

portion of the same beer, with arsenic in such proportion as gave a large deposit in the heated tube, I added a very small quantity of a bi-sulphite of calcium, and got no deposit of arsenic on the heated tube, only sulphur appearing there. The arsenic was obtained from the flame at the end of the tube when received on porcelain. The difficulty in connexion with the 12 samples of Manchester beer is now explained. I had to do the samples in a day. I did take 12 working hours and knowing nothing of the presence of sulphite I found no arsenic. I may say that I had only about 11 ounces per sample, and in the small quantities which I used for experiments the trace of arsenic was probably lost in the preparation of the beer for the Marsh test. I may premise that I tried a series of experiments with the original beer. Any test to succeed must deal with not less than 100 cubic centimetres, and this should be charred *only to intumescence* with acid, then diluted and filtered, and the filtrate evaporated. I did this process in flasks, but found that the medical officer here was doing the process in porcelain basins which I now adopt. If one omits to evaporate the filtrate sulphurous acid may easily be present (carbonaceous matter and sulphuric acid) and spoil the experiment.

I am, Sirs, yours faithfully,

CHARLES ESTCOURT,

Public Analyst to the City of Manchester.

Manchester, Dec. 10th, 1900.

To the Editors of THE LANCET.

SIRS,—The obscure nature of chronic poisoning by small doses of arsenic has been shown in a startling manner by the wholesale beer-poisoning outbreak in Manchester. Does not the revelation point a moral as to the harm that may be done by administering small doses of arsenic in medicine over a prolonged period? That arsenic is an irritant to the kidneys, skin, mucous membranes, and all other excretory outlets to the body has long since been experimentally established. Yet the drug is given daily by medical men and its use is extended over long periods of time. In one case under the writer's care a patient had been treated with arsenic for years at various skin hospitals. He is suffering from chronic Bright's disease, which, in the absence of other assignable cause, may, not unreasonably, be attributed to the arsenic. It is a well-known fact that during a course of arsenic a patient's urine may become albuminous. So strongly have I felt upon this subject that personally I have practically ceased for years past from prescribing arsenic either in hospital or in private practice. It has been said somewhere that arsenic never yet cured a skin disease—a dictum with which most dermatologists will be inclined to agree—although it undoubtedly now and then appears to modify favourably some cutaneous troubles. The question arises, is it worth while for the sake of this remote possibility to expose a patient to the risk of grave mischief from the action of a virulent irritant poison upon excretory and other organs? Given in minute doses for a short time the drug certainly appears to exercise a beneficial effect in some cases of anæmia.

In my own case arsenic has a curious effect. I have on various occasions experimentally taken five minims of liquor arsenicalis and within 12 hours a fine punctate irritating rash appears on the back of the wrists. I have little doubt that arsenic is answerable for some at least of the cases that present themselves at the skin hospitals. Supposing a patient suffering from arsenical beer rash, so to speak, went to a hospital in Manchester there would have been no clue as to the nature of that eruption prior to the discovery of the poison at the breweries.

I am, Sirs, yours faithfully,

Bentinck-street, W., Dec. 4th, 1900.

DAVID WALSH.

PREVENTIVE INOCULATIONS AGAINST THE PLAGUE.

To the Editors of THE LANCET.

SIRS,—A course of three lectures on bubonic plague was recently delivered in London at the Examination Hall of the Royal Colleges of Physicians and Surgeons by Professor Calmette, Director of the Pasteur Institute at Lille.¹

In the third of these lectures Professor Calmette described a new method of preparing a prophylactic against plague,

the product being a substance which possesses (in accordance with Professor Calmette's statements) the advantages that its strength can be easily determined and that it may be kept for a considerable time without becoming contaminated and without losing any of its immunising properties. In this way he thinks that he has solved the problem of obtaining an easy and sure inoculation against the plague—a description which does not apply to Professor Haffkine's prophylactic.

Professor Calmette's method consists in filtering off the plague microbes from their culture media, drying them, and keeping the dried substance carefully in sealed bottles. This substance can be easily weighed and dissolved in water, and it is then ready to be used for inoculation.

In connexion with this subject I must advance the claim that a dried "vaccine" against the plague of definite strength and admitting of preservation was for the first time prepared by myself in collaboration with Dr. Galeotti, as is shown by papers published in different periodicals in 1897 and 1898.²

The method followed by us can be briefly described. When plague microbes are cultivated on large agar-agar plates they form a thin layer which is scraped off from the surface of the solid culture medium and treated with caustic potash. By the strong alkali the microbes are not only killed but are also completely disintegrated and dissolved. To the resulting solution, which is of a mucilaginous consistence, acetic acid is added till a white and flocculent precipitate is thrown down which changes on drying to a brown amorphous mass without losing its properties. This precipitate is a nucleoproteid free from the metabolic products of the plague bacteria and when used for immunisation it is dissolved in a solution of carbonate of soda. It is usually dried in vacuo and can afterwards be kept in sealed bottles and dissolved again in determinate proportions.

The immunising properties of this "vaccine" were fully demonstrated by numerous experiments made in the Pathological Laboratory at Florence and in the Parel Laboratory at Bombay at different times from 1897 to 1900. These experiments were performed on rats, rabbits, guinea-pigs, monkeys, &c. As regards the human subject, it was tried with good results in Florence, in Bombay, and in Australia, applications for it being made by the medical men of several towns of that country on the occurrence of the recent plague epidemics. For the present it is prepared in the Vaccine Institute in Berne under Professor Tavel's direction.

With this "vaccine" it is very easy to obtain a high degree of immunity in the human subject without any of those ill-effects which follow inoculations made with other prophylactics—ill-effects due to the impossibility of standardising the liquid and to the presence of other substances which are pathogenic without being in any way immunising. By our method we isolate the only substance—the nucleoproteid—by which immunity is produced and nothing but this substance is inoculated in proper doses, well dissolved in water and therefore in the best conditions for rapid absorption. On the contrary, by Professor Calmette's method not only the active nucleoproteid but other substances composing the bodies of the bacilli are introduced into the organism and their solution and diffusion in the tissues are more difficult and slow.

Therefore if Professor Calmette's claim of having obtained a better "vaccine" than Haffkine's is justified we can claim to have produced the best prophylactic of any since our "vaccine" has not only the advantages shown by Professor Calmette's but also the other ones which have been mentioned above.

I am, Sirs, yours faithfully,

Florence, Nov. 30th, 1900.

PROFESSOR A. LUSTIG.

KIRKES' PHYSIOLOGY AND AMERICAN PIRACY.

To the Editors of THE LANCET.

SIRS,—Some months ago Mr. John Murray, publisher and proprietor of Kirkes' Physiology, drew attention by letters to the press to the fact that an unauthorised edition of a book bearing the same name was being published and sold in America. It may interest your readers, particularly those who have had to grapple with questions of international copyright, to know that this reprehensible proceeding still continues. In fact, a fresh edition of the unauthorised

¹ THE LANCET, Nov. 10th, p. 1366; Nov. 17th, p. 1454; Nov. 24th, p. 1522.

² Deutsche Medicinische Wochenschrift, 1897, Nos. 15-19; Brit. Med. Jour., vol. i., 1897, p. 1027, and No. 2041, 1900.