they are free from many sources of error to which his were liable. As regarded the foetus, however, the results of these experiments were quite different, for Dr. Savory states that the foetus invariably had strychnia cramps, whereas Dr. Gusserow never observed these, and believes, on the contrary, that the embryo enjoys a peculiar immunity from the effects of this poison. Hoping to elucidate the matter more fully, Dr. Gusserow varied the experiments by injecting strychnia into the cavity of the amnion alone, and not into the foetus. This he did in ten cases, and the conclusion at which he arrived was that the passage of matter from the liq. amnii to the mother was almost nil. In seven of these cases, in which an exceedingly strong dose of strychnia was injected, there was no sign of poisoning even after forty-five minutes. When, however, the fluid was allowed to escape into the peritoneal cavity, it caused most violent cramps in about three minutes, which rapidly proved fatal. In the other three cases symptoms of poisoning set in after about the same interval as if the poison had been injected into the foetus. In these cases the foetus lived, whereas in the other seven it rapidly died. Evidently it was the medium through which the poison reached the mother's system, for in the three cases in which it lived the symptoms developed slowly; and if here only a simple diffusion took place, why should spasms have been altogether absent in the other seven cases?

The foregoing extracts are from a paper (in the *Archiv. f. Gynäkologie*, Bd. XIII., Heft 1) by Prof. Gusserow, of Strasburg, and lately appointed Professor in Berlin. These investigations are most interesting to the physiologist. In a former paper, in 1871, he published his first series of experiments on this subject. His conclusions have been accepted in some of the best German works, but I have failed to find any notice of them in our English textbooks.

ART. VII.—*Abdominal Aneurism Diagnosed nearly Four Years before its Fatal Termination, by Examination per Rectum; Cardiac Disease; Enormous Weight of Heart.* By ROBERT SAMUELS ARCHER, A.B., M.B.

SEVERAL features in the following case may possibly prove interesting to the readers of *The Dublin Journal*:—In the first place, I would draw special attention to the enormous weight the heart

attained; and, secondly, to the method adopted to ascertain the actual condition of the abdominal aorta nearly four years before the patient's death. I refer to the diagnosis of abdominal lesions by rectal examination—the introduction of the whole hand and greater part of the forearm up the rectum, whilst the patient is under the influence of chloroform. By this means the under-surface of the liver, the kidneys, and other viscera, can easily be felt, and the existence of any tumour or other abnormal condition readily detected. This is a mode of exploration which I am not aware of being in common use in this country, but which is, I believe, a good deal employed at the other side of the Atlantic, and, if I recollect aright, was first practised in America. In this way Dr. Sands, of New York, determined the lesion in the present case beyond a doubt.

I append here the copy of a short account of the case given to the patient by the House Surgeon of the Hospital in which he was under treatment in New York. I have the original document, and there can be no doubt of its genuineness:—

“ROOSEVELT HOSPITAL, FIFTY-NINTH-STREET
“AND NINTH-AVENUE,
“NEW YORK, August 9th, 1874.

“The following is a short account of John Murphy's case while he was under treatment in the hospital:—

“Admitted April 3rd, 1874. At time of admission he was suffering from an aneurism of first part of axillary artery. There was a tumour just below left clavicle in the course of axillary artery; pulsation and bruit distinct; pain in supra-scapular region and arm quite severe. He stated that five weeks before admission the radial pulse suddenly stopped. No pulsation now in radial, ulnar, or brachial. Patient had also severe pain in lumbar region. He was given morphine to quiet pain, and kept still. The tumour (aneurism) gradually became smaller and harder, and about May 17th no pulsation or bruit could be found. The pain in back increasing, his abdomen was examined, and a murmur found, most distinct just above and a little to left of umbilicus. An examination per rectum was made by Dr. Sands, and an expanded condition of aorta, just above the bifurcation, found. Pressure was made by means of an abdominal tourniquet. Potass. iod. grs. xv. t. i. d. given, and morphine to ease pain. Elastic pressure was also tried, and at one time the pain became less, and the murmur less distinct. He, however, bore the pressure badly, and the pain again increased; the murmur also appeared to get more distinct.

“Patient being very anxious to return home, these facts were stated,

so that the surgeon to whom he applies may know something of previous history of the case.

“G. F. BLANVELT, M.D.,
“House Surgeon to Roosevelt Hospital.”

