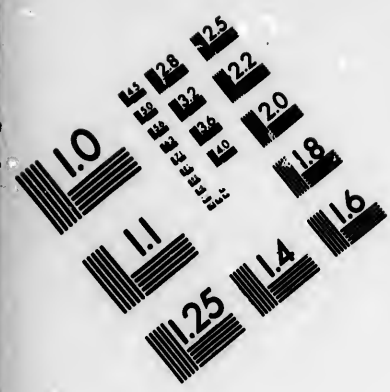

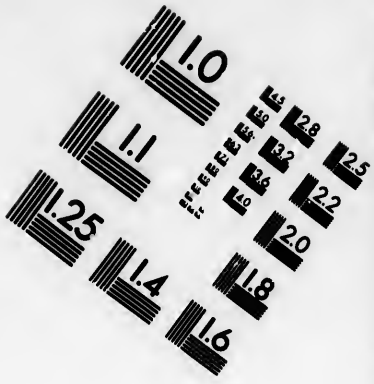

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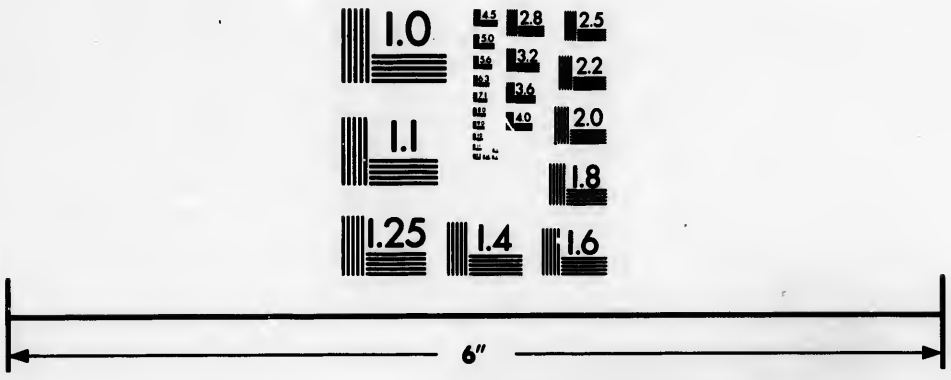

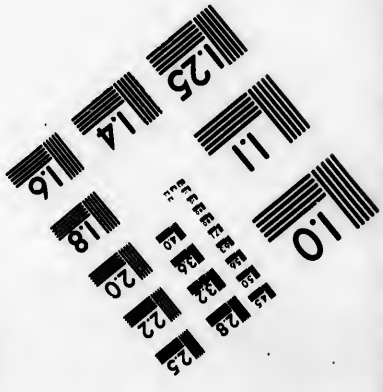

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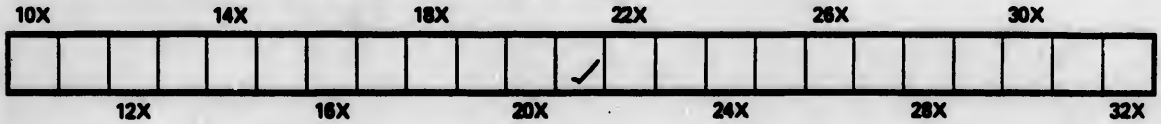

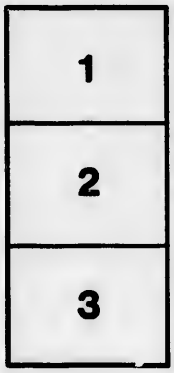

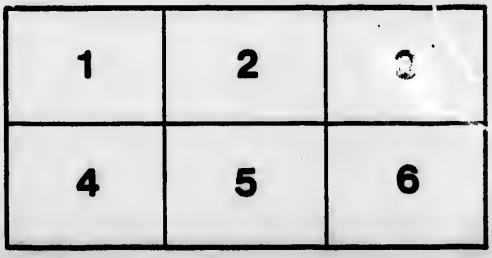

REPRINTED FROM THE "MONTREAL MEDICAL JOURNAL," APRIL, 1890.

RETROSPECT OF PATHOLOGY.

By WYATT JOHNSTON, M.D.,
Demonstrator of Pathology, McGill University.

