is now heated to expel a portion of the air, and a well-fitting rubber cap is applied while the tube is still hot.

Agar plate cultivations.—Agar plate cultivations, as is well known, are somewhat difficult to make, but by employing the following expedient modified agar plates may be prepared which will answer most purposes. A tube of sterile nutrient agar is melted, poured into a sterilised Petri's dish resting on a level surface, and allowed to set. A suitable dilution of the material to be examined is made in some fluid medium—sterile broth, water, &c. A few drops of this dilution are then poured over the sterile agar plate in the Petri's dish and allowed to run over the surface. The dish is placed in the incubator; the fluid soon evaporates, and the organisms are deposited on the surface of the agar and develop colonies. Several such modified plate cultivations should, of course, be prepared at the same time.

Staining sarcinæ and ascospores.—Professor Crookshank has long made use of the following method for staining sarcinæ, and none answers better. Cover-glasses are prepared in the ordinary way, care being taken to spread the film gently, so as to break up the sarcina formation as little as possible. After drying and fixing, the preparation is stained with Neelsen's solution of fuchsin for two minutes, rinsed in water, and then rinsed in alcohol (methylated spirit) for a few seconds, quickly rinsed in water again, dried, and mounted in Canada balsam. If the alcohol acts for more than a few seconds the whole of the colour will be removed; if for too short a time the divisions between the cells will be indistinct. A little practice is needed to hit off the right point. The same method may be used for staining streptococci and many other bacteria, and is especially indicated when much débris is mixed with the organisms; this is readily decolourised, and clean preparations can be obtained. Sarcinæ may also be stained in a similar manner, substituting Löffler's methylene blue solution for the Neelsen's fuchsin, and staining for fifteen minutes, then rinsing in water, alcohol, &c., as before. Exceedingly beautiful double-stained preparations of the ascospores of yeasts may be obtained by the following method. Cover glasses are prepared in the ordinary way and are stained with Neelsen's solution of fuchsin for two minutes, rinsed in water, decolourised in alcohol for half to one minute, until the spores only remain coloured, then rinsed in water, counter-stained with Löffler's blue for five minutes, washed, dried, and mounted in Canada balsam. The spores are stained red, the unaltered cells, &c., blue.

Staining actinomycetes.—The Ehrlich-Biondi reagent is an admirable stain for sections of actinomycosis. The best results have been obtained by staining in the solution for about half an hour, decolourising in alcohol for some time until the sections become brownish, and then clearing and mounting. Bovine actinomycosis thus treated shows the "clubs" stained brown and sometimes a "mycelial" network, within the ring of clubs, stained green. With this stain the clubs could be readily demonstrated in sections of human actinomycosis, in which Gram's method failed to show them.

Examination of air.—Recently, for the bacteriological examination of air, Sedgwick's method has been made use of, and it seems to be the best of the many methods which have been suggested for this purpose. A glass tube of special form is employed. (Fig. 2.) This consists of an expanded portion (A B) about 15 cm. long and 4.5 cm. in diameter; one end of this is contracted so as to form a neck (A) 2.5 cm. in diameter and in length; to the other end is fused a glass tube (B D) 15 cm. long and 0.5 cm. in diameter. The neck of the tube is plugged with cotton-wool, and two wool plugs are inserted in the narrow tube, one at its open end (D), the other about 6 to 8 cm. from the wide part (C). The whole is then sterilised. When cool, the narrow part of the tube, from its origin at the wide part down to the first plug (B C), is filled with powdered cane sugar (No. 50, B.P. gauge), which has been carefully dried and sterilised at 120° to 130° C. The tube is again sterilised at 120° to 130° for two or three hours, the greatest care being taken not to melt the sugar. After sterilisation the tube is ready for use. The wool plug is removed from the mouth (A), and a measured volume of air is aspirated through the layer of powdered sugar by means of a small hand air-pump, the volume of air being measured by the displacement of water in a flask. Having taken the sample (5-20 litres), the wool plug is replaced in the neck (A). The powdered sugar is then shaken down into the wide part of the tube (A B), and 15 c.c. of melted sterile nutrient gelatine are poured in. The powdered sugar readily dissolves in the

melted gelatine, and when solution is complete a roll-culture is made in the tube, just as in Esmarch's method. The tube is then placed in an incubator at 20° C., and the colonies are allowed to develop.

