formed a very considerable item in their diet. Weber gives the following summary: 360 persons, of whom 151 were children, 200 adults, and 9 of unknown age, used milk or milk products, butter, buttermilk, sour milk, and cheese, which came from cows having undoubted tuberculosis of the udder. Of all these 360 people, only two were shown by actual animal experimentation to have infections with the bovine tubercle bacillus. These two positive cases were children having tuberculous neck glands. It was possible to show, furthermore, that both these children had drunk milk from cows suffering with bovine tuberculosis, and that these cows certainly had tuberculous udders. The milk of these cows was drunk in the first case a year and a half and in the second case several months after the cows were known to be sick. In each instance the udder tuberculosis was extensive, in one cow all four quarters of the udder were infected. The milk of these tuberculous cows was mixed with that of a second apparently healthy cow in each instance before it was consumed. In both cases it was found that the other members of the family were perfectly healthy, although they had drunk the same milk uncooked. In both families the tuberculous child was the youngest. Six other children and 1 adult had glandular swellings in the neck, and in 4 other children and 1 adult who had drunk milk containing bovine tubercle bacilli there was a strong suspicion on the part of the attending physician that abdominal tuberculosis was present. It is to be noticed, however, that in the 4 latter children the clinical symptoms were recessive, while Weber considers that in the adult it is very improbable that the disease could be attributed to the drinking of milk. In 1 child, further, there was a well-defined history of scrofula. In another series of 360 people, in whom it was shown that they drank the milk of cows with tuberculous udders or consumed uncooked milk products made from the milk of these cows, there were 12 children and 1 adult with swellings of the lymph glands of the neck. In these 12 children and the adult no bacteriological examination was made, and consequently it is impossible to state definitely whether these glandular swellings were of tuberculous origin. The writer concludes, finally, that the danger which men undergo through the consumption of uncooked milk and milk products of cows having tuberculosis of the udder is similar to the danger which men having well marked pulmonary tuberculosis exhibit for their fellowmen, although very much less. It seems fair to assume from the statistics presented above that the danger from drinking uncooked milk and milk products of cows with tuberculous udders is surprisingly small.

The Vaccination of Cattle Against Tuberculosis.—THEOBALD SMITH (*Journal of Medical Research*, September, 1911, xxv, Part ii) studied the pathogenic effect of certain cultures of the human type of tubercle bacilli on calves. This work is the continuation of an investigation conducted under the auspices of the Massachusetts Society for Promoting Agriculture. The first paper appeared in the *Journal of Medical Research*, June, 1908, vol. xviii, in which it was shown that vaccination of calves with cultures of the human type of tubercle bacillus leads to a relatively high resistance to the bovine type of tubercle bacilli. The work presented here represents a carefully planned

and executed study of the effects of vaccinating young calves with cultures of human tubercle bacilli in order to test the practical value of Behring's bovo-vaccination. The pathogenic effects of certain human tubercle cultures for calves are specifically considered. Non-tuberculin reacting calves only were used for the experiments, and bull calves were excluded. Suitable precautions were instituted and maintained to prevent infection with bovine tubercle bacilli. The vaccines used were of such strength that a cubic centimeter of normal saline solution contained 1 cg. of moist tubercle bacilli. Injections were made into the right jugular vein. In all, 14 calves were vaccinated. Of these, 6 died or were killed and showed lesions post mortem; 8 survived the first inoculation, remaining in good health, and of these 8, 5 received a second injection and survived in good condition, and of the latter 5, 1 received a third injection which was well borne. Of the 6 calves that died, all received the same vaccine, Human No. XXIV, which appeared to be unusually virulent for calves; 4 calves, however, successfully endured this same strain (Human No. XXIV), and 2 of these animals received a second injection, one of the latter being inoculated a third time without harmful results. Dr. Smith concludes as follows: (1) Calves may succumb to a tuberculous pneumonia not seen in the spontaneous bovine disease after an intravenous injection of certain cultures of the strictly human type. The initial rise of temperature usually appears within ten to fifteen days, and death may ensue after one to two months. Tuberculosis of both eyes, with complete blindness, may result. (2) The culture used in the foregoing experiments which proved fatal for calves (Human No. XXIV) was rather below than above the average virulence of the human type for rabbits. (3) The sensitiveness to tuberculin may persist in calves from eight to twelve months after an injection of living bacilli of the human type. (4) A second and third larger dose of the same strain is quickly and easily disposed of by calves which have survived the first dose.

