

but also against several times this dose. The size of the dose of toxic bacilli always bears a definite relation to the quantity of previously injected serum.

(3) The specificity of the serum of immunized animals is only observable when the animals are injected with distinctly larger doses of the bacteria than can be combated by the normal serum.

(4) The specific nature of the serum is obvious from the results of injections of a mixture of the toxic bacteria and the protective serum.

(5) The typhoid serum protects against the colon bacillus and the colon serum against the typhoid bacillus more powerfully than normal serum, thus pointing to a relation between the organisms.

(6) The protective serums do not protect the toxins in the dead bodies of the bacilli any more powerfully than normal serum.

(7) By the injection of normal serum into the peritoneal cavity of the guinea-pigs and the subsequent injection, after twenty-four hours, of twice the fatal dose of dead typhoid bacilli, the guinea-pigs can, within two weeks, be immunized to 100 times the fatal dose of living typhoid bacilli.

(8) Guinea-pigs can endure the intraperitoneal injection of typhoid bacilli if one begins them with less than the fatal dose and increases the multiples rapidly, so that within forty-eight hours a forced immunity to 100 times the fatal dose is reached.

(9) By the injection of 0.5 cubic centimetre to 1.0 cubic centimetre of a powerful typhoid serum animals can be saved from the effects of twice the fatal dose (intraperitoneal), which would bring about the death of a non-protected animal in twenty hours.

(10) The results of the experiments bring about a perfect confirmation of the studies of R. Pfeier upon the cholera bacteria and cholera serum.—*Univ. Mag.*

RESEARCHES UPON THE PATHOGENESIS OF PERITONITIS OF INTESTINAL ORIGIN.—Klecki (*Annales de l'Institut Pasteur*, 1895,) found that the colon bacilli secured from the ileum of a dog were highly virulent, while those from the jejunum and colon were much less so, and from this concludes that in different parts of the intestine the virulence of the bacillus varies.

Kleck regards the pathology of the colon bacillus as dependent upon a symbiotic action with other intestinal bacteria. The escape of the colon bacillus from the intestine is in combination with these other pathogenic (guinea-pigs) and non-pathogenic bacteria can cause peritonitis.—*Univ. Mag.*

BEARDS AND BACTERIA.—The bacteriology of the beard has not yet, so far as we are aware, been exhaustively studied; this might be a new world for one of our young Alexanders of pathology to conquer. That it is possible that disease can be carried in the manner suggested will hardly be denied, but we cannot say that we think the danger so great that doctors need sacrifice their beards on the altar of hygiene. Most will think even the careful sterilization of the beard on leaving a sick room a counsel of perfection. If the scrupulous hygienist thinks such a precaution necessary, he should be consistent, and insist on doctors shaving their heads and even their eyebrows. How would our professional sisters like this? To live in the odor of antiseptic sanctity we should, after due purification, clothe ourselves in cotton wool, wrap our heads in sterilized gauze, and go about like veiled prophets of Khorassan.—*Brit. Med. Jour.*

TO PRESERVE THE URINE.—Dr. Leffmann finds chloroform the most satisfactory of the various agents suggested for preserving specimens of urine. About six or eight drops are added to each fluid ounce, and the mixture well shaken. The excess of chloroform soon collects at the bottom of the bottle. Samples so treated will keep for months, even in the hottest weather. Chloroform promptly reduces Fehling's solution. If, therefore, it be desired to test for sugar, the chloroform must be removed by boiling the liquid; or, better, the bismuth or phenylhydrazin test must be used. Chloroform does not interfere with these nor simulate sugar.—*Med. Times.*

HOW TO STERILIZE COTTON.—A rather ingenious plan for sterilizing cotton is referred to in a French contemporary. A piece of cotton is taken, twisted on a stick or a piece of wood, and dipped into a saturated alcoholic solution of boracic acid for a moment or so. It is then withdrawn from the solution, and a light is applied to it, as the result of which the alcohol burns out, while the boracic acid prevents the cotton from burning. Five seconds are enough; as soon as the flame turns green it is extinguished. The cotton remains white, dry, warm, but absolutely sterilized.—*Med. Press and Circular.*

Do not use the old-fashioned curved bistoury in opening the simplest abscess. It is unsurgical because you proceed from within outward—from the unknown to the known. This is a false principle in philosophy, in surgery, and in everything. Cut from the surface inward and you can deal with difficulties in the order in which they occur. Always work with the aid of sight and do not pin your faith on anatomy.