showing freedom from infection before being permitted to obtain transportation as it is required in transporting the dead.

It is certainly true, that it is as dangerous and hazardous to the public to carry by rail the infectious living as it is to carry the infectious dead, and probably more so, since the carrying of the dead will never equal in number the invalid class nor are the conditions of possible contact the same; to have in the same car persons afflicted with infectious diseases disseminating and spreading germs under the most favorable conditions is much more dangerous to the public than are the infected dead in the baggage car.

Still, the law of equity would grant privileges to the one that the relatives of the other could scarcely exact

as an inherent right. We can not prevent the infected from traveling no matter how plainly we may demonstrate the death dealing germs left in their wake. We must exert sanitary measures and precautions and depend on these to protect the public from disease.

If we wish to improve the sanitary condition of our cars we must not only look into the questions of ventilation, heating and lighting, but we must go beyond this and show to the car builder the wisdom of consulting and associating with the mechanic the ideas of the sanitarian. It is difficult and, in many instances, quite expensive to improve upon a poorly constructed car from a sanitary standpoint, and to attempt such improvement would necessitate an outlay greater than many of the companies would be able to bear. To accomplish the most good by having a properly ventilated car, and one that is susceptible of the greatest cleanliness, we must direct our attention to the building of the same. It is said that the most intelligent men of our country are engaged in the management of railways, and the fact that so little has been done in the way of railway sanitation is simply because these gentlemen are unaware of the value of such a departure, and have not been made to see the monetary gain that would accrue to their several companies by the proper enforcement of sanitary laws. This is undoubtedly true; so, also, is it true, that in a great organization of railway surgeons as we have here, the importance of sanitary measures with reference to the hygienic condition of the coaches should be studied, and the knowledge thus derived should be given to our respective railway companies for their information and guidance. I do not think that we should so long ignore these matters of vital importance as to let the legislative branches of our government step in by their enactments and describe, for instance, the manner in which heat should be applied to the train, any more than we should wait and expect from this same source information and instruction regarding the treatment of fractures and other injuries resulting from wrecks. I trust that it will be the sense of this association to deem it a duty incumbent upon it and always to look into the sanitary condition of our cars with a hope of improving it.

I do not intend to attempt in this paper to suggest to you what would be the most improved ideas of car sanitation. This must be reserved for the more efficient sanitary engineer, whose scope and field of observation is far greater than mine.

To this same expert must be left the plan of ventilation, complex and difficult of solution as it is, the maintenance of proper temperature and the best system of water-closets. All of these are susceptible of vast improvement.

The question of cleanliness, however, in the car proper, the water coolers, the purity of the ice and water supplies are matters that we are capable of coping with. If it is carried out by some regulated system of rules enforced by all the railway companies alike, a more wholesome and healthful condition will result to the public and we will be credited with the honor of having improved the sanitary condition of our cars.

All coaches, day or sleeping, especially after long trips, should be subjected to a cleansing and disinfection. This can be done in several ways and should be provided for in the necessary instructions given the employes having this matter in charge. The

same rigid rule should apply also the bed, bedding, carpets and draperies of the sleeping car. Not only should the car be cleaned at the end of each trip, but as far as possible it should be kept so while in transit. Since many people of filthy habit travel, the necessity of this will become obvious. The water coolers, which are scarcely if ever washed, should receive closer attention; likewise the ice and water with which they are filled, and the often disgusting manner in which this is done. The cuspidors should be cleaned as often as necessary, and when used by the tuberculous, should be disinfected; and until a better system of closets are devised, dry earth or a freer and more elaborate system of flushing should be provided.

Whatever system is adopted looking to a better sanitary condition of the cars should be one that is enforced by all the roads alike.

In concluding this paper, I thank you for your kind consideration and hope that I have been successful in showing why we as railway surgeons should be sanitarians, and why some of our deliberations should be in the direction of the improvement of the sanitary condition of our cars.

