

ances could ensue owing to its being absorbed; this is well known to be the fact with some antiseptics, as in carbolic acid applications or in the use of perchloride of mercury."

Does not all this clearly establish the claim of "Aminol" to be called not only a true disinfectant, but a most potent and a most safe one at the same time?

But with all this (I mean what relates to its effect on anthrax spores) its application in medical and surgical practice has nothing to do, unless it be to demonstrate its comparative potency, for, as Dr. Klein himself points out in his report, "The spores of *Bacillus anthracis* may be left out of consideration, as they do not occur in the living body; under these conditions the *Bacillus anthracis* is always sporeless; a malignant carbuncle of the skin contains the *Bacillus anthracis* only in the sporeless state, and in infection with anthrax generally the bacilli are always in the sporefree state both in the blood and in the tissues."

What is of real importance in practice is the effect of "Aminol" on the other pathogenic germs on which Dr. Klein has tested it. And here again his letter states the case in a manner which is apt to mislead: "*Anthrax bacilli*, *Staphylococcus aureus* and others were destroyed, but only after a lengthy exposure."

Now what does his report say? "Series V. From this series it will be seen, therefore, that the solution used in the same (1 in 600) acted very differently from that used in the previous experiments (1 in 6000) inasmuch as the *Staphylococcus aureus*, which was not killed heretofore in eight hours, was in this instance completely disinfected in that time, and was considerably reduced even in one hour. The sporeless *Bacillus anthracis*, *Bacillus diphtheriae*, and *Streptococcus erysipalatis* were killed in one hour." Can it be fairly said, then, that these were killed only after lengthy exposure, and does the word "only" apply at all to the one-hour results, when it is considered that there was no test made under the one hour? What is there to show that those of which there was no growth after one hour's exposure to the disinfectant had not been killed after ten minutes already?

Does it not look, then, as if Dr. Klein had penned his letter without consulting either his notes or his report?

A word in conclusion. Dr. Klein, for whom perhaps nobody entertains a higher personal regard than myself, may rest assured that the designation, "a true disinfectant," is meant by me to apply only to such strengths of solutions of "Aminol" as can compete with those substances and their respective strengths to which Koch has accorded that appellation. Nor need he to apprehend that anything has been or will ever be done by me intentionally committing him to what is not fully warranted by his actual results as recorded in his authorized published report.

HUGO WOLLHEIM.

101, Leadenhall Street, E.C., January 2.

THE point at issue between Mr. Wollheim and myself is a very simple one, and needs no long explanation on behalf of Mr. Wollheim. As you will see from the letter which you kindly printed in NATURE, ante, p. 149, Mr. Wollheim, without my authority, has sent round a leaflet with my name on it, accompanying bottles of "Aminol," stated to be "a true disinfectant."

1. On this leaflet my name is introduced in a somewhat misleading manner, for it quotes to a large extent from my reports on the lime and brine experiments on microbes without saying so, but leaving the reader to infer that these reports of mine refer to "Aminol."

2. Mr. Wollheim never asked my permission or informed me of his intention of sending with each sample bottle of "Aminol" such a leaflet. It is unnecessary to say that had he asked me whether he could use my name on a wrapper of a patent medicine I should have emphatically answered no. He has recently informed me that he has cancelled the leaflet.

3. The samples of "Aminol" sent out were of the strength of 1 in 5000, the experiments in which I showed that "Aminol" possesses a certain disinfecting power were made with a strength of 1 in 600. This strength did not kill spores of anthrax in 12 hours; 1 in 6000 did not kill *Staphylococcus aureus* in 8 hours.

A substance which, like the "Aminol" sent out (viz. 1 in 5000), cannot kill *Staphylococcus aureus* in 8 hours, and has practically no effect on spores of *Bacillus anthracis* cannot be considered "a true disinfectant."

To show that Mr. Wollheim had a very strange idea about

the whole matter, one has only to compare the actual facts of the case, as regards "Aminol" of the strength of 1 in 5000, with the motto put on the leaflet and the inscription on the label of the samples. For Mr. Wollheim quotes Koch to the effect that no disinfectant can be called a true disinfectant that does not kill spores, and notwithstanding that I have shown that "Aminol" even of the strength of 1 in 600 cannot kill spores in 12 hours, yet Mr. Wollheim advertises the "Aminol" of the strength of 1 in 5000 as "a true disinfectant." A true disinfectant kills spores after short exposure; a substance that requires many hours to do so cannot claim the name of a specific disinfectant. Vinegar, dilute acids, alkalies, and a host of substances affect spores after exposure for many hours (8, 12, and 24 hours), yet no one would consider these substances as specific disinfectants.

Again, a substance used in a certain strength (say 1 in 600) may have considerable disinfecting power on non-spore bearing microbes, with or without having any conspicuous action on spores. The same substance more diluted (say 1 in 5000) may have retained such action only to a very insignificant degree. Take for instance perchloride of mercury; while this substance is a powerful disinfectant when used in the strength of 1 in 500, 1 in 1000, even 1 in 2000, it has greatly less effect when used in more increased dilution.

No one is justified in advertising perchloride of mercury of the strength of 1 in 100,000 as "a true disinfectant," knowing that 1 in 500 or 1 in 1000 only can be so called. How much more does this hold good for a substance like "Aminol," which even in the strength of 1 in 600 does not kill the spores of anthrax in 12 hours, a period which for practical purposes of disinfection is out of the question.

E. KLEIN.

19, Earl's Court Square, S.W., January 9.

Super-abundant Rain.

IN NATURE of November 10 the fact that "very nearly one-third" of the annual rainfall fell in one month at Nant-y-Glyn, in North Wales, is recorded as "remarkable."

But at Peshawar, on the north-west frontier of India, we received during last August a rainfall of 17.75 inches, the average local annual fall, calculated from the last fifteen years, being 13.51 inches.

We therefore had very nearly sixteen months fall in one month, and by far the largest portion of this fell in ten days of the month.

I need hardly add that the whole valley was flooded, and that we have since paid for our super-abundant rain in the form of very prevalent and fatal malarious fever.

H. COLLETT.

Peshawar, December 19, 1892.

Earthquake Shocks.

THERE were two unmistakable shocks of earthquake on the afternoon of Tuesday, January 3, the first at 2h. 15m. 15s. G.M.T., and the second at 2h. 17m. I was sitting in a railway carriage at Severn Junction Station waiting for the Bristol passengers, when I felt a sensible upward movement of the seat (as if pushed from below) and saw the carriage sway. The movement was from south to north (i.e. at right angles to the railway). This was repeated four times in about six seconds. At 2h. 17m. there were two more (less strong) shocks. The carriage was placed in a siding, and there was no train at the station, and the air was calm and frosty. Ice was said to have cracked near here at this time.

E. J. LOWE.

Shirenewton Hall, Chepstow.

A Brilliant Meteor.

ON Wednesday, January 7, at about 6.35 p.m., I was fortunate enough to see a brilliant meteor descending a little north of Castor. My attention was drawn to it by the brilliant light it threw over the country. The head was a ball of dazzling white and the tail yellow, with red streaks. It disappeared before reaching the earth, and I heard no report or rushing sound whatever.

As the duration was only a few seconds the above are more impressions than observations.

W. POLLARD.

Pirton, Herts, January 7.