SOME REMARKS ON EHRLICH AND GIBBES'S METHODS FOR THE DETECTION OF BACILLUS TUBERCULOSIS.

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DR. G. A. HERON has minutely described (BRITISH MEDICAL JOURNAL, October 14th, 1882, page 735) Ehrlich's method for the detection of bacillus tuberculosis in sputum. The details furnished by him are very precise, but the following may be added to them with advantage.

1. It is desirable to keep the staining fluid with the cover glasses during a quarter of an hour, at a temperature of 40° centigrade (104 Fahr.). The colouring matter penetrates more thoroughly, and the bacilli are more deeply and equally coloured.

2. It is not advisable to mount the preparations in water, but in a solution of gum, mixed with glycerine, prepared in the following manner. Equal parts of neutral glycerine and filtered solution of gum are mixed together; the gum is of the same thickness as the glycerine, and should be, before mixing, heated in a water-bath with a small quantity of arsenious acid, in order to prevent the development of fungi.

3. Aniline dyes, as Dr. Heron observes, are apt to fade very quickly, but those obtained at Merck's Fabrik, Darmstadt, are free from this disadvantage. All chemicals furnished by this manufacturer invariably give the same results.

4. The tissues from which sections are made should be hardened in alcohol only. Chromic and picric acids, also salts of chromic acid, prevent the staining of the bacillus. This method of staining is based on the theory that the tubercle-bacillus is enclosed in a sheath, which, by alkalies, is softened and penetrated (aniline water, which serves as the vehicle for the colouring matter, is a liquid alkali), but is hardened by contact with acids. Nitric acid combines with the colouring matter of aniline, to form colourless and soluble salts; this acid is thus effectual in removing the colour from the other elements of the tissue not required to be stained.

It happens frequently that physicians desire to ascertain whether tubercles contain the tubercle-bacillus, but they have not the time at their command necessary for making sections. In such cases the following method may be adopted: divide the tubercle with a bistoury, then scrape one of the surfaces, spread the scrapings on the cover-glass, and treat them in the same way as the sputum. In preparations thus made, there are very few isolated bacilli. They are present in clusters, and examined by a low microscopic power represent red or blue spots; but when a high power is used, each separate bacillus is distinctly visible.

Dr. Gibbs's modification of Ehrlich's method for the detection of tubercle-bacillus in sputum, described in the two last numbers of the BRITISH MEDICAL JOURNAL (pages 735 and 786) has the advantage of requiring only one staining fluid, which can be prepared in advance. A preparation of sputum can thus be quickly and easily made, when the detection of tubercle-bacillus is sought in order to determine diagnosis.

Dr. Gibbs asserts that the coloration according to his modification has also the advantage of being permanent. We have already called attention to the fact that the chemicals used in preparing microscopic specimens, are not always good when this is the case, the colour fades with equal rapidity whether Gibbs's modification be adopted or not.

When the specimens are mounted in Canada balsam, they are cloudy; this is especially evident when a high power is used. This inconvenient defect, resulting from light passing through media of different refractive power, is remedied by substituting for Canada balsam the mixture of gum and glycerine which I have already mentioned.

ANTISEPTIC MIDWIFERY.

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DR. NEIL MACLEOD's paper in the JOURNAL of October 7th is doubtless an useful contribution to antiseptic midwifery; but we submit that the author is hardly justified in saying that the results of his experiments contrast strikingly with the conclusions laid down in the *Third Contribution to the Life-History of Contagium*.

