others remained perfectly limpid and already after twenty-four to forty-eight hours showed at the bottom of the fluid glassy fluffy masses which increased in amount on the following days, the supernatant broth remaining quite clear. When shaken the fluffy masses broke up easily into filamentous translucent flakes. In the agar tubes there also appeared growth; in some tubes a few translucent colonies looking like flat droplets of water, other colonies opaque and white. In the gelatine tubes there appeared only liquefying white colonies.

Subcultures were then made of the broth tubes which contained only the fluffy glassy growth at the bottom of the fluid. The subcultures were made on gelatine, on agar, and in broth. The gelatine tubes kept at 20° C. remained sterile; the agar tubes incubated at 37° C. developed colonies of exactly the same kind, which in all respects compare with those described by Kitasato: circular small translucent droplets, with no tendency to become confluent. In the broth tubes incubated at 37° C., the growth was characteristic, namely, while the broth remained perfectly limpid there developed at the bottom of the fluid the characteristic glassy fluffy masses; these were noticed already after twenty-four hours, but became more conspicuous after forty-eight to seventy-two hours. One fact which on further subcultures became very conspicuous was the rapid death of the cultures, both on agar and in broth, but more so in the former than in the latter. The agar cultures already after a week failed to yield new subcultures; the broth tubes after ten days to a fortnight lost their vitality.

Cover-glass specimens made of the fluffy masses from the broth cultures and of similar fluffy masses in the condensation water of the agar cultures showed the growth to be entirely made up of strings and filaments; each filament is composed of short thin rods, some stained uniformly, the great majority, however, showing a granule at each end; for this reason the filaments look exactly like streptococcus chains composed of dumbbell cocci, but the presence amongst them of uniform bacillary elements without polar staining proves the organism a leptothrix of minute bacilli. The specimens are very remarkably uniform and striking, being entirely made up of these filaments, interlacing and in bundles. Cover-glass specimens made of the colonies grown on agar show also filaments, but a good many groups of the minute bacilli; the groups more completely resemble in appearance the groups that were seen in the sputum. The organisms of all the cultures stained well in rubin (2 per cent. watery solution), in methyl blue anilin water, or in gentian violet anilin water. I have a large number of these specimens, and on examining them with only a moderately high power, the filaments could not be distinguished from streptococci made up of diplococci, but under an oil immersion their bacillary character is easily ascertained, each diplococcus being really a short bacillus with a stained granule at each end. In all specimens, those of broth culture, of agar condensation water, and of colonies on agar, there are present in the filaments numerous elements which, owing to their great thickness and irregular shape, compare with in solution forms; in broth cultures they are numerous present already after forty-eight hours.

From this it is seen that what is here stated of the bacillus, in the sputum in broth and agar cultures, completely coincides with and confirms what is described by Pfeiffer and Kitasato. One appearance which is not mentioned by Kitasato or Pfeiffer in their preliminary account, and which seems to be a very striking appearance, is that the growth in broth is entirely made up of filaments.

CASE II.—The second case in which the sputum was examined was J. M., a lad aged about 14; had bronchitis after the febrile stage had passed. When I saw him he had no fever, and was about the seventh or eighth day after the first onset of the disease. The cover-glass specimens of this sputum revealed also changes of the same minute bacilli; there was no difficulty in finding the bacilli in the substance of the pus corpuscles, but there never were more than a few bacilli in each one corpuscle. Most of the bacilli showed the polar-stained granules. Also from this sputum, after dilution, successful broth cultures were obtained the same glassy fluffy masses at the bottom of the broth, which was otherwise limpid.

CASE III.—The third case was that of a young man, A. A., aged about 20. Had bronchitis for several days after the febrile attack, but was getting better. Not much sputum could be got from him; cover-glass specimens showed some of the minute bacilli, either single or in small groups, but neither were they present in large masses, nor could they be found in the pus cells. Cultivations in broth and on agar failed to produce the characteristic growth.

The broth cultures obtained from cases E. F. and J. M. were used for inoculation of a number of mice and guinea-pigs, but no result, local or general, was produced.