#### DISCUSSION.

DR. REED, of Columbus, Ohio—I believe I have been generally known as a sanitary crank, and I presume that for an individual who has as little money as I have to spend in this matter, I have spent perhaps as much as any man in the country in investigating the matters about which the author of the paper has written. I made a sanitary inspection of the Big Four, the Panhandle, Pittsburg, Fort Wayne and Chicago and the Baltimore and Ohio Railroads some years ago. This inspection consisted in the investigation of the air by chemic analysis, the investigation of the cars, the plan of heating, the water-closets and the ventilation; the temperature of the car at the floor, at the level of the mouth and at the ceiling, and it required no small amount of time, work and expense. After examining this matter carefully I found a great many things to recommend in my report. I had the pleasure of sending a copy of this report to President Pullman, and received a reply from him stating that he believed my suggestions were good. The trouble usually arises with the superintendents and the managers, who are, so to speak, between the devil and the deep sea. They are anxious to make the cars as comfortable and as handsome as possible to accommodate the traveling public, and on the other hand they must curtail expenses in order to maintain their positions as servants of the stockholders. To add these improvements means expense, and so long as the traveling public does not make any special claim for improvements on the cars, they do not feel inclined to make them. I do not think there is a general manager who would not admit that the paper read by our friend here was right and every word perhaps in it true, but they look at it from a business standpoint only. Quite a number of general managers have expressed their opinion to me on the subject and have said there was no question about its importance, but that so long as they were not required to make these improvements in order to get passenger traffic over their roads they did not deem it necessary to take the lead in the matter. I have no doubt Mr. Pullman looks at it in the same light. He sees very plainly that an elegantly fitted car, when placed beside another on the track that is not so elegantly fitted up, at the same price and going to the same place and making the same time, will be preferred by the public. I believe that until the public is educated in the matter you can not get the railway companies to adopt a new plan until the riding public demand it, and say to the railroad managers, "We won't ride on your road unless you give us a sanitary car to

ride in." I think the time will come when we will have these improvements, because I am sure the companies will be ready to make the expenditures if they see a return for this extra expense, but they do not feel like making the expenditures otherwise. Railroad companies are not organized for philanthropic purposes; they are organized strictly on business principles, and unless this can be demonstrated as a business enterprise, I do not believe it is possible for us to reach improvements.

DR. BEVAN—I believe that the paper of Dr. Dalby touches a very important kind of work, and the question has occurred to my mind whether or not it would not be possible for this Academy to bring out results of some practical value in this line. Whether it would not be possible for us to very thoroughly, as an Academy, investigate this whole subject and formulate some practical rules which we, as the Academy of Railway Surgeons, could recommend to railway companies, even to State legislatures, or the Interstate Commerce Commission. It certainly is a very valuable line of work, and it must be carefully worked out by just such men as the members of this association. With this in view—this is merely a suggestion—I should think at our next annual meeting it would be well to have several papers covering this entire ground, not only in a general way, as Dr. Dalby has done, but in a specific way, with specific and practical recommendations to the Academy.

DR. JOHN E. OWENS, of Chicago—I have for a long time felt that something in the direction of this paper should be done. In taking a long ride of 800 or 1,000 miles I have now and then watched the different varieties of the genus homo that refreshed himself or herself at the drinking fountain or water cooler, some evidently with pulmonary disease, tuberculosis, etc., and in a sleeping car, unless I am sleeping. I believe as the matter of tuberculosis is getting so well understood, slowly, it is true, by the public, and also in consequence of the existence of such papers as has been given us by Dr. Dalby, that the public, and consequently the railroad companies, will feel the evolution in the right direction and eventually we will have some attempt in the way of the construction of a car which will meet the objections presented by some of the luxurious cars in which we now ride. It will be a matter of very slow progress. I take it that some enterprising company will build one sanitary car and run that for a time; perhaps some other company as an advertisement will set forth to the public that the Sanitary Car will leave Chicago for Denver at 8:40, with no possible danger of any contagion or infection. It will come about in some such way, but the doctor can not do it unless he has the coöperation of the railroad authorities, as has been suggested, and with them the sanitarians of the country. The public health associations and all the representative bodies of this character in the country will in time, I presume, coöperate and their united effort will bring about the desired results. Certainly all the conditions for the spread of such contagion must be present in both the day coach and the sleeping car, as has been set forth by Dr. Dalby in his paper. The public, as has already been stated, comes very slowly to a realizing sense of what they should do to protect themselves. They don't appreciate what is done by others; we see that in the hospitals. It is useless to give a consumptive in a car a spit-cup to use and to throw out of the window. The carpet that he does not own, and the floor will be used in preference to these, however accessible they may be. I have not anything to recommend.