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A CASE OF SERO-PURULENT CYST, PROBABLY OF THE RIGHT SEMINAL VESICLE.¹

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A MAN twenty-four years of age presented himself at the French Hospital, New York City, on March 10th, 1894, complaining of a swelling in the lower abdomen. His previous history was as follows. Since he was twelve years of age, when he was confined to his bed for about one week with a fever, he had always enjoyed good health until last summer, when he was suddenly seized with a severe pain in the abdomen and chest, accompanied by a difficulty in breathing. The attack lasted but a short time, and was evidently due to indigestion. Since then he has had two other attacks of a similar nature. On Feb. 10th, about ten days after his last attack, he noticed a tumour about the size of an orange in the lower part of the abdomen pushing up from behind the pubes. This caused him no inconvenience, and would have been overlooked had it not been for the fact that it continued to increase in size. It grew to be as large as a cocoanut, and then larger, until it had obtained the size of an adult head. It then began to inconvenience him somewhat by giving rise to a heavy dragging feeling. His appetite began to fail, and although the functions of his various organs were intact, and the pressure of the tumour did not interfere with the powers of urination or defecation, he decided, nevertheless, to enter the hospital to see what could be done for him. On examining the tumour externally, inspection revealed a swelling about the size of a Rugby football extending up from, and out of, the pelvis, to a point above the umbilicus, closely resembling in form and outward appearance a gravid uterus in the seventh month of pregnancy. Its walls were very tense on palpation, and had an elastic feel. It was flat on percussion. My impression on first seeing him, as I could at that time obtain no history, the patient being unable to speak any other language than modern Greek, was that he had a largely dilated bladder and was suffering from retention of urine. I accordingly catheterised him, but could draw off only three ounces of urine in all, the tumour remaining the same. I then examined him bimanually—that is, with the finger of one hand in the rectum and the other hand on the abdomen—and found the tumour wedged tightly down into the floor of the pelvis, conforming in shape with the pelvic cavity. The prostate and seminal vesicles could not be made out with any distinctness. A vibration was noticed like the wave transmitted from one side of an abdomen tensely dilated with fluid to the other, or through any other tensely dilated fluid tumour. On the following day he was examined with the cystoscope by Dr. J. R. Hayden and myself, and, while the left ureter secreted normally, the right one could not be brought into view. The tumour was then explored by means of an aspirating needle at several points, and specimens of fluid varying in colour and consistency were withdrawn, some being thin and clear, while others were thick and "pea-soupy." We examined them hastily, and found that they were all highly albuminous and contained pus. It, therefore, seemed probable that we had to do with a multilocular cystic tumour, arising possibly from a floating kidney which had become lodged in the pelvis. Accordingly an operation was decided upon, and on March 15th the patient was etherised, and an incision was made through the abdominal wall in the median line, four and a half inches in length, from the symphysis pubis towards the umbilicus. The abdominal wall having been cut through, we came to a pouch of a greyish-pink colour extending up from the pubis towards the umbilicus, about three and a half inches in length. It was shrivelled and corrugated, though not

¹ Presented before the New York Society of Dermatology and Genito-urinary Surgery, April 15th, 1894.

atrophied, and was not covered by peritoneum. This puzzled us for a moment, but we soon found that it was the empty upper part of the bladder, which was pushed upwards by the tumour and pulled toward the umbilicus by the urachus, which was stretched tightly over the growth. The incision was then increased to eight inches, and the peritoneum from its juncture to the bladder wall was slit up with the scissors, revealing a tumour about twenty-three or twenty-four inches in circumference and having a dirty greyish black wall. The parietal peritoneum was easily shelled away from the tumour wall on either side, rendering further exploration more easy. The growth seemed to spring from out of the pelvis, to have started from the posterior wall of the bladder, and to spread over its posterior and lateral surfaces. It was closely adherent to this viscus at every point, as though growing from it. Above, it was covered by the omentum, which was spread over and adherent to it, although there was no one point thicker than another evidencing the origin of the tumour. Examination of the region about the growth revealed both kidneys as well as the other abdominal organs *in situ* and normal, and the tumour not adherent to any other structures than the bladder and floor of the pelvis below and the omentum above. A trocar was then inserted into the tumour, and quite a large amount of yellowish fluid escaped. It was then removed, and a vertical incision large enough to admit the little finger was made through the tumour wall, when it was noticed that a fine membranous-looking tissue of milky whiteness was presenting itself at the opening. This was seized with the thumb-forceps and drawn out until it could be readily caught with the fingers. The incision was then increased slightly in length, and the mass was withdrawn slowly and with a slight rotary movement. While it was being drawn from the interior of the tumour cavity in this way it resembled a white membranous rope, as if several strands of "tape-worm" were being drawn out twisted together. This rope of membrane, from twelve to fourteen inches in length when floated about in a basin of water, unwound and untangled itself until a membrane was revealed corresponding in shape to the interior of the tumour cavity, which it had evidently lined. It was of a very delicate texture and several lines in thickness. This was followed by a gush of a thick, green fluid, which was syphoned out and caught in glass graduates. As nearly as could be estimated, about three quarts of this fluid escaped. The wall of the tumour was then examined and found to retain its greyish black colour throughout. It was about one-third of an inch in thickness and very friable. Having emptied the tumour of its contents and thoroughly washed out its cavity with a solution of corrosive sublimate (1 in 5000), the question of extirpating its wall was entertained, but as it was so firmly adherent to the bladder and the other important tissues in the floor of the pelvis it was thought best to leave it in place. Accordingly an elliptical piece was cut away from either margin of the vertical incision made down through the middle of the tumour anteriorly, and a gauze drain was inserted into the tumour cavity, the walls of which were stitched together above and below the drain. The skin and the muscular and peritoneal walls on either side were then brought together with deep sutures in the median line, leaving a space for the gauze drain to protrude. The suture immediately above and the one below the drain were passed through the tumour wall to hold it firmly to the abdomen until adhesions had formed. The patient was then placed on a liquid diet, with orders that he be catheterised every six hours, and that the present dressings be allowed to remain on for forty-eight hours. The next day the patient's temperature was 101° F., but went down to normal in two days. After the first forty-eight hours the dressings were changed every twenty-four hours, a fresh gauze drain being inserted into the cavity at each dressing. A yellowish residue drained away, which diminished gradually in amount. The patient's bowels acted, and he passed urine without aid on the third day, since when his functions have been normal. One month after the operation the tumour sinus had closed up, until it was but about an inch in length and a quarter of an inch in diameter. The patient was up and went out daily. The percussion note over the abdomen was normal. Examination per rectum revealed a thickening extending from just above the prostate upwards on to the posterior wall of the bladder, more marked on the right side, and occupying the region of the right seminal vesicle.