BENZOL IN THE TREATMENT OF INFLUENZA AND ITS COMPLICATIONS—PNEUMONIA, ETC.

By WILLIAM ROBERTSON, M.D.,
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In the later cases of influenza that have come under my attention I have been struck by the rapid amelioration of all the symptoms of the attack under treatment with benzol. The drug known to druggists as pure benzol is perhaps as reliable a pulmonary antiseptic as any we know of. In an hour or so after its administration it is clearly recognised in the patient's breath. The general results of its action in influenza are as follows:

In about two hours after the first dose the headache and pain in the back disappear, and in about six hours the

fever has subsided—not to return, so far as I have yet experienced, so long as the use of the drug is kept up. The catarrhal symptoms have also by this time become less prominent, as also the suffusion of the eyes and flushing of the face. So far I have seen no tendency to the development of pneumonia under cases treated by the drug throughout and early seen to.

If we are to suppose influenza to be of microbic origin and that the germs of the disease first make their assault on the pulmonary mucosa, then there seems to be an indication for the adoption of some such volatile antiseptic as benzol. This drug I have employed in whooping-cough—a disease displaying more than one relationship to influenza, as witness the several complications common to both, etc.—with unvarying success for years. Here it is now unquestioned that irritation of the respiratory tract from germ infection is the *fons et origo mali*.

The drug can be dispensed in capsules or in mixture (℥iij for children, ℥v for adults every two or three hours), for example: ℞ Benzol. pur. ℥80; spt. vini ℥ss; spt. chlorof. co. ℥iij; mucil. tragac. ad ℥viiij; ℥ss every three hours in lemonade. In its favour it may be stated that patients complain of no inconvenience from its use. It certainly does not reduce the patient in any way or interfere with digestion. I have generally kept up the action of the drug for three or four days after the disappearance of all symptoms.

ON THE TREATMENT OF INFLUENZA.

By FRANCIS TAYLOR SIMSON, L.R.C.P. LOND., ETC.
London.

WHEN influenza appeared in this country at the end of 1889, I treated the first few cases with quinine, but did not find any improvement that I could attribute to the action of the drug. I then contracted the disease myself, and, from the rapidity with which the symptoms developed, I concluded that my blood must be full of some very rapidly reproductive microbes. I therefore treated myself by the internal administration, three times a day, of 2 minims of pure carbolic acid, and I was much more quickly cured than any of the preceding cases, although I went on my round of visits with a temperature of 102°. It was so evident that my improvement was more rapid than the cases I had treated with quinine, that the medical man who was helping me in my practice at the time took the same remedy when the disease attacked him.

Many hundreds of cases have now been treated in my practice with this drug, sometimes as many as eighty patients with influenza being seen in one day, and every case has made a complete and quick recovery, the temperature frequently falling from 102° or more to normal in twenty-four hours, no after-complications being left behind.

Many of the cases have been of a very severe type. Young children and very aged people have been amongst them, some with lobar pneumonia, and many with that peculiar catarrhal affection characterised by crepitations without dulness, which I believe to be caused by slight exudation into the air vesicles, and which I think might be termed influenzic pneumonia. In severe cases I give the remedy every four hours, and for adults the formula is: ℞ Acidi carbolic pur. liquid. ℥iij; syruipi simplicis ℥xl; tinct. cardom. comp. ℥x; spiritus chloroformi ℥x; aquam menth. pip. ad ℥j; to be given until the temperature is normal, and followed by bitter tonics.

I have always insisted on the importance of sleep. Sleeplessness is so uniformly present at first, and so exhausting to the patient, that I usually give 10 grains of Dover's powder the first night, which has the double effect of giving rest and causing the patient to perspire.

To all but teetotallers I order stimulants, preferably good old brandy, with soda water, and dry champagne of good brand and age. I encourage the patient to eat in spite of his disinclination for food. Good beef-tea, fowls, pigeons, game, wild birds, and fish—especially oysters—I find valuable. I do all I can to keep the patient's strength to the maximum. It is of course necessary to keep the patient warm, and I advise bed in all but slight cases, with the temperature of the room kept between 60° and 65° F. When the cough is very