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CANADA MEDICAL RECORD

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Original Communications.

PROCEDURE IN POST-MORTEM MEDICO-LEGAL EXAMINATIONS.

By CHARLES A. HEBBERT, M.R.C.P., London,

Lecturer on Anatomy, Bishop's College, Montreal.

(Continued from page 11, January 1899.)

When the anterior wall of the thorax on the lines above indicated has been removed, the thoracic organs are examined in situ as to their general appearance and actual and relative position. By this we note the usual anatomical arrangement, or any divergencé from it, such as an increase or decrease in the volume of the lungs or in the area of the pericardium, or displacement or external tumor of either of the organs. The transverse arch of the aorta with its issuing vessels and the large veins must also be inspected. Then the pleural cavities are investigated by passing the hand around the lungs, and if adhesions be present they should gradually be broken down, and the lungs raised to discover the normal or abnormal contents of the cavity. There is generally a small amount of serous fluid in the cavity, and almost always some adhesion, either soft or firm. The inner surface of the ribs can also be felt at this time, though the proper examination of these comes after the removal of the organs. The pericardium is then seized by a pair of forceps and opened by a knife or scissors obliquely from above down; some make a crucial incision; the apex of the heart is then taken hold of and raised from the cavity in order to

see the amount and character of the pericardial fluid. It should also be noted whether the heart is contracted on one or both sides, or if the walls are flaccid, *i. e.*, whether the heart has stopped in systole or diastole. It must always be remembered that, after rigor mortis has set in, the muscles preserve the same condition and shape as at the time of dissolution; and that rigor mortis itself does not alter the shape of muscles as regards contraction; and this applies both to the heart and to the general voluntary muscular system. The further exploration of the chest differs somewhat in different hands and under varying circumstances. It may be advisable to remove all the organs together; and if this is to be done, the median incision is carried up to the chin and the muscles of the floor of the mouth cut round from their attachments to the jaw and the tongue drawn down, the constrictor muscles cut from the spine, and then, by cutting the vessels and nerves at the root of the neck, separating the thoracic aorta and œsophagus from the dorsal spine, the œsophagus being first tied below by a string and severed above the ligature, the thoracic aorta being cut at the same level, the lungs, heart, pericardium, aorta and œsophagus can then be removed as a whole and examined at leisure in detail. First examine the tongue and remains of the soft palate and pharynx, the epiglottis and rima epiglottidis; then cut down the œsophagus in the middle line, and, after inspection of this structure, open the larynx from behind by a median cut, and carry this on down the trachea to its bifurcation. The heart and aorta must be removed from the lungs by section of the roots of the lungs. The bronchi, to the third or fourth divisions, are to be cut by scissors or bistoury, and inspected. The lungs are examined by making long incisions from apex to base, so as to expose the greatest possible surface. This can be done preferably by the thin, long, broad, brain knife, but the ordinary section knife is commonly used. Sections in different directions are then made to discover any local lesion or pathological change. The heart is next examined in the following routine. To test the competence of the semi-lunar valves, the heart must be

separated from the aorta by a section through the middle of the ascending arch, and a stream of water run into the orifices of the pulmonary artery and aorta before the heart is opened. To test the mitral and tricuspid competence the apex of the heart is cut off to open the ventricles, and the openings held under the stream of water. After the organ has been weighed and the competence of the valves tested, it is taken to the left hand with the anterior surface above, and, after careful inspection of the visceral pericardium, the right ventricle is opened by a V-shaped incision with blunt pointed or bistoury scissors; one blade of the scissors is then passed into the cavity, and a cut made on the extreme right of the inter-ventricular septum, through the left side of the pulmonary artery, by this means showing all three semi-lunar valves entire. The contents and surfaces of the right ventricle and pulmonary artery are now viewed. To open the right auricle, the scissors are directed up the posterior surface of the ventricle through the tricuspid valve, opening the venæ cavæ inferior and superior, and the right auricle is inspected. The left side of the heart is examined in a similar manner, but, to preserve all three of the aortic valves entire, the cut must be directed upwards about one-third of an inch to the left of the septum. The left auricle is opened as on the right side, the pulmonary veins being on either side of the incision. The thoracic aorta is then opened from below upwards, right through the arch, to join the cut made, opening the ascending arch to expose the valves. After the cavities have been inspected and the valves examined, the thickness of the walls should be measured by a steel rule and these compared with the normal dimensions. The circumference of the valves must also be measured, for the method of inserting one or more fingers through the orifices, though instructive to an expert, and suggestive of the actual facts, is neither sufficient nor scientific. It is only by very careful measurement that we can determine with any degree of accuracy such conditions as dilatation, hypertrophy, atrophy, etc., etc. It must be borne in mind that the stopping