The patient had been a mariner, and was admitted to West Derby Union Hospital on Nov. 21, 1877. He stated that he was forty-nine years old, though he looked several years older. He was very loquacious, and seemed most anxious to give a correct account of his symptoms. He was pale and anæmic-looking, and a good deal emaciated. His chief complaint on admission was pain in the back, situated rather low down, and radiating round the loins. This, he informed me, was relieved by iodide of potassium. This pain was rather variable—at times almost entirely absent, at others very severe—and it certainly did seem to be eased by large doses of iodide of potassium. Pulse in right wrist, 108, collapsing, and suggestive of aortic disease. The left radial artery was hard and rigid, and hardly any pulsation could be felt in it. There was a distinct, distensile, rather diffuse impulse in epigastrium, increased by placing the patient on his hands and knees. A blowing murmur was heard along the spine, at the lower dorsal and upper lumbar regions, for the distance of from six to eight inches. The heart's action was feeble, and the area of cardiac dullness increased. A distinct blowing systolic murmur was heard about two inches above the umbilicus, which became double at the xiphoid cartilage, and was more distinct about two fingers' breadth higher up in the median line of the sternum. There was a systolic murmur at the apex, and muffling of the second sound. Over the aortic area the first sound was sharper than usual, and there was a distinct diastolic murmur. Congestion of the lower lobes of the lungs; legs and feet were swollen and œdematous. He said his “food seemed to stick at the pit of his stomach,” and he had continually to drink whilst he was eating solids, to enable him to swallow them. Shortly after admission his urine was found to be of a rich amber colour, reaction acid, spec. grav. 1028, and to contain a very minute quantity of albumen. During the time he was under observation he had several attacks of œdema of the lungs, accompanied by distressing cough, profuse frothy expectoration and orthopnoea. As a rule, he passed restless nights. On Jan. 1, 1878, the murmur along the spine was found to have assumed a double character, and on the 8th he complained of a pain situated about midway between the superior posterior spine of the ilium and the spinal column. On Feb. 5th, urine was high-coloured; spec. grav. 1016; reaction acid; no albumen. On the following day his pulse was 120; respiration 46 per minute. Fine and coarse crepitating râles were heard all over the chest, obscuring the cardiac sounds. About this time he “rambled” a good deal, and was incoherent in his speech. From

this he rallied till about the middle of April, when he gradually became much weaker, and died on April 19th, apparently from exhaustion.

Post Mortem Examination.—April 20—Rigor mortis absent; body much emaciated; no tumour could be detected by external examination.

Chest.—The left lung was connected with the parietes by long fibrous bands. The right pleura, both visceral and parietal layers, was thickened and adhering; anterior portion a good deal injected. There were pleuro-pericardial adhesions. The right lung was firmly attached to the diaphragm, and was a good deal disintegrated. Both lungs exhibited traces of congestion. The pericardium was a good deal injected externally, and somewhat thickened. The heart weighed about 48 ozs., and was much enlarged. The left auricle and ventricle were dilated, and the walls of the latter greatly hypertrophied. The inter-ventricular septum bulged to a large extent into the right ventricle. The mitral orifice was much dilated, admitting readily my four fingers. The curtains of the mitral valve seemed healthy, but were quite inadequate to close the mitral opening. The aorta was dilated, rigid from atheromatous deposit; its lining membrane rugose and uneven, covered here and there by plates of calcareous matter. The aortic valves were fairly healthy, but were quite incompetent to close the vessel. The valves of the right side of heart were normal, and there was no marked dilatation or hypertrophy.

Abdomen.—The visceral and parietal layers of the peritoneum were firmly united by strong adhesions, which here and there required the use of the scalpel to separate. The intestines were glued together in various places by adhesions. The upper surface of the liver was very firmly adherent to the diaphragm, and the corresponding portion of this muscular expansion was a good deal atrophied. The portion of the aorta corresponding to the first and second lumbar vertebræ was dilated into an aneurismal sac about the size of an orange, which was firmly adherent to the spinal column, and had deeply eroded the bodies of the two vertebræ mentioned above on their left lateral surfaces. The sac was almost filled with fibrinous clots.

The left axillary artery presented an enlargement just below the clavicle, consisting of a firm fibroid mass, without any passage through it; but just below the obliterated portion it was pervious, and two or three anastomosing branches opened into it.

In this case there would seem to have been, so to speak, a tendency to general aneurismal dilatation of the arterial system. For, in the first place, we have a distinct history of an aneurism of the first part of the left axillary artery, the consolidated sac of which was discovered after death; secondly, a well-marked aneurism of the abdominal aorta; and lastly, dilatation of the first stage of the

arch of the aorta, which had proceeded to a considerable extent, causing secondary lesions in the left side of the heart. I think it by no means improbable, had we searched carefully, that other vessels might also have been discovered to have been involved to a greater or less degree. It is a well-recognised fact that such dilatations do occur, and in the absence of any history of muscular strain, or other manifest cause, I am inclined to think this man must have been predisposed to such lesions of the arterial system. The heart was certainly the heaviest (48 ozs.) it has ever fallen to my lot to examine, nor can I call to mind any recorded case in which such an enormous weight was attained. It was more than three times as heavy as an ordinary male adult heart, and its great weight seems the more remarkable when we have regard to the general emaciation and the entire absence of any deposit of fat.

The pathological sequence of events in this case would appear to have been (1) an aneurismal dilation of the left axillary artery, followed by obliteration of the sac; (2) coincident with, or closely following, this—dilatation of the abdominal aorta, which proceeded to the formation of a true aneurism; (3) a dilated condition of the first part of the arch of the aorta, accompanying which was gradual and progressive incompetency of the aortic valves, also a certain amount of dilatation and hypertrophy of the left ventricle; then (4) enlargement of the mitral orifice, associated with necessary inadequacy of the curtains of the mitral valve to close the gap, and, as a natural consequence, still further dilatation and hypertrophy of the left heart, which was especially marked in the ventricle, whose muscular structure had proceeded to an enormous condition of compensative hypertrophy, and to which the excessive weight of the heart was mainly due.

In discussing the case with a medical friend, it was suggested that the peritonitis, evidences of which were detected at the autopsy, might have resulted from the introduction of the hand up the rectum, whereby some of the delicate fibres of the peritoneal covering of the gut may have been ruptured, and thus inflammation set up—probably, too, pressure by the tourniquet may have contributed somewhat to it. Whatever may have caused it, I certainly never saw as firm or more universal peritoneal adhesions. It would be well, I think, to keep in mind the possibility of peritonitis following on examination per rectum.