
PATHOLOGY AND BACTERIOLOGY.

UNDER THE CHARGE OF

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The Experimental Production of Gastric Ulcer in Guinea-pigs.—STERNBERG (*Zeit. f. Heilk.*, 1908, xxviii, 280) has been able to produce ulcerations of the gastric mucous membrane of guinea-pigs, by feeding through a stomach tube, small quantities of alcohol. The lesion starts first as an area of necrosis covered with a slough, developing later into a deep circumscribed ulcer which extends to the muscular coat and heals gradually. The possibility that an abrasion of the mucosa, produced by the passage of the stomach tube, might be the cause of the ulceration was excluded by control experiments. The ulcers were usually situated about the cardia and not, as is the case in man, near the pyloric end. For the production of an ulcer, it is necessary that the alcohol should come in direct contact with the gastric mucosa. This could only be accomplished when the animal's stomach was empty; when the stomach contained food the mucosa was protected and ulcers did not develop.

The Hemolytic Action of Bile and its Inhibition by Blood Serum.—It is known that bile has a toxic action upon at least two tissues of the body. It is hemolytic and directly injurious to the cells of the pancreas. In investigating the protective powers of the organisms against bile, SELLARDS (*Johns Hopkins Hospital Bulletin*, 1908, xix, 268) finds that normal blood serum protects effectively against the hemolytic action of bile salts in dilutions as high as 1 to 3000. Precipitation of the proteid by heat does not affect this inhibitory action. The fact seems to have a distinct bearing upon the tissue destruction in acute hemorrhagic pancreatitis following the injection of bile into the pancreatic duct. The bile itself causes a necrosis of the pancreas, but the hemorrhage would presumably tend to neutralize the action of the bile and thus prevent further necrosis. In simple catarrhal jaundice, except for the protective action of the blood serum, serious consequences, such as the development of a severe anemia, might result.

The Pro-infective (Aggressive) Action of Normal Blood Serum.—COLE (*Johns Hopkins Hosp. Bull.*, 1908, xix, 249), while studying the natural immunity of pigeons to *Bacillus pneumonie*, made some experiments to determine whether or not this natural immunity was dependent upon substances contained in the blood serum of the pigeon. By means of the technique employed in demonstrating the so-called Pfeiffer phenomenon, an effort was made to study the effect of combined inoculation

of pigeon's serum and emulsions of *Bacillus pneumoniae* into the peritoneal cavity of mice. Into one series of mice 1 c.c. of normal pigeon's serum + 1 c.c. of emulsion of *Bacillus pneumoniae* was injected intraperitoneally; into another control series of mice 1 c.c. of an emulsion of *Bacillus pneumoniae* alone was injected. Fluid removed from the peritoneal cavity in the two series of mice after one hour showed no differences either as regards the type of exudate or the amount of phagocytosis. Attempts were then made to see if blood serum of pigeons and rabbits, when injected simultaneously with emulsions of *Bacillus pneumoniae*, would protect mice against small doses of the organism, doses which under ordinary circumstances were just sufficient to kill. It was a great surprise to find that under these conditions the injection of pigeon's serum or rabbit's serum hastened rather than retarded the death of the animal. The result is quite contrary to what one would expect. The explanation for this phenomenon does not at first seem clear. It is possible that the foreign serum may form precipitates with the serum of the injected mice; that it may bind the complements of the injected animal, thus reducing the bactericidal property of the serum; or that the foreign serum may render the mice hypersensitive, thus setting up a state of conditions analogous to anaphylaxis; it is also possible that the "natural aggressins" described by Bail and others may be due in part to the injection of serum together with bacterial cultures.

The Effect of X-rays upon the Formation of Specific Anti-bodies.—LÄWEN (*Mitt. aus d. Grenzgeb. d. Med. u. Chir.*, 1908, xix, 141) has undertaken an extensive study of the effect of Röntgen irradiation in experimental infections, directing his attention particularly to its effect on the production of specific antibodies. Rats, mice, and rabbits were used in his experiments. Låwen details his experiments at considerable length and arrives at the following results: Long-continued exposure of animals to the x-rays with resultant destruction of the greater part of their leukocytes changes in no way the bactericidal power of the serum. The dissolution of the leukocytes adds no free bactericidal "endo-enzymes" which are capable of increasing the action of the serum alexines. The resistance of the animals exposed to the x-rays, on the contrary, was constantly found diminished for various bacterial inoculations. If the exposures had not been too prolonged, a leukocytosis followed the experimental injections just as in normal animals, the polymorphonuclears being particularly increased: After very long exposure to the x-rays the leukocytes gradually decreased in number, and finally disappeared completely from the peripheral circulation. While the Röntgen rays showed no action on the normal agglutinins, the formation of the specific agglutinins and to a much less degree of the specific bacteriolysins was greatly inhibited. In some animals the agglutinins were not formed at all. From this fact Låwen concludes that the hematopoietic organs are to be looked upon as the place of origin of the specific agglutinins.

Studies on the Relationship between Respiration and Blood Pressure.—THOMAS LEWIS (*Jour. of Phys.*, 1908, xxxvii, 213) finds that the heart is peculiarly susceptible to changes in pressure external to it. In cats a rise of intraperitoneal pressure of 1 mm. Hg. lowers systemic pressure