of the heart in systole or in diastole will modify the measurements of the muscular structure, these being greater in the former state than in the latter. The circumference of the valves, however, is in no wise altered by muscular contraction or rigor mortis.

The above course in examining the thoracic viscera is not the one usually adopted. The heart may be opened in situ, or removed by being firmly held in the left hand around the base, including the ascending arch of the aorta, the pulmonary artery, pulmonary veins and venæ cavæ, and by the knife cutting through these structures. The organ can then be taken out and placed in a clean dish for subsequent examination, which does not differ from that already described. It is sometimes customary to open the heart before removal ; and this is done in the following sequence : the right auricle is opened by a cut running between the venæ cavæ and the cavity explored ; the cavity of the right ventricle, by a cut on the same line as the above, the two being united after the removal of the heart from the body. The left auricle, by a cut between the pulmonary veins down towards the ventricle, which is opened by a cut on this line, and afterwards the two made continuous to expose the mitral valve. The pulmonary artery and aorta are opened by the knife on the lines before mentioned ; the pulmonary, along the right side of the inter-ventricular septum ; and the aorta, in a line one-third of an inch to the left of the septum. The objection to this proceeding is that there is no opportunity of discovering the competence of the auriculo-ventricular valves, and the quality, amount and quantity of the contents can be as easily estimated after removal of the organ entire as before its incision.

There does not seem to be any paramount advantage in opening the heart in situ, and as regards the detection of the fluidity or coagulation of the blood, it is of little value. The one point in favor of this procedure is the opportunity afforded for the measurement of the quantity in the different cavities ; and it is obvious that the estimation of the usefulness of this is open to several fallacies ; the actual capacity of

the chambers being dependent on the condition of the muscular walls, whether in diastole and systole, and also on the pathological alteration due to dilatation, hypertrophy, atrophy or aneurism of the walls. There may be various combinations of these and other changes. Again, the fluid blood only could be withdrawn, and the character of the clot with regard to size, colour, consistence and adherence to the walls, interlacement with the chordæ tendineæ, and connection with clots in the great vessels can only be determined when the heart is completely opened. On the whole, there does not appear to be much to recommend this course, though it is sometimes adopted by eminent authorities ; and on suspicion of such rare conditions as the so-called embolism of the pulmonary artery, it might be of advantage to open up all the large vessels and cavities before the organ is cut out of the thorax.

The lungs are then removed by completing the section of their roots and examined in detail as before suggested.

It is not as a rule necessary to weigh the lungs, though for the completeness of the examination this is sometimes done.

The thorax is to be carefully sponged out and the amount of fluid estimated or measured, and the remaining parts of parietal pleura examined, and the ribs followed individually round their curves and any fracture or abnormality observed. This more complete examination of the thoracic viscera is especially desirable in the cases of newborn children, or in suspected deaths from corrosive poison or in such conditions as œdema of the glottis from injury or disease.