The Isolation of *B. Typhosus* from Butter.—(1). H. BERGEY (*Journal of Medical Research*, September, 1911, xxv, 231) recovered the typhoid bacillus from samples of butter suspected of causing an epidemic of typhoid fever in an institution. The technique employed was sufficient to warrant the diagnosis of *B. typhosus*.

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INDEX.

A

ABDOMINAL operations, disinfection of field of operation in, 452
 Abortion, treatment of, 605
 Acetic acid test for albumin in urine, 447
 Acetonitrile reaction in Basedow's disease, 449
 Acidosis, treatment of, 140
 Acquired diverticula of sigmoid, 15
 Actinomycosis in Norway, 386
 Activity of pancreatic function under the influence of copious and moderate water drinking with meals, 907
 Acute infectious disease of unknown origin, 196
 Adalin, a new hypnotic, 144
 Addison's disease, glucose in blood in, 897
 Adnexa, inflammatory disease of, 769
 Adrenals, hemorrhage of, 600
 Albumin and albumose in the sputum, 587
 in urine, 447
 Alimentary canal in health and disease, sensibility of, 132
 Alopecia areata, etiology of, 921
 Anisotie liquid, source of, 607
 Amyotonia congenita, 165
 Anemia, aplastic, 57
 pernicious, 476
 produced by bacterial hemolysis, 310
 treatment of, with salvarsan, 456
 Anesthesia by the intracheal insufflation of air and ether, 289
 extradural, 759
 local, in operations on trigeminal region, 902
 Augina pectoris with vasomotor excitability, 451
 Antelexion of cervix, 611
 Anterior poliomyelitis, serodiagnosis of, 460
 Antipartum hemorrhage, treatment of, 913
 Antityphoid vaccine, 143
 vaccination in the army, 586
 per rectum, 450
 Aortic regurgitation, 550
 Aplastic anemia, 57

Appendectomy, after-results of, 612
 Appendicitis, acute, clinical aspects of, 601
 and pregnancy, 288
 chronic, dilatation test for, 11
 Appendix, fixed, 291
 Arsenic in treatment of chlorosis, 762
 Arsenobenzol, complement fixation test of, 750
 Arterial aneurysm, ideal operation for, 592
 Arteriovenous aneurysm, 757
 Arthritis, gonorrheal, 907
 Artificial immunity against trypanosomes, 898
 Articular rheumatism, acute, treatment of, 136
 Ascitic fluid for nutritive purposes, use of, 241
 Aspirin as a remedy for cough, 76
 Asthma, bronchial treatment of, 865
 and tuberculosis, 869
 Atherosclerosis, 727
 Atophan, action of, on purin metabolism, 906
 Atoxyl, 921
 Atrophies, skin, 620
 Atropine on pulse, effect of, 581
 Auscultatory method of determining blood pressure, 334
 Auto-inspection of vocal apparatus during phonation, 154
 Automobile, influence of, upon obstetrical conditions, 462

B

BACILLUS coli, permanence of atypical characters of, 779
 Bacteria and the intestinal wall, 780
 in cattle, elimination of, 780
 microscopic examination of the blood for, 88
 Bactericidal effect of blood upon pneumococci, 779
 Bacterial treatment of septic rhinitis of scarlet fever, 403
 Bacteriological examination of patients having fever during labor, 609