Peritonitis.—Dr. H. J. Waterhouse of Edinburgh has published some interesting experiments upon purulent peritonitis. Grawitz had shown, in 1886, that the injection of even large quantities of pyogenic bacteria into the peritoneal cavities of rabbits and dogs was not sufficient to produce suppuration unless they were mixed with some substance difficult of absorption (blood, etc.), or unless the peritoneum was at the same time inflamed by some substance such as turpentine or croton oil. Dr. Waterhouse was able to confirm these results on rabbits and cats, and further performed experiments to bring out certain points of practical importance in explaining the conditions under which peritonitis follows laparotomies, intestinal strangulation, etc. It was found that very small quantities of decomposing fluids—urine, pus—injected into the peritoneum were capable of always producing fatal peritonitis, but when largely diluted with water were inert. Injection of a few drops of any fluid containing staphylococci with simultaneous irritation of the peritoneum by turpentine produced fatal peritonitis. A laparotomy wound was not in itself a predisposing cause for peritonitis, because laparotomy and injection of staphylococci gave negative results; further, inoculation of the angles of the wound itself directly with staphylococci failed to produce peritonitis. Inoculation of an incision down to, but not opening, the peritoneum produced a large abscess in the abdominal wall, but no periton-

itis. In resection of the intestine, the peritoneum showed itself more susceptible, peritonitis resulting in one case where resection was accompanied by injection of staphylococci. Artificial strangulation of the intestine was always spontaneously recovered from in rabbits and cats when the constriction had only lasted six hours. When the peritoneal cavity was infected with staphylococci the result was fatal peritonitis, even when the constriction had only lasted two hours. A similar fatal result was obtained by strangulation and injection of cocci into the veins of the ear, or by producing a septic abscess or osteomyelitis. On the other hand, strangulation with injection of staphylococci into the stomach or the incarcerated intestine was not followed by peritonitis. In animals with ascites, the injection of a very few drops of the staphylococcus emulsion produced in every case purulent peritonitis.

Experimental Extirpation of the Liver.—Prof. E. Ponfick of Breslau has reported in *Virchow's Archiv* the results of a remarkable series of experiments upon this subject, to ascertain to what extent the function of the liver could be dispensed with. Previous attempts in this direction by others were chiefly confined to ligature of the portal vein, with the uniform result of death within a few hours. Ponfick found to his astonishment that by ligaturing the long tongue-like processes of the rabbit's liver near their roots, close to the vena cava, he was able to excise, either at a single sitting or by repeated operations, from one-fourth to three-fourths or even more of the organ without seriously affecting the general health of the animal. The rabbit's liver consisting of five lobes bearing a uniform ratio to the entire organ, the removal of one or more of these signified respectively the removal of one-fourth, one-half, three-fourths, four-fifths, etc. The immediate effects of the removal of one-fourth were a temporary venous congestion of the spleen, stomach and small intestine. When one-half or three-fourths were removed, this condition was more marked, a few ecchymosed and infarcted spots being observed. The spleen in these cases was increased to double its normal size. The large intestine and cæcum were, however, quite free from congestion. This portal congestion was

only transitory, disappearing completely in the course of a few days or even hours. These immediate effects were observed in these animals dying from various causes soon after the operation. The majority of the animals survived.

The ultimate effects of the operation.—Since the individual weight of each of the five lobules bore a constant ratio to the total weight of the liver, and the total weight of the liver to the body weight, it was interesting to estimate the degree of compensatory hypertrophy in those portions of the liver left intact. It was found that the animals, after removal of one-fourth, at first lost weight but soon regained or even exceeded the weight previous to the operation. In attempting subsequent further removal of another lobe the operation in several cases was attended with fatal hemorrhage. The autopsy showed that the intact portions of the liver had compensated for the portion lost, the actual liver weight being greater than that estimated at the time of operation. When one-half or three-fourths of the liver had been removed, this compensation was even more marked, and took place within even the incrediby short space of eight to fifteen days. An attempt to remove subsequently the remaining fourth of the liver in thirteen cases resulted uniformly in the death of the animals from hemorrhage.

Of the performance of the liver function under these altered conditions no exact details are given, but it is stated that none of the remaining organ showed any tendency to assume the function of producing bile. The histological changes will be dealt with in a subsequent paper.

Tetanus.—Since the discovery of the tetanus bacillus in garden earth by Nicolaier in 1885, and its successful culture and inoculation from a case of tetanus by Rosenbach in 1886, a great number of observations have been made upon the subject. At first, it will be remembered, it was impossible to obtain pure cultures of the bacillus, but Kitasato (and independently of him, Buchner) have succeeded in doing so by excluding oxygen from their tubes. The bacillus is anærobic, growing well in the ordinary media in an atmosphere of hydrogen, but not growing in carbonic acid gas. It forms spores within the body which possesses

great powers of resistance to heat and disinfectants, retaining their vitality after ten hours sterilisation by 5 per cent. carbolic lotion. The way in which the symptoms are produced is still obscure. Brieger, in 1887, was able to isolate, not one, but four toxic alkaloids (or ptomaines) capable of producing in various degrees tetanic symptoms.—(*Zeitschrift f. Hygien*, Vol. VII.)

