

BACILLI INVADE THE SUBWAY.

DARKNESS HIGHLY FAVORABLE TO THEIR GROWTH THERE, ALL EXPERTS AGREE.

Whether Passengers Get Enough Oxygen in Their Air Is a Disputed Point Which the City Is Now Investigating.

The air in New-York's \$85,000,000 subway is already undergoing official investigation. Grave charges are brought against it; the gravest perhaps being that the only fresh air the subway can get is drawn almost entirely from the level of the streets.

Tests made by the Street Cleaning Department show that the air at the pavement level fairly reeks with bacilli, and in some districts 9,600 colonies of them were found on a plate of a few inches area at the end of fifteen minutes exposure.

The reason New-Yorkers can live in such an atmosphere is because sunlight kills these swarming bacilli. According to the bacteriologist of the Health Department, bacteria will thrive especially well in the subway because of the lack of sunlight.

The roadbed alongside the station platforms of the subway is believed by many experts to be a breeding place for bacteria, which are expected there by passengers waiting for trains, and which, when the sputum dries, are caught up and thrown into the faces of crowds by the passing trains.

The absolute necessity of adequate ventilation and sanitation is shown by an examination made of the cocoa mats on the floors of the elevated cars. One fibre only 1 1/2 inches long plucked from such a mat showed 4,000,000 bacilli of different sorts, which would breed consumption, pneumonia and grip, besides many more diseases.

The investigation of the Health Department may also discover that the subway air contains too much of the poisonous carbonic acid gas exhaled from the lungs of passengers. Tests made by one expert showed that the subway contained more carbonic acid gas than the electric subways of Boston, London or Paris.

Paper pinwheels held in the subway entrances last week showed that, in spite of the complaints of stagnant air, passing trains drew in and threw out strong currents of air. Employes of the subway said they had not noticed any ill effects from breathing its atmosphere day after day.

One authority said he thought the electricity in the subway might purify the air to some extent by the creation of ozone. Alexander E. Orr, president of the Rapid Transit Commission, said that the engineering department of that commission would plan new means of ventilation, and the operating company would pay for them, in case the subway was found unhealthy.

E. P. Bryan, vice-president of the operating company, said that it would remedy any proved defect in the subway. The experts who discuss the subject of subway ventilation for The Tribune, and whose views are given below, include Dr. George A. Soper, Charles H. Myers, Samuel Whitney and H. Waller Brinckerhoff, civil engineers and members of the special commission.

employed a year ago by the Merchants' Association to investigate the ventilation and sanitation of surface and elevated cars; Professors Charles F. Chandler and Charles Pellaw, of Columbia University; Professor Albert Spice, of Cooper Institute; Professor R. Ogden Doremus, formerly of the City College; Professor Charles Baskerville, his successor as head of the chemistry department; Dr. August Seibert, a physician; Dr. Herman M. Biggs, bacteriologist of the Health Department; William R. Hinsdale, a mining company president, and J. Parke Channing, a mining engineer.

THE PINWHEEL TEST. A great many regular travellers in the subway declare that the air is improving every day. In other words, they say the subway is hard at work ventilating itself. A simple expedient for testing the air currents in and out of the stations was tried by a Tribune reporter at a number of stations on two days of last week.

A wind was blowing briskly from the west when the reporter stopped at the Twenty-eighth-st. station. The kiosks on the downtown side seemed to act as scoops, and the wind swept into the station with a force that made passengers who left the station gather their garments about them.

The wheel showed that the best ventilators for the big Grand Central station of the subway are the kiosks at the corner of Madison-ave. The draughts from the entrances at the eastern end of the station were not so perceptible, and depended on the movement of trains.

At Seventy-second-st. and One-hundred-and-thirty-st. and Broadway the stations are entered through wide mouthed brick structures. The wheel showed that the prevailing air currents are bound in. At the One-hundred-and-forty-fifth-st. terminal station the wheel acted in the same way.

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was mistaken for a freshman doing some sort of an initiation "stunt." "You feel well run faster if you hold it in front of an express train, sonny," suggested an interested sophomore.

