tointoxication. We are, therefore, compelled to give the Wassermann reaction a wider interpretation and consider it in many cases as showing a grave disturbance of the metabolism of the nervous system, while syphilis may still be considered as one of the most important causes of such conditions. Castelli gives the results of his experience in association with Dr. Sachs in examining approximately 250 cases, especially those in which the syphilitic origin of the disease could not be traced. The apparently non-specific cases were found in (1) myxedema, (2) scleroderma, (3) lupus, (4) leprosy. In all of these he finds a probability of an hereditary taint. In 5 cases of aneurism and 29 of cardiac valvular disease there was a positive reaction in 24 and negative in 5. In 10 of these 24 cases syphilis was acknowledged, in the others unknown or denied. The therapeutic suggestions are given by him at some length. He says the Wassermann reaction has given us the means of detecting infection during the intrainfectious period, and a preventive rather than a repressive method of therapeutics. We have not yet, however, mastered the methods. His view is that we should introduce directly into the blood current the means of destroying the infection which is carried through the system by the blood at its very source, and that hypodermoclysis, venoclysis, seroclysis, etc., will in time entirely supersede every other therapeutic means, and he thinks that experiments to this effect should be undertaken in all of our hospitals.

TUBERCLE BACILLI IN THE BLOOD.

W. V. Brem, Canal Zone (*Journal A. M. A.*, September 18), says that in view of the recent publications by Rosenberger and the remarkable results he obtained, it seems worth while to report a similar investigation by himself in November, 1908, before he had seen Rosenberger's paper. He describes his technic, which was carefully devised to avoid possible sources of contamination. Some of his

results, however, seemed so remarkable to him, as regards to ease with which positive results indicating bacillemnia were obtained, that he could not accept them without question, and sources of error were constantly being sought. The real source was found by the simple device of fixing to the slide with egg albumen the sediment from distilled water in the laboratory jar. In traversing the smear once, about 6000 acid-alcohol-resisting bacilli were found. Smears made with egg albumin alone were negative. He then had distilled water made in the laboratory and obtained negative results where he had obtained positive before. He thinks it probable that contamination of distilled water occurs frequently in laboratories where animals are kept. He sums up his paper as follows: "1. In examining blood, urine, stools, sputum and exudates for tubercle bacilli, the greatest care should be used to exclude contamination of water, and all solutions used with members of the acid-resisting group of bacilli (whether dead or alive). 2. In this investigation, coincidence occurred which were all but convincing of the presence of tubercle bacilli in the blood in every case of tuberculosis. 3. Animal experimentation was negative, but the quantity of blood used for inoculation was too small for the results to be of great value. 4. Acid-alcohol-resisting organisms were found eventually in fresh distilled water furnished by the Isthmian Canal Commission, in tap water, in old distilled water made with care in the pathologic laboratory, and in all solutions made up with the Canal Commission water. These bacilli were either dead or non-pathogenic to guinea-pigs. 5. There is as yet no conclusive proof of the frequent continued presence of tubercle in the circulating blood."

BOVINE AND HUMAN TUBERCLE BACILLI.

A. F. Hess, New York (*Journal A. M. A.*, September 18), says it has been definitely established that the tubercle bacillus of cattle sometimes incites tuberculosis in man and it

is asserted by some capable workers that the bovine bacillus can be so altered by years of sojourn in the human organisms as to simulate the human tubercle bacillus. The difficulty of studying this question comes from the fact that we are rarely able to be certain of the original source of infection and our main reliance is generally circumstantial evidence. An exception to this rule, however, is furnished by the few cases of direct inoculation in which the bovine origin is definitely established. He has with some difficulty found two cases of this character, both in slaughter-house workers, which he reports. In both cases the inoculation was definitely established and local tuberculosis nodules were similar in both. The general health was not affected, though in one case there was an enlarged hard epitrochlear gland at the right elbow. Both men submitted to have their nodules excised and inoculation experiments were made with them on guinea-pigs, which in every case developed tuberculosis. The cultures were typically bovine. He also made experiments with the object of transforming the bovine type with two bovine strains of known virulence in a medium (human placenta glycerin broth) resembling in its composition as closely as possible the human tissues. At the end of nine months the cultures made continuously on this medium were as typically bovine as ever. He remarks that the question has a practical as well as a theoretical aspect and the two need not be confused. The former considers whether it is in any way possible by a natural or artificial means to convert one type of bacillus in another type; the latter, whether the bacilli isolated from man and designated as human, have been converted in his tissues from an original bovine type. It is true that cultivation strains may be greatly changed, but this is exceptional and cannot be claimed as evidence of the possibility of a complete change of type. It is worthy of note also that typical bovine bacilli have been isolated from calcareous nodules of human beings

where they must have existed for years without undergoing transformation. No case of primary pulmonary tuberculosis has been indisputably proved to have been incited by the bovine bacillus. If this form of disease is due in some instances to a bovine bacillus we ought occasionally to meet this type of bacillus before it has been converted into the human type, i. e., in the early stages of the disease. Not only do we know that this is not the case, but that even the intermediate types are rarely met with in primary pulmonary diseases. Therefore Hess considers we may form a practical standpoint disregard the question of transmutation of type. The two cases he reports he considers of interest as demonstrating the possibility of bovine bacilli existing in the human tissues many years in these cases (four and six years respectively) without any change toward the human type of the microbe. It would be interesting and of undoubted value, he thinks, to have access to similar long-standing cases and make them the subject of bacteriologic study.

GENITO-URINARY.

THE WASSERMANN REACTION.

B. Sachs, New York (*Journal A. M. A.*, Sept. 18), reports his experience with the Wasserman test in its relation to diseases of the central nervous system. He remarks that a positive Wassermann reaction may often be wanting in spite of the true luetic nature of the disease, if intense or prolonged anti-syphilitic medication had been employed before the first test was made. In his work, therefore, he established a rule that neither mercury nor iodids were to be administered to any patient until the Wassermann test had been made. In the majority of cases, however, in which the negative reaction is obtained the thought of syphilis may be dismissed. What the test indicates is that an active syphilitic process exists somewhere in the system