In this connection it is interesting to note that other observations go to show that animal alkaloids produced by the body itself (leucomaines) can produce tetanic symptoms. An irritability of the nervous system stands in some unknown connection to the tetanus, to the toxin as the determining cause. It is possible that tetany, hitherto regarded as a purely nervous disease, may depend upon the production of leucomaines.

Kitt has succeeded (*Centralblatt f. Bact.*, No. 10, 1890) in producing tetanus in horses and other animals by inoculating with dried pus obtained from a case of tetanus in the horse sixteen months previously. He was also able to obtain the tetanus bacilli in pure culture from the same material.

Kakke.—(*Virchow's Archiv*, Vol. CXIX.)—The peculiar disease existing in Japan and called kakke has recently been investigated by Dr. Minra of Tokio. The symptoms are dyspnœa, lividity, a tendency to dropsy, and passive dilatation of the right ventricle. The disease is frequently fatal in from six weeks to as many months. The symptoms appear to depend upon a progressive paresis of the diaphragm, and much benefit is derived from faradization of the course of the phrenic nerve. Dr. Minra considers that this obscure neurosis is produced by eating certain species of tunny fish. (*Fam. Scombridæ.*) It was formerly very prevalent in the Japanese navy, but disappeared entirely about a year ago when fish was abolished from the sailor's diet. It was common amongst the jailors in the prisons, but the prisoners who lived on a vegetable diet were free from it. It was present only during the summer months, when this fish was obtainable, and existed chiefly among those persons who were in the habit of eating it (probably in a condition not perfectly fresh).

Acute cases of poisoning from these fish had been long well known, and went by the name of fish-drunkenness, the symptoms being headache, vertigo, palpitation and dyspnœa.

Malignancy in Tumors.—There seems to be a growing tendency to accept the theory so long upheld by Sir James Paget, that tumors are due to some specific virus whose nature we have yet to learn. The announcement by Scheuerlen some three years ago that a specific bacillus had been discovered in cancer, led to the careful investigation of this point by numerous competent men with negative result. It seems well proved that the virus, if it exist, is not bacterial in nature. At present it seems probable that some tumors, at all events, are due to parasitic protozoa (psorospermia) belonging to the family of Gregorinidæ. The conditions known as epithelioma contagiosum and Paget's disease of the nipple appear due to the coccidium (or spore case) form of these parasites. These are forms of cutaneous epithelioma due to psorospermia. The parasitic nature of the disease was first pointed out in 1889 by Darier, of the Hospital St. Louis in Paris, who calls it follicular psorospermiosis. The small oval parasites were found in large numbers in the sebaceous follicles and in the deeper layers of the rete Malphigii, which showed a marked tendency to proliferation and infiltration of the deeper tissues. In the laster stages ulceration occurred.

L. Wickham of the Hospital St. Louis has since investigated six cases, finding parasites present in every instance. Inoculation experiments were unsuccessful. Cultivations in moist sterilized sand were attended with some degree of success, certain changes in the protoplasm being observed to take place. These changes remained absent when the cultures were mixed with powdered iodoform.—(*Archives de Médecine Experimentelle*, Jan. 1890.)

Bland Sutton (*British Medical Journal*, 1889) has described similar bodies in cases of mucous papillomata of the cervix uteri in monkeys. In these cases, however, the conditions did not appear to be malignant. The parasites were not detected in some cases of uterine cancer in the human subject.

Thoma (*Fortschritte de Médecine*, No. 11, 1889) reports having met with cell-like bodies apparently parasitic in nature lying within the nuclei of cancer cells.

It is possible that these may have escaped detection through

the close resemblance they bear to the histological elements; unless some method of cultivation and inoculation is discovered the microscopic appearances alone cannot be considered conclusive.

A contagious form of epithelioma also occurs in fowls, and in this L. Pfeiffer has recognized similar parasitic protozoa.—(*Zeitschrift f. Hygiene*, Bd. IV.)

Hanau of Zurich (*Fortschritte de Médecin*, 1889) reports the successful inoculation of a form of carcinoma affecting the testicles of white mice. He transplanted portions of the tumor into several other mice both subcutaneously and into the peritoneum.

Wehr (*Arch. f. Klin. Chirurg.*, Bd. XXXIX.) was able to successfully transplant minute portions of a medullary cancer from the prepuce of a dog into the subcutaneous cellular tissue of healthy dogs. The grafts attained the size of hazel nuts and then disappeared. In one case, however, secondary carcinoma was found six months later in the lymph, glands and spleen.