DR. MAYNARD—Following the paper of Dr. Dalby and following the line of Dr. Owens, I have noted for a great many years the unsanitary condition of cars, as a rule. All well-to-do consumptives travel by sleeping cars. It is through the agency of such an organization as this that we can do some good in a sanitary way. I happen to have a very close personal acquaintance, extending over a great many years, with the Pullman Company, the leading sleeping car company in the United

States, and I know that Mr. T. H. Wickes, the vice-president and general manager, and Mr. Gusten, the general superintendent, are anxious to do all they can, not only to make the traveling public comfortable, but to make their cars sanitary. I know this fact from conversation with Mr. Gusten to-day that they will be very glad to do anything they possibly can in order to make their cars sanitary, and would, I believe, take the lead in any movement that might have the endorsement of such an organization as we are, and consider any well-formulated and well-digested plan that might be presented to them. As to railways generally, they are like the rest of us, after the dollar, and as long as the suffering public are not educated and will put up with it, they will give just such accommodations as will keep up their passenger receipts. But any well-defined and well-formulated suggestions from an association of this kind would receive, from the Pullman Company at least, not only a courteous reception, but would be met more than half way. I know the danger. I see the consumptives on the road, hear the cough, see the spit, and as a rule I ride on the baggage car to save myself. But I believe it would be well for us to formulate, in the line of Dr. Dalby's paper, a set plan and submit the same, not only to the sleeping car companies, but to all passenger carrying roads.

DR. W. J. GALBRAITH, of Omaha, Neb.—I fully appreciate Dr. Dalby's ability to write upon sanitation as well as his ability in the profession in general. While it may be humane and it may be sympathetic for us to look upon this matter in the way we have, I do not deem it in the province of this association to make recommendations that we are not called upon to make by our general managers. It would be just as absurd for us to make recommendations how a locomotive should be made, how a road-bed should be graded, etc., as to enter into something that has no connection whatever with our positions. We are employed as surgeons and physicians to railroads to care for the sick and injured employes and those for whom the railroads are responsible. It is the duty of the master car builder and his associates and the chief engineer to put into practical execution all these measures that we are discussing, and they are constantly working upon sanitation, as well as the general improvement of their rolling stock. They are men who are educated and men whom our general managers depend upon to make such sanitary conditions, as well as safety conditions to transport their passengers. We have had in associations heretofore papers that have done railroad surgeons' associations a great deal of harm. I believe that the recommendations of Dr. Conn as contained in his paper have done more injury to the railroad surgeons and their societies than all other actions that have taken place during our short existence. We speak from a sympathetic and humane standpoint, which is all right. I appreciate that. I think it is all right for those things to be considered. At every discussion pertaining to the sanitation of cars, the first object has been tuberculosis. It is not directed to the public in general where the families intermingle and sleep together, in hospitals, where you have a tuberculous patient and one suffering from a different disease right next to him. Those things are not taken into consideration. We are not making recommendations in the proper channel. I believe that the paper by Dr. Dalby is a very valuable one; it shows good judgment and good sense, but if it is printed and the transactions sent to our general managers for review, we will be doing a great deal more harm than we will be doing good. It is something that we are not called upon to perform and it is not our duty to make those recommendations. Now the hospital care for the transportation of patients. This is a matter we have discussed in associations heretofore, and I have had it repeatedly from two or three different sources and from general managers, how absurd it would be for every trunk line to furnish cars for the transportation of tubercular patients. It is entirely out of the question that a trunk line

can afford to equip cars to start from Chicago to the Coast, to have a special car arranged for the transportations of tubercular cases. It is just as absurd as it is for the accident cars we have made recommendations for in associations I have been connected with. We have recommended that automatic couplers be immediately placed on all roads. What business have we to make such recommendations? None whatever. That is not our province whatever. I have fought the automatic coupler, I have fought the tubercular cars and the accident cars from the time our organizations of railroad societies started, and I hope this will be the last fight I shall have to make.

## SANITARY REGULATIONS GOVERNING RAILWAYS.

Read at the Second Annual Meeting of the American Academy of Railway Surgeons, held at Chicago, Ill., Sept. 25-27, 1895.

BY L. E. LEMEN, M.D.

DIVISION SURGEON, U. P. RY., DENVER, COLO.

It is not often that a railroad surgeon is called upon to speak before you upon matters pertaining to public health. Yet, in this particular, we are not to judge the future by the past. This is truly the era of preventive medicine, because we find not only all branches of medicine battling against every scourge, but the public in general has its thoughts set on the laws which are apt to conduce to good health. It would seem that, at last, the laity has commenced to appreciate the meaning of the old adage: "Public Health is Public Wealth."