When the examination of the thorax is completed, the abdomen is next taken in hand. In the majority of post-mortems the stomach is not at first examined, but, when poisoning is suspected, it is the first organ removed ; in fact, some pathologists take it out before the thoracic viscera are exposed. If the œsophagus has already been tied in the thorax, this need not be done, but if not, it should be tied above the cardiac end of the stomach and severed above the

ligature. The ascending part of duodenum is then first tied near the pylorus, and a second ligature applied about one-inch to the right of the first, and the intestine is cut between the two knots. The stomach is then detached from its connection with the greater and lesser omenta, and from the spleen, and removed from the body. It should be opened along the lesser curvature, and its contents, if any, emptied into a glass jar previously cleaned by distilled water, and, after a cursory inspection, hermetically sealed in the jar for subsequent analysis. The stomach itself is placed in a second jar, after examination of its walls, and similar care taken as to cleanliness of the jar. In cases of disease or injury, of course this procedure is unnecessary, and the organ is examined at once.

The intestines may then be removed by cutting the mesentery from its attachments to the vertebral column, and the ascending, transverse, descending and sigmoid mesocola from their connections, and after applying two ligatures round the upper third of the rectum at an interval of two inches, and cutting the gut between the two, the alimentary canal from the duodenum to the rectum can be taken out. If, however, it is requisite to determine the patency of the common bile duct, which opens into the second part of the duodenum, a probe should be passed into the duct before the intestines are taken out—or, better, the probe-pointed blade of scissors—and the duct cut up. The intestines are, after removal, washed out, and their connection severed with the various folds and processes of the peritoneum. They are then opened with the enterotome along the line of the junction of the visceral and parietal peritoneum, thereby avoiding Peyer's patches. In many cases the intestines are not examined in this order, and the liver, spleen and kidneys are first removed.

The liver is taken out by cutting through the coronary, suspensory and left lateral ligaments, which attach it to the diaphragm, and then cutting the lesser omentum, and the structures between the liver and stomach in that fold, namely, the hepatic artery, portal vein and hepatic duct. To examine the liver, sections are made through the whole substance in

long or transverse axes as occasion serves, about one-half an inch wide ; and, again, it is to be observed that as large a surface is to be exposed as possible, and this is best accomplished by a long broad-bladed knife. In cases of cicatrices, syphilis, or tubercle, etc., of course the sections must vary with the appearances found. The weight is taken before section.

The spleen is readily severed from the splenic omentum, and is first of all weighed and examined as to its normal anatomical shape, the presence of one or more notches, the entrance of the vessels into the hilum and the presence, if that be the case, of spleniculi. The substance is then examined by sections through the organ, and any increase of the trabeculæ first noticed. The spleen pulp is then examined as to its consistence, color, the undue prominence of the malpighian bodies and excessive or diminished vascularity. As the spleen is often the seat of miliary tubercle in general tuberculosis, it is important to examine for these bodies, and distinguish them as far as possible from the normal malpighian bodies, which they somewhat resemble to the naked eye. The weight and measurements of the spleen are often very important aids in the determination of the cause of death, as for instance in leucocythemia, chronic malarial affections, especially when associated with hepatic abscess, typhoid fever, ulcerative endocarditis or albuminoid changes, as in chronic suppuration.

The kidneys and suprarenal capsules are taken from their beds of fat close to the vertebral column, the organs lying obliquely with the upper ends directed inwards. The peritoneum covering them is cut by a semi-lunar incision, and the organs raised from their places and the renal vessels cut. After separating the suprarenal capsules, the kidneys are opened along the convex border through the whole substance, and the two halves laid flat with the inner surface upwards. After the examination of the cortex, medulla and pelvis, the capsule is stripped off and the external surface observed. The ureters may then be opened from above downwards to the bladder by the probe-pointed scissors.

The pancreas is examined after removal of the intestines, though except in such cases' as cancer involving its substance or spreading from the stomach, or in abdominal aortic aneurism, this organ is not often taken out and is of little value as a rule in medico-legal inquiries.

In the case of a male, after the opening of the ureters, the bladder and prostate, with the lower end of the rectum, can then be removed and examined.

If the case should be one involving the female generative system, or there be any suspicion of unlawful interference with any of the pelvic organs, very great care is to be observed.

