

on the other hand, the bell rang in five minutes. The effect of pressure steam on the vitality of the resistant spores is patent to everyone. Globig was able to kill anthrax spores in ten minutes. It was my desire to place the two varieties of steam on an equal footing with, as has been proved, disastrous results to the non-pressure rival. So much for Koch's postulate.

Lastly, let me give a graphic illustration to indicate where the fallacy has arisen as to the relative merits of pressure and non-pressure steam.

3. A thermometer to ring a bell at 212° F. (100° C.) was placed inside 16 folds of blanket and a current of non-pressure steam turned on at 2 P.M. At 2.9 the bell rang vigorously. Now let us observe the following result.

4. The thermometer was again placed within 16 folds of blanket (not the blanket heated by the former test) and steam admitted to the chamber and confined there. That is to say, there was no attempt made to get rid of the contained air. At the end of ten minutes, though the pressure of steam inside the chamber indicated 15 pounds, the bell remained quiescent. The pump was working vigorously and to avoid accidents to the chamber it was necessary to cut off steam or allow it to escape from the chamber. The latter precaution would have allowed a current of steam to flow through the chamber and air would have been expelled. This procedure would have defeated the end I had in view—namely, to prove that in the presence of air locked up inside the chamber even steam at a pressure of 15 pounds was incapable of penetrating an object readily searched through and through by non-pressure (current) steam. I can scarcely conceive anything more convincing. It is one thing to deal with steam confined under pressure, as this last experiment showed, but quite another to speak of steam confined under pressure, air having first been expelled. The whole science and art of true steam disinfection lies hidden in that statement. The one method is as inefficient as the other is certain in its action.

Dr. Thresh is inclined to draw a red herring across this controversy. He desires to point out that after all the infections with which a disinfectant has to deal are caused by organisms that are easily killed. That is not the point, however. If non-pressure steam cannot penetrate, as I have proved it cannot penetrate, such objects as mattresses as well as pressure steam can, then it cannot be held to be as effectual a weapon in the hands of the sanitarian. Nay, more, we are aiming at standards nowadays, and before long we may arrive at a common understanding with regard to disinfectants. Why, then, should steam disinfectors not be the possessors of a standard of real efficiency?

I can safely say that never did non-pressure (current) steam receive a better opportunity to display its powers than was afforded it during my experiments. It came out of the ordeal a poor second. Let me conclude my rather lengthy communication with a suggestive observation. During my earlier experiments, some years ago, I enlisted the valued and kindly assistance of that eminent authority in bacteriology, Professor Robert Muir of the University of Glasgow. He prepared the test threads for me and undertook to examine them after they had been subjected to steam. My joy was great when a week after making my tests he wrote informing me that my results were apparently successful. The organisms had been killed. At the end of another three days, however, he declared that on looking at the tubes again he found that in one or two instances anthrax showed faint growth, as did bacillus subtilis. This point is a most significant one and impresses one with the necessity for displaying extreme care in the announcement of results.

I am really sorry to have trespassed so much upon your space but the subject is one that merits discussion. Far too much has been taken for granted in the past with regard to what steam can do under varying conditions, especially in the direction of disinfection and sterilisation. My own experience is a case in point.

I am, Sirs, yours faithfully,

WM. ROBERTSON, M.D. Glasg., D.P.H.,
Leith, Nov. 7th, 1905. Medical Officer of Health.

sent for treatment (for phthisis) by Mr. H. Ruskin Hancock of Leicester, had had one or two previous attacks and was much alarmed at its recurrence. I administered 40 minims of a 1 in 1000 solution in one and a half drachms of water three times at intervals of eight hours; the first dose checked the hæmorrhage immediately and it did not recur.

I am, Sirs, yours faithfully,

Southport, Nov. 5th, 1905.

COLIN CAMPBELL.

THE INTERNATIONAL CONGRESS ON TUBERCULOSIS AT PARIS.

(FROM OUR SPECIAL CORRESPONDENT.)

THE SECTIONS.

FRIDAY, OCT. 6TH.

FOURTH SECTION.

Tuberculosis and the Housing Question.

UNHEALTHY dwellings as a prominent cause of tuberculosis had already and frequently been denounced in the section, but now those present were called upon to discuss in detail this phase of the question. A report was presented by M. PAUL JUILLERAT, chief of the Paris sanitary office established to watch over domestic sanitation and to draw up the sanitary record of individual houses. Just as the police keep a criminal record of individuals, so does this department keep a record, it might almost be called a criminal record, of the preventable deaths that have occurred in the different houses. Thus is a sanitary history being gradually built up of each dwelling. In regard to tuberculosis this history conveys a more emphatic teaching than with respect to most of the other diseases, particularly as the observations now date back for some time, including the period when they were first organised by M. Louis Masson. The technical term used is "Le Casier Sanitaire des Maisons." That is the draw, case, or portfolio in which records are separately kept. Now judging by the record of the 11 years from 1894 to 1904 the mortality from tuberculosis at Paris differs according to the height of the apartment or tenement inhabited. Excepting the top, or garret floor, inhabited by servants and very poor people, the lower the floor the greater the mortality. In six bad areas comprising 1584 houses, inhabited by 59,081 persons, only 416 houses were free from the disease during the 11 years. All the other transmissible maladies caused a mortality of 1.81 per 1000 of the population; the mortality from tuberculosis in these areas was 8.25 per 1000. During the 11 years 101,496 deaths from pulmonary tuberculosis occurred in 39,477 houses. Of these houses 5265 were inhabited by 426,676 people and 38,009 of them died, but of these deaths 11,500 occurred in only 820 houses, which, however, had a population of 106,300. Thus it will be seen that tuberculosis is localised. There are certain dwellings where it is always present. It has also been noticed, and this is very important, that these contaminated buildings affect fatally other houses in their immediate neighbourhood, though these latter do not present the same serious sanitary defects. The sanitary defects were all alike: narrow streets, narrow courts, no air, and no direct sunlight, and the reporter concluded that tuberculosis was essentially "a disease of obscurity." Then two plans were submitted. One an area to the east of the Boulevard Sebastopol included the celebrated slum street, the rue de Venise and the historic rue Quincampoix, where John Law carried out those financial speculations which were to France what the South Sea Bubble was to England. In this area 70 per cent. of the ground is covered with buildings. There are 281 houses with 9715 inhabitants, and in only 30 of these houses have there been no deaths from tuberculosis during the 11 years. The general annual death-rate in some of these houses is equal to 42.63 per 1000 and the deaths from tuberculosis alone are equal to 124.50 per 10,000. The other plan comprises an area in the Quartier de l'Europe, a little above the Gare St. Lazare. Here 54 per cent. of the area is built over. There are 191 houses, with 5705 inhabitants; deaths from tuberculosis have occurred in 75 of these houses and the death-rate from this cause is equal to 11.90 per 10,000 annually. Thus in the one district the deaths from tuberculosis are ten times more frequent than in the other. The kitchens are denounced as the chief culture ground for Koch's bacilli. Here there is little or no ventilation, with

ADRENALIN IN THE TREATMENT OF HÆMOPTYSIS.

To the Editors of THE LANCET.

SIRS,—In reference to a note in a recent letter from your Paris correspondent and to an annotation thereon with the above title, may I say that I used adrenalin by direct intratracheal injection over two years ago. The patient, who was