The deductions to which Dr. Macleod takes exception are, that normal human lochial discharge of the fourth day is septic to rabbits, and that it invariably induces in them septicæmia, as proved by *post mortem* examination; and he reproduces an extract from our tables recording thirteen experiments with the lochia from five women. As, in four of

these thirteen experiments, the lochial discharge was kept from three to seven days, in two cases it was mixed with carbolic acid, and in one with a saturated solution of cupralum, the experiments with normal fourth day lochia were but six. The washings from woman No. 1 killed two rabbits, when injected into the peritoneal cavity; the washings from woman No. 2, injected into a rabbit, failed to kill; and the washings from woman No. 3, injected into the peritoneal cavity in three rabbits, in one instance killed, and in two instances failed to kill. Thus three out of six rabbits died, and in each case on the eighth or ninth day; and these three, on *post mortem* examination, were all found to have metastatic abscesses. We think this warranted the inference that normal lochial discharge is septic to rabbits; and that, when thus septic, the disease produced is invariably septicæmia. We are not surprised that Dr. Macleod, on injecting the fourth day washings from one woman into two rabbits, and from another woman into four rabbits, failed to kill. Our results did not show that injecting lochia would kill in every case; on the contrary, we failed to kill in three out of six cases. If Dr. Macleod had followed our method exactly, his failing to kill might be accounted for in many ways; e.g., the percentage of lochia in the washings he used may have been much less than in those we used. However, the method was not the same. After the completion of parturition, in the case of both Dr. Macleod's patients, the vagina was syringed daily, morning and evening, with a 2½ per cent. solution of carbolic acid. Thus the fluid was not collected till the vagina had been syringed out six or seven times at regular intervals with a fairly strong astringent lotion. How far the lochial discharge would be modified or repressed by this practice, we have no means of judging; but any discharge collected after such treatment would certainly not be normal lochia. Again, in both of Dr. Macleod's cases, the labour was complicated with perineal rupture and the use of forceps. In the case of Mrs. S., Dr. Macleod states, there was the worst laceration of the perinæum he has ever seen; "the vaginal wall being split from within outwards about two inches, the rectal wall one inch." Again, in both Dr. Macleod's cases, silk stitches were inserted in the wounds. In the case of Mrs. S., "carbolicised silk stitches were introduced immediately after the third stage terminated, two in the rectal, and two in the vaginal mucous membrane; also three deep perineal and five superficial skin stitches". Can the discharge from passages thus wounded and stitched be designated normal lochia? Then the fluid from one woman is described as odourless; that from the other, as smelling "slightly of fæces"; and one of the women supplying the fluid "had passed wind *per vaginam*". The fluid we made use of had the characteristic smell of lochia, and was normal fourth day lochia simply diluted with water.

It is open for any one interested in this matter to repeat our experiments. But for the restrictions of the Vivisection Act, we should have had pleasure in repeating them ourselves. If, however, the experiments are to be on all fours with ours, the fluid used must be taken from a vagina without wounds, and one that has not been washed out with astringent lotions; and if, out of six rabbits, or even a dozen, septicæmia be induced in one, that will be confirmatory evidence. A few animals surviving after being injected with this fluid does not call for any special explanation. With us, as many survived as died. Perhaps they take the disease in a modified form, and recover; perhaps they are proof against it; perhaps, in their case, the fluid never reached the peritoneum. A single animal dying a few days after being thus injected, and then showing most undoubted signs of having septicæmia, is, on the contrary, a noteworthy fact; and, as septicæmia is not a disease which rabbits take spontaneously, it is only reasonable to infer that the fluid injected must have been septic to rabbits.

OVARIAN CYST SUPPURATING AFTER PARTURITION: HYPERPYREXIA: OVARIOTOMY: RECOVERY.

By WILLIAM HENRY DAY, M.D.,
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MRS. B., aged 25, was sent to me by Dr. Godfrey of Compton Terrace, Highbury, December 12th, 1881, with a letter saying that "she had a suddenly jumped up tumour, pushing the uterus before it." She had not menstruated for nearly five months, and there were some sickness and constipation, but no pain. Dr. Godfrey believed that pregnancy was possible in this case, but not probable. On examination, I found, in favour of the existence of pregnancy, that the labia, and vaginal mucous membrane were of a dusky hue, that the areolæ were of a deeper colour than might be expected in a fair woman, and that the glandular follicles were prominent. The abdomen was not perceptibly enlarged, nor could the uterus be felt above the pubes. I fancied I detected the uterine *souffle* in the left iliac region, but no fetal heart-