## Ravages of Consumption.

How Present Great Mortality Rate May Be Lessened Under Proper Management.

Kinney, of Astoria, the following paper is submitted. It is by Llewellyn P. Barbour, M. D., Tullahoma, Tenn., professor of materia medica and therapeutics, University of the South; lecturer on tuberculosis, University of Tennessee

According to the statistics of the last census, 130,000 people die from consumption in the United States alone each year." If the effects of this disease were concentrated in Memphis your city would be depopulated in nine months. By the same authority there are 2500 deaths from consumption in Tennessee each year. This concentrated in a town like Tullahoma would wipe it from the earth in a year's time. Again, these figures mean that in the United States 15 people die from this cause every hour. Three hundred and sixty every day. Ten in Tennessee ev-

Recently in a gathering of about 100 men and women I asked if there were any present who had not felt the dreadfulness of consumption by the loss of some one dear to them; there was not one. In the same gathering five had mourned death from yellow fever, seven from diphtheria, four from scariet fever, one from smallpox, and one from cholers. Surely this is the David among diseases. Our duty as guardians of the public health is plain. Our leaders have dem-onstrated the truths of the contagiousness of consumption, of its preventableness, and of its curableness in early stages under proper management. We must arouse ourselves and be making life-sav-ing application of these truths. Every line of attack and defense must be guarded, every resource used. Individual ef-forts and municipal, state and national authority must be enlisted, as is done when the Sauls of cholera or smallpox threaten to invade our shores or lift their heads within our land, There are two obvious methods by

which we may hope to lessen the mortal-ity rate of any disease. First, by re-storing those already diseased; second, by preventing the occurrence of the mal-The first method is the oldest and seems still to be more popular than the

Through the kindness of Dr. August C. , wanting. To send a phthisical patient away from home to some distant resort, there to take his chances in fashionable hotels or unsanitary boarding-houses, and to be his own guide and counselor, is to invite disaster. Good institutional treat-ment in the worst of climates gives far better results than what I will call uncontrolled treatment in the best climatic resorts. Indeed, there is a striking similarity of results obtained at good institu-tions, wherever situated. Meissen, in his sanatorium at Hohennef, Germany, altitude of 774 feet, reports 27 per cent of cures and 40 per cent permanently ar-rested. Rompler, at Gorbersdorf, Switgerland, sittitude 1840 feet, gives the same. Detweller, of Falkenstein, altitude 1378 feet, climate somewhat misty and foggy, reports 25 per cent of cures. Institu-tions at or near the sea level in Russia, Belgium and England give about the same percentage of cures and permanent arrests as do those at higher altitudes. Von Ruck, at Asheville, altitude 2250 feet, reports from his sanatorium 35 per cent cured or permanently arrested, 46 per cent improved. Trudeau, at Lake Sara-nac, altitude 1539 feet, reports out of 91 cases 19 cured and 25 arrested. While my work at Tuliahoma, Tenn., is yet in its incipiency. I have to report out of 16 cases 5 apparent cures, 7 greatly improved. Some of these improved cases are still under treatment, and I shall, apparently, yet be able to report one or two of them under the head of cured. Alti-tude of Tullahoma, 1150 feet. The lesson

of these statistics needs no comment. This segregation of patients in special netitutions is helpful also in preventing the spread of consumption, and will be again referred to under that head. Ob-jection is often made to special institutions that the influence must be depressing upon one surrounded by so many consumptives. This objection is born of igprance. The atmosphere of these places usually one of serenity and content. The improvement of one patient inspires hope in many others. If the physician in charge has, as he should have, the gift of inspiring confidence in his patients. they will quietly resign all worry and care about themselves, and willingly submit to the minutest details of manageical vigor of young men and women in our better class of colleges. This work must be encouraged and extended to schools of a lower grade and to the public schools. Especially should the children of families predisposed to phthisis receive careful physical training, and be kept in the best of sanitary surroundings.