No further cystoscopic examination had been made. The membrane and fluid contained in the tumour were examined

by the pathologist to the hospital, Dr. G. G. Van Schaich, who made the following report. "The specimens sent me for examination consist of: 1. A fluid of a very pale straw yellow, albuminous after filtration, containing a very heavy sediment, consisting chiefly of white blood cells (pus) with a few fatty granules and a few crystals of cholesterine. No red disks and no hooklets. 2. A membranous substance of a hyaline nature, very poorly supplied with bloodvessels, occasionally showing some flat epithelial cells, mostly deformed and very easily detachable. The structure itself consists of white fibrous tissue interspaced with large areas in which there exist neither cellular nor fibrous elements."

The absence of hooklets in the fluid puts an end to the possibility of the tumour being a hydatid cyst, which would strike one at first as possible, since writers frequently mention it as liable to occur in this locality. The different varieties of fluid obtained by the exploring needle I can only account for either by the needle having found different states of consistence at different depths, or from the fact that the thin fluid, which was near the surface and obtained at the first puncture, was thickened by the patient suddenly moving and changing his position prior to our drawing the second specimen. There are also two other features in the case that are surprising. One is the rapidity in the growth of the tumour before the operation and the rapid atrophy of the wall afterwards; the other is that, notwithstanding the growth, size, and position of the tumour, there was no change in the frequency or the power of urination and defecation. The latter, however, is based on the statement of the patient, who is evidently not of an observing nature and with no fixed habit in attending to the calls of nature.

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OBSERVATIONS ON ACUTE SUPPURATION OF THE MASTOID CELLS.

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IN a short paper¹ that I have written I have mentioned that, though the directions given by Barker and Birmingham for opening the antrum mastoideum are sufficient, it is desirable to define more accurately the term "posterior border of the auditory meatus" which is employed in the topographical directions for this operation. In infants there is no definite posterior border, and in adults it is often indistinct. In adults and in many children there is a well-marked ridge, the supra-meatal spine at the upper and posterior part of the meatus. The most prominent part of this ridge is placed vertically above the posterior extremity of the tympanic bone. The latter point is always easily found at every age, and I think it would be of service to define the posterior limit of the outer end of the external auditory meatus as synonymous with this vertical line ending below in the posterior extremity of the tympanic bone. Further, in many children—and I believe in all adults—there is behind and above the supra-meatal ridge a depression perforated by many vascular foramina. This depression probably owes its origin to the development of the antrum, and in over 200 temporal bones of adults and in many of children I have found that through it, in a direction inwards, forwards, and downwards, is the easiest path to the interior of the antrum. In many cases where disease is of old standing and there is extensive necrosis, or where cholesteatomata are present in the tympanum it is preferable to open up both the antrum and the tympanum by gouging away the whole of the posterior wall of the meatus, but in some cases it is, I believe, sufficient to open the antrum. One of the cases on which I have based this opinion I will now briefly relate.

A male child aged two years and three months was brought to the North-West London Hospital. The child had had scarlet fever nine months before and had at intervals complained of earache, but discharge had only been noticed for seven days. Swelling of the ear and marked illness then set in, and the mother took the child to Mr. M. A. Dutch, who sent it immediately to the hospital. On admission there were marked swelling behind the ear and displacement of the pinna outwards and downwards. There was no symptom

¹ Journal of Anatomy and Physiology, vol. xxvii.