In the revolution that is now taking place in scientific and social circles to promote the health of the people it behooves the railway surgeons, and railway officials to pause for a moment as to their duties and capabilities. To remain inactive in matters of this kind will be considered criminal and costly, and instead of deferring the necessary preventive measures in certain diseases until the railroads are compelled by State and National statutes to observe laws more or less stringent and often impracticable, it would appear to be the part of wisdom, first in the railway surgeon to pay special attention to State and municipal hygiene and the laws of the different localities governing the same, and second for the railway managers themselves to instruct their agents to supervise and direct as much as possible the sanitary legislation referring to public carriers.

In all the concerted effort for the public welfare now taking place we find State medicine especially concerned in restricting the spread of tuberculosis in general, and tuberculosis of the lungs or pulmonary consumption, in particular. It is on the subject of the latter that I propose to speak more especially as a railroad surgeon.

The value of Koch's discovery in fixing the specific cause of phthisis to the invasion of the tubercle bacillus is magnified day by day as we contemplate the possibilities of State medicine toward stamping out disease.

That pulmonary phthisis is a communicable disease no one will to-day question. The mode of spread is various, such for instance as: 1, taking the germ of the disease into the system by drinking infected milk; 2, the ingestion of diseased meat; 3, from the expired breath; 4, accidental contact with the expectoration and the discharge from tuberculous sores; 5, inhalation of air laden with bacilli from dried tubercular sputa.

Of the methods by which the disease is communicated, the latter, namely, the inhalation of air laden with bacilli from dried tubercular sputa, is recognized

to be the most common. It is in this mode of infection that the railroad surgeon is principally interested since overcrowding in cars, poor ventilation and faulty construction specially favor the spread of the disease.

We have every reason to believe in the potency of isolation for the restriction of the spread of tubercular disease, and we read the signs of the times from those boarding houses and hotels who now advertise for non-tubercular patronage at the same time that sanitarians are advocating the value of segregation of consumptives into properly built cottages away from populous centers.

Facts such as these offer suggestions of value to railroad officials. If it is manifestly dangerous to receive the tubercular subjects in hotels and boarding houses occupied by people generally what should be the rule to be observed in railroad travel in a country like ours where people have such a tendency to move about? Take for instance railroads leading to resorts for consumptives where a great percentage of the travel is done, especially at certain seasons of the year, by the infected class, and then figure on the ill effects of permitting the sick and the well to travel together.

The time has arrived when the railroad sanitarian must point out these dangers. As scientific men we do a great deal for the cause of preventive medicine. I believe it is important that we should recommend the following.

1. Segregation of the consumptives in railroad travel.
2. The compartments of the infected individuals should be constructed in such a way that disinfection and cleansing may be easily accomplished.
3. The sleeping cars should be provided with drapery easily laundered, and all drapery should be washed as often as once a month.
4. The bedding of the isolated compartments should not be interchangeable with that of the other part of the car, and articles like blankets and mattresses should be steamed at least once per month.
5. The dangers of spreading the disease through the medium of dried sputa should be stated in circulars conveniently posted in the isolated compartment, and the necessity of expectorating into spittoons and not on the floor or in handkerchiefs should be specially dwelt upon.

### DISCUSSION.

DR. C. M. DANIELS—In the new instruction book I am issuing to the physicians and employees of the road I represent, I have added a clause directing surgeons, when traveling over the line, to make an inspection of the train and in case any unsanitary conditions are found, that attention be immediately called to the same and reported promptly to the chief surgeon.

## REPORT OF FIVE CASES OF TYPHOID FEVER TREATED BY THE WOOD-BRIDGE METHOD.

BY H. SCHOENFELD, M.D.

TRENTON, OHIO.

*Case 1.*—Lena F., of Trenton, Ohio, age 21 years; single; a domestic; began ailing on April 16 with the characteristic symptoms of typhoid fever. Had been working in family where two long prolonged cases lay. Saw her on April 30 and put her on iron, quinin and strychnin pills; aconite and digitalis and used turpentine stupes. Pulse 120, temperature 102.2. Third day temperature was up to 103. Put her on Woodbridge tablets No. 1 every hour. Fourth day gave them every half hour. On fifth day put her on No. 3 in a liquid form which after a while caused vomiting, which finally became very bad; so I ceased its use, her chief complaint being in the