Better Sanitary Conditions. That insanltary conditions have much to do in the causation of consumption was demonstrated by Drs. Bowditch, of Massachusetts, and Buchanan, of England, many years ago. They showed conclusively that consumption was much more prevalent in residences situated in low, wet soils than in those situated on hillsides and pervious coils. They con-firmed also the general belief that illventilated, dark, damp dwellings conduced to the occurrence of the disease. And this is all reasonable in the further light thrown on the etiology of the subject by recent investigations. While the tuber-cular bacillus is the specific cause, it is only under conditions favorable to itself that it develops in the human organism and starts the variety of pathological states called consumption. Dark and damp surroundings, with Ill-ventilated rooms, weaken and make susceptible the animal organism, while the microscopic plant is conserved in great vigor to infect and reinfect the hosts. The authorities above cited also give statistics showing a re-markable lessening of the amount of phthisis wherever these unwholesome conditions have been corrected. And here is a great work for the future. The peopie must be persistently taught the importance of proper construction and loca-tion of dwellings. Our cities and villages must be thoroughly cleaned and drained. Landlords must be prohibited the erection of apartment and tenement-houses now properly ventilated, sunny and dry. The most worthless of the population must not be allowed to herd in damp and filthy holes. We as physicians must press upon the people as a scientific truth the lesson taught by the Great Physician that all men are brothers. Germa incubated in hovels may be carried to halfs. Dives in his princely palace is not safe so ong as Lazarus lives in an unwhole-

Spread of the Tubercular Bacilli.

"There can be no tuberculosis without the tubercular bacillus" is a pathologic axiom. This bacillus, under ordinary cir-cumstances, does not propagate itself, or long exist outside the animal organism. Could we absolutely prevent the spreading of this germ from one animal organism to another, the phthisical death rate would soon be zero. This conveyance of the bacilli occurs through the media of discharges from tuberculous patients, ment. serene in their confidence that the measures taken will restore health. Besides inducing obedience to directions, this hope and confidence in itself makes large.



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cities and states, and wherever any single sifted into the air by the jar of travel one has been enforced to any extent, there has been a lessening of the death rate, Could all of them be rigidly en-forced the world over, it is not extravagant to claim that con-sumption would soon be as rare as leprosy. How soon any or all of those measures are undertaken in our own states depends upon the energy and earnestness with which we set about our

How to Avoid the Danger.

The masses of the American people can best be instructed upon these points through the magazines and newspapers. We should avail ourselves of these avenues of reaching the people in a systematic way. To avoid the suspicion of self-advertising which might attach to the physician who sought thus to enlighten the public, I suggest that our medical so-cieties appoint committees or individuals who shall prepare a series of short, clear papers, couched in popular phrase, to be printed in all the newspapers within the territory of the society. These papers, signed by two or three well-known and responsible physicians, as a committee of whatever society authorizes it, would have so much more influence than do the unsigned paragraphs that occasionally appear. Of the details of what should be taught I will not stop for discussion. They are not difficult to settle. Only I would not have such horror of consump-

would not have such horror of consumptives created as to make them outcasts. It is not necessary. Sterilization of discharges is the keynote.

Another mode of reaching the musses is by means of popular lectures. These can be given by responsible resident physicians in the cities and towns throughout the land. Societies for the prevention of the land. Societies for the prevention of tuberculosis should be organized; litera-ture should be distributed and lectures authorized by them. Such a society has with promise of success in the near future. The results of the work of this so-ciety and of educational work in general is shown in the decided lowering of the death rate from phthisis in Philadelphia. In 1870, with each 100,000 of population there were 342 deaths from this cause, 317 in 1880, 264 in 1890, and only 220 in 1894.

Registration of Every Case. To fight a foe successfully we must know where he is. Not only should there be registration of name and residence at the beginning of the disease, but record should be made of his removal to other residences and distant places. By this means all those immediately concerned can be specially instructed in the pre-vention, and notice made of infected houses, and disinfection enforced. This work can best be done by our health offi-cers and boards of health. This plan has recently been undertaken by one or two cities, and we confidently expect marked

results from this one measure alone.

Thorough Disinfection. Infected buildings are large factors in the causation of consumption. In an investigation of the origin of consumption made by me at Tracy City, Tenn., eev-eral years ago, I found about two-thirds of the cases began in houses where it had previously occurred. The cases were in that town comparatively few, howev er. Dr. Flick, in the much larger field of Philadelphia, says that "at least 50 per cent of all cases were contracted in such houses." He has shown that fam-ilies in whom no claim of inherited rhthisis could be made have been stricken with the disease after moving into such houses, and that, after thorough renovation, the families following remained free. Objec-tion to disinfection may be made on the score of expense. We do not hesitate in other diseases because of expense, still less should we do so in this disease. The work should be under the supervision of sanitary officers, and among the poor at public expense.

The death rate from consumption in penal institutions has in the past been something appalling. Part of this has been due to the development of the disease by the close confinement and often depressed mental condition of the convict, but more of it is due to cases contracted from infected cells, etc. Yet these insti-tutions are under the direct control of the authorities, and preventive measures can easily be enforced. A case of con-sumption originating in a penitentiary

ought to be practically unknown.
Factory infection is a common source of tuberculosis. There should be monthly inspection of factories and workshops not only to compel disinfection whenever necessary, but also to exclude all workmen reached the point of the breaking down of tissues with resulting infectious charges. The occupancy of halls, churches, etc., is of so short duration as to limit very much the danger of infection from them. Yet danger lurks in them, and the predisposed may yield to fleeting exposure. The proper manage-ment and disinfection of these places must be the result of education.

Cars Are Hotbeds of Infection.

Of our modern cars, street and rallway, I would speak more in detail. True the occupancy here is short, but sufficient amount of infective material makes even short occupancy dangerous. And nowhere is more infective material collected. The floors are used as cuspidors by succeeding of the trip, the germ-laden dust raised and scattered to settle again on seat and woodwork. This is again stirred up with the duster, to again settle and be brushed off by the clothes of the passengers, and

and the gusts of wind. Sweeping and dusting must give place to washing and scrubbing, the washing to be done often with a solution of some germ-destroying substance. This reform should be accomplished easily in the case of street cars; but in railway cars it involves the overthrow of plush upholstery and reform in the construction of cars. These reforms must come. Of all materials used as upholstery plush is the most difficult to cleanse and disinfect. Whether it is used in cars by choice of the railroads as a matter of economy, or born of popular fancy, I cannot tell. Of the Pullman sleepers I can hardly speak with patience. Others have called them "centers of pes-tilence" and "hotbeds of infection." Recalling the fact that patients with phthi-sis are the most frequent of travelers, that they generally occupy sleepers, recalling the curtains, the plush upholstery and the carpets, we can see that they are horrible centers from which tuberculosis infection arises. Pullman sleepers are an abomination that must not be suffered. And popular opinion is the lever by which we can overthrow them—popular opinion and the passage of laws. For if railroad companies were compelled to steam their carpets, boll their curtains and soak their plush frequently, they would rid them-selves of this media of contagion. I do not attempt to suggest a perfect sleeping car, but it must be an apartment car, thus doing away with the hangings; there must be no filigree in the woodwork, the upholstery must be of leather, and there must be no carpets.

Establishment of Public Sanatoria. It is among the poorer that this infec-tion spreads most surely and rapidly-not the wretchedly poor only, but also among the working classes, whose home are small and often crowded. I have insisted been in existence in Pennsylvania for five years. It has distributed some 100,000 tracts upon such subjects, as "How to avoid contracting tuberculosis," "How to persons suffering from tuberculosis can protection to others that we can most efavoid giving it to others." "How hotel-keepers can aid in preventing the spread of tuberculosis," etc. This society is making vigorous efforts for municipal and state institutions for the tuberculous poor, with promise of success to the spread doubt. The Progress Medical is number, makes a statement relative to phthisis in France and England which demonstrates clearly the results accomplished in the prevention of the disease by pecial hospitals. That journal states:

"There are three times as many deaths in Paris as in Great Britain. In 1870 the mortality in England and Wales was 2410 for each million of inhabitants, but since nsumptive have been treated in special hospitals this number has fallen to 1468 in 1893." The hospitals in England were built, most of them, by philanthropists as a matter of charity to the poor. now that we know that they afford protection to the community, we should no longer hesitate to urge their establishment at public expense, Europe Is ahead of us in this matter. Berlin, Cologne, Hanover, Bresiau, Dresden, Worms, Wurzburg, Bremen, Vlenna, Paris, and several cantons of Switzerland have recently built, or have in course of erection,

I would not, for the present at least risk any violation of the ethical sense of our citizens by compelling entrance at these The professional paupers such laws can be enforced. The law it-

HALF DOME, MERCED RIVER.

such hospitals for their poor.

thus relieve their families, who could then in many lustances maintain facir inde-pendence. The gathering of these inva-lids in communities where they would be ings when looked at properly. I would, however, compet all patients, rich or poor, high or low, to choose between the alternative of attendance at some such special institution, private or public, or submission to close inspection and regulation of their homes by a sanitary officer.

The first objection made to public sana-

toria for this purpose is always on the ground of expensiveness-it would increase our taxes. I answer, first, we cannot weigh the suffering and loss of life caused by this disease in the balance with more in sanatoria, and their chance of recovery and restoration to usefulness would be immeasurably improved. Others are supported by the charity of their friends and neighbors, to whom they are a source of danger; and the expense of all this finally reacts upon the community at Another objection made to eathering

danger of further infection is increased. To this I answer: The possibility of com-plete enforcement of necessary precautions makes the air of all properly-con-ducted sanatoria much freer from bacilit than that of most houses containing a single consumptive. This objection may be urged against the hotels and boardinghouses of health resorts, where patients are not controlled, but not against sanatoria. The same answer applies to the objection that these institutions spread the disease in the communities where they are located. Rompler states that not only has consumption not increased among the inhabitants of Gorbersdorf, but on the con-trary has diminished since the establish-ment of the sanatoria at that place. The same is true of Kalkenstein. This lessen- also have lung troubles, and are dosed

would willingly enter. Many honest working men who are self-supporting when well find themselves and families the objects of charity when stricken with a expectoration on the floors of public conchronic disease. To compel this class is veyances, public halls, etc., and requiring to invite resistance. But by proper presentation most of these could be induced this is being attempted in New York now. to accept this opportunity of recovery and thus relieve their families, who could then consumptives should be probibited by law. unless these articles are first thoroughly disinfected. The habit of kissing is perhaps not a subject for legal prohibition under the care of experts, where the sanitary regulations are as perties as possible, and where everything is made to work for their comfort and recovery, is agreeable to the feelranced phthisis and with frequent spitting of germ-laden sputs, kissing friends, children and helpless babes square upon Inspection of Dairies.

The possibility of contracting tuberculosis from the flesh and milk of infected cattle is now, a fixed fact. This subject is receiving much attention from state boards of health, state cattle commission-ers, etc., but their efforts at preventing tuberculosis among cattle are much hammoney; second, it would not increase the pered by the ignorance of the people on expense of society at large, but is to be the subject and by the want of efficient urged on the very ground of economy. The tuberculous poor inevitably become objects of charity; many of them are aiready in hospitals and poorhouses. The expense of their maintenance would be no to agitate, agitate, educate, educate. laws. The subject is of importance, and

## SICK ANIMALS IN CAPTIVITY. Inmates of Zoological Gardens Very

Susceptible to Disease.

The wild animals who hold daily receptions are our zoological gardens are not always as healthy as they look, says a writer in the New York World. In fact, he usserts, the death-rate among the captive members of the brute creation is

alammingly high.

Every animal has some particular allment to which he is liable. Lions and tigers, for instance, are apt to be over-come by acryous debility. As soon as they exhibit signs of being run down the epers ply them with port and sherry ine. The wine is first mixed with their drinking water, and the dose is increased intil the patient is ready to take its med-cine straight from the bottle or keg.

In the monkey-house it is consumption



BRIDAL VEIL FALLS, 1000 FEET,

ing of the death rate is to be attributed | with tincture of iron and lime to com

toria. Preventive Ordinances.

The benefits that would result from the nent of such ordinances are very patent. Consumption is not the only dis-case which would be lessened by stopping the filthy and disgusting habit of indiscriminate spitting. The public needs to be educated to the dangers, however, before

The hard flooring of the cages is supposed to affect them so they lose the use nedicine. So long as he has any strength left he will eat whatever is thrown to him. He is thus made to gulp down loaves of bread, with castor oil or magnesia hidlen inside; apples hidden with pills, etc. The most troublesome patient in a noc

is the elephant. His wonderfully keen sense of smell enables him to detect med-icine under any covering, and he must ometimes be starved for several weeks prepared for him.

prepared for him.

Broken legs are most frequent among the deer. Generally, no attempt is made to set the fractured limb, as the bones knit of themselves, if left alone. The struggles of the injured animal to escape from the doctor have been found to pre-

vent the healing process.

Once a year every lion, tiger and bear is obliged to have his nails trimmed—a. very dangerous operation for the mani-curist who does the work. The animal is securely strapped, face forward, to the front of his cage, while the keepers with long-handled scissors shear away the

long claws. The healthiest animals in a zoological garden are the frogs and alliators. Snakes also are hardy and seldom experience a day of sickness.

## Yes; Be Sabe'd All Right.

A well-known Pacific Coast attorney. who prides himself upon his handling of Chinese witnesses, was defending a railway damage case. The lawyer is a big nearsighted, so failed to note when a Chiaman came upon the stand that the witness' clothing was of finer texture than the ordinary coolie.

Instead of following the usual questions as to name, residence, if the nature of an oath were understood, etc., the following dialogue ensued:

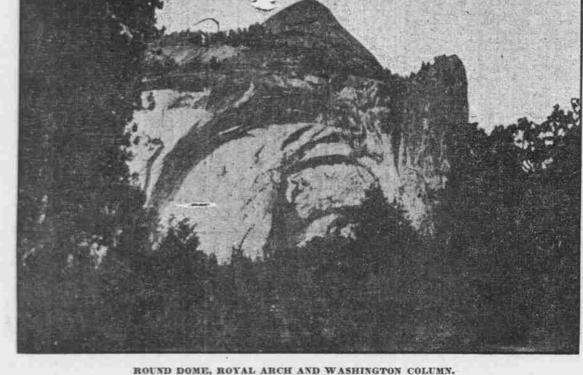
"What is your name?"

"You live in San Francisco?"

"Mr. Attorney, if you mean 'Do I un-derstand the entity of our Creator?' I will simply say that Thursday evening next I shall address the State Ministerial Association on the subject of 'The Divinity of Christ,' and shall be pleased to have you

When order was restored the examin tion proceeded on ordinary lines, but to the day of his death the lawyer will never cease to be asked if he "sabe God."-New York Telegraph.

The most influential newspaper in Scotland is the Edinburgh Statesman, and the oldest is the Dundee Advertiser. They are edited, re-spectively, by Sir John Long and Charles of Hull, Yorkshire,



sick, like the poor, we have with us al-ways, and for humanity's sake we must be untiring in our efforts to cure seion of the treatment of con-

## sumption there must be brief. An Early Diagnosis.

First, permit a sort of Irishism; the greatest advance the general practitioner make in the treatment of consum tion is in learning to make an earlier diag-It is a trulem to say of any dis-cat the earlier it is recognized and put under correct management, the belter are the chances of recovery. This is doubly true of phthisis. A distinct discase, a pathological entity at first, it becomes in more advanced stages a com-plication of various pathological condi-Yet alas and alas! cases are daily everlooked, only to be recognized when death has plainly placed his scal upon the face of the patient. The early diagnosis bears also upon the prevention of con-sumption; for the atient, knowing his trouble, can thus be early instructed as to the source of danger he may become to others, and how to avoid that danger.

Therapeutic Management. By the judicious use of some of our familiar drugs, we can help to lessen the mortality rate of consumption. Iron, arsenic, the hypophosphites, strychnine, codliver oil, digitalis, opium, the digestive ferments—these meet indications which frequently arise, and are aids not to be despised. Yet their excessive and injudictous use will defeat the ends aimed at. The more recently introduced remedies for consumption are yet on trial, and are the subjects of much controversy. The remedies produced by Professor Klebs from culture growths of the bacilli are, I am convinced, a distinct advance in the therapeutics of phthisis. These products, antiphthisin and tuberculocidin, em to me to be identical in results. In my hands these remedies have certainly seemed to accomplish all that Kichs claims for them, namely, the destruction of tubercular bacilli in living tissue. This claim itself shows the limitations of any specific for tuberculosis. We must keep clearly in mind that advanced phthisis ie not a simple disease; that it consists of a multiplicity of pathological conditions. With all the bacill destroyed, there remain still the septic germ to be overcome, damages to be repaired, and the body, shattered generally, to be restored. This caves a great work to be done, and this work can only be done by wise hygienic

Hygienic Treatment and Special Institutions.

The wise hygienic management of phthisis involves the close, careful, untiring, personal supervision of every detail of the patient's daily life. Nothing avoidable must be allowed to occur that will injure the patient, and nothing left un-done that will make for improvement. Because of this need of minute personal supervision of the patient, the general practitioner fells, and must continue to fall, to attain the success reached in spe-cial institutions. The greatest advance we can make toward lessening the mortality rate of consumption by bringing about the recovery of those already diseased, is in placing them in special institutions. This proposition is so well established by statistics as to scarcely admit of discusyet it is not generally known. Climatic treatment has been tried and found

essential to recovery. Mental treatment is no less important than physical treatment. In a well-managed institution the appearance is that of a popular boarding-school, so free from care do the inmates seem, rather than that of the usually conceived idea of a hospital. Objection on the score of expense is met by the estab-

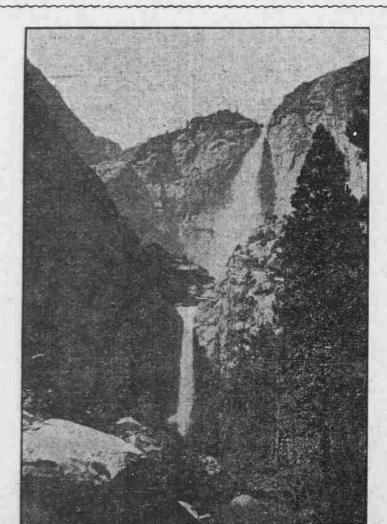
There are two plans by which we may attempt this: First, by increasing the re-

lishment of state sanitoria for the tuber-culous poor. This will be referred to culous poor. This will be referred to later, as will be also the objection beause of fear of contagion in such insti-Prevention of Occurrence of Malady. tions; second, by preventing the spread

ions; second, by preventing the spread value of these measures, but none will dispute that each has some value. Some Much is being done to increase the phys-

omy, is by far the most wasteful. But the ly for recovery. Peace of mind is almost | we may hope for our greatet success in lessening the mortelity rate from umption. A complete plan for this involves first, the equaation of the general public as to the contagiousness of the disease, and how to avoid the danger; second, the registration of every case of tuberculosis as soon as diag-nosed; third, the thorough disinfection of all infected residences, public institutions, halls and conveyances; fourth, the establishment of special hospitals for the segregation and treatment of the poor suf-fering from the disease; fifth, the enact-ment of laws forbidding practices by which others are liable to be infected; sixth, the inspection of dairies and

sistance of the race through better physical training of youths and through the introduction of better sanitary condi-



YOSEMITE FALLS, 3000 FEET.