First, take the case of a supposed rape in a female child or adult, or of the procurement of criminal abortion on a woman. The external organs must be very gently handled by the fingers and no instrument introduced. After inspecting and examining the vulva, the labia are to be separated and the orifice of the vagina with the clitoris noticed. The organs may then be removed from the body. To affect this, continue the central body incision through the Mons Veneris to the vulva ; then cut the attachment of the recti and internal oblique muscles, etc., to the crest of the pubes, and saw through the rami of the pubes on either side from above inwards and downwards, and remove the bodies of the pubes by dissecting it from the anterior ligaments of the bladder and the levatores ani muscles.

The bladder, vagina, uterus and ovaries, with the broad ligaments and appendages, can be now taken out with the lower part of the rectum. The bladder is first opened and then the vagina along its anterior wall. After inspecting the uterus, this organ can be cut into either from without along the anterior median line, or from within by a bistoury or scissors. It is better to run the blade of the bistoury or scissors along a director, so as to avoid any unnecessary damage to the internal walls. The ovaries must then be examined with the Fallopian tube and broad ligaments. The presence of the corpus lutea of pregnancy and menstruation should be carefully noted.

To open the skull, the scalp is first divided by the knife from behind the ear at its lowest border, running directly over the vertex to a similar position on the other side ; the scalp is then separated from the pericranium and temporal ascia, forwards and upwards, until the whole vault of the skull is exposed. The inner aspect of the scalp is first examined for ecchymosis, as blows on the head do not always produce external evidence of bruises on account of the hair and the density of the three upper layers of the scalp. Moreover, the scalp as a whole moves freely over the skull, and injury to it would not necessarily correspond in position to an injury to the bones. The temporal fasciæ are then divided by a single cut, obliquely downwards from the top of the temporal fossa and on a line immediately above the frontal eminence across the temporal fossa to a point above the ear. From this point the pericranium is to be cut upwards and backwards to the apex of the lambdoid suture, and in front across the top of the forehead.

The bones of the skull are to be sawn through on lines corresponding to these superficial cuts, the two lateral anterior cuts being joined just above the frontal eminences. The bones are to be carefully sawn through so as not to injure the dura mater or brain. The chisel is of use in chipping through any hard part of the skull, but in medico-legal cases it is always important to remove the calvaria by the saw. This is so important that it should never be neglected, as, where a fracture of the vault or base of the skull is suspected, the use of a hammer and chisel may cause a fracture which might interfere with a proper determination of the original condition.

The wedge-shaped piece of bone is then removed by first introducing the wedge end of the head of the hammer into the groove made by the saw, and prying the parts asunder ; the hook on the end of the hammer is then introduced and the calvaria is torn from the dura mater, which has a less firm attachment to the vertex than to the base, except in certain conditions sometimes met with.

After the skull cap has been removed, the dura mater is seen and examined ; the appearance of the veins and the

condition of the superior longitudinal sinus noted as to its undue distention or normal fullness. This sinus is then opened by a pair of sharp-pointed scissors from its origin at the foramen cæcum to the base at the junction with the lateral sinuses in the torcular Herophili. The object of this is to determine the character of the blood within the sinus, whether fluid or clotted.

The next proceeding is to expose the surface of the brain by cutting through the dura mater on lines corresponding to the cranial incisions on either side, and then by cutting the attachment to the crista galli. This membrane can be stripped from the surface of the brain. Along the margin of the great horizontal fissure are seen the Pacchionian bodies. These are found both on the inner and outer surface of the dura mater, as well as on the pia mater, and they must not be confounded with tubercular deposit. The latter is invariably found at the base of the brain in connection with the arteries, especially at the circle of Willis, though tubercle in some cases may invade the vertex. The appearance of the two are essentially different, the Corpora Pacchionii being either enlarged conditions of the arachnoid villi or a pathological fibroid change, due to the *impediment* of the circulation in this part ; while the tubercular bodies are small seed-like excrescences, soft and friable in nature and minute in size. The Pacchionian bodies vary in size from a pin's point to that of a pea.

The dura mater is then inspected. The condition of the vessels, showing either normal fullness, acute injection, an anæmic state or venous congestion