The chemists, official and individual, have attracted some notice while gathering their air samples. Most of them settle with a device which draws in the air. When the bottle is filled it is hermetically sealed. Samples are taken from the station floors, from a point a few inches above the ceiling, from cars in motion, from cars standing in the terminal and from various places in the tunnel itself.

SPITTING IN THE SUBWAY.

Health Board Will Endeavor to Stop the Practice. As far as the general public is concerned the investigation instituted by the Department of Health will doubtless be permitted to settle the question as to whether or not the air in the subway is impure and detrimental to the public health, or pure enough to breathe with safety.

The Board of Health is going to make every effort to stop expectorating in the subway stations and trains. The crusade against spitting on

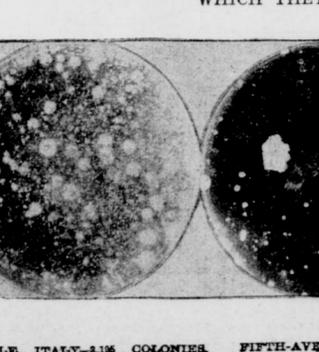


Professor Spice, of the Department of Chemistry of Cooper Union, is measuring its percentage of poisonous carbonic acid gas.

Darlington, whose inspectors have been at work in the tunnel since it was opened. The investigations will proceed on two lines. Professor Charles F. Chandler, of Columbia University, the consulting sanitary officer of the Board of Health, will investigate general air conditions. The bacteriologists of the department will look into germ conditions prevailing in the cars and stations.

If the result of these investigations show that the subway air is impure and dangerous to health, recommendations will be made to improve conditions. The health authorities say they have not a doubt that the Interborough company will gladly follow any suggestions that will make the tunnels healthier. Every facility is being given the department chemists engaged in the investigations.

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practical means would be a partition between the tracks of trains moving in opposite directions. At the present time the trains do not act so much in the capacity of pistons as of the movable parts of a churn.

WORSE THAN LONDON, Or Boston, As Is Shown by Comparative Tests.

As the result of a comparison of experiments by Professor Alfred Spice, of the department of chemistry of Cooper Union, and Dr. George H. Spice, a civil engineer, it has been found that the air of the New-York subway is more impure than that of the Boston subway, or the London electric tunnel, known as the South London Electric Railway.

Professor Spice found that in the cut between Thirty-third-st. and Forty-second-st. the air contained 10 ten thousandths of carbonic acid gas. According to Dr. Soper, in the Boston subway there is from 6.5 to 8.6 ten thousandths, and in the London tube there is about 3. The London tube is ventilated, however, in a different way from the New-York subway, for the reason that there is a single train to a single tube, and the air is thus sucked in behind and driven out ahead.

SPUTUM ON THE TRACK. When Dried It Is Blown Into One's Lungs. Charles H. Myers, a civil engineer, said that what most seriously injured the health of the subway passengers was the rough floor on which the track was laid. He thought it should be of concrete, asphalt, or some other smooth material, which might easily be washed.

PUDDLING FOUL AIR. Trains Cannot Purify Subway Atmosphere.

Samuel Whitney, a civil engineer, said with much emphasis that the air of the subway should be studied most carefully, and if it was found to lack oxygen and to contain a large number of bacteria because of being replenished by air taken from the gutter level of the street, fans should be installed. A partition between the uptown and downtown trains would not be sufficient, he said.

he added. "I have heard them say that the air of a room is purified by starting an electric fan, which stirred it about. Th strains in the subway air up the air, but I don't think that they drive much of it out and in. Especially in summer weather, when the air of the subway will be heavier than that outside, this effect on the air will be still less. True, moving air exhilarates in one way, but only through the skin. It is just as injurious to the lungs if containing bacteria or poisonous gases as if it was stagnant.

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WEST 21ST & WEST 22D STS., NEAR SIXTH AVE. Dr. Herman M. Biggs, the bacteriologist of the Department of Health, said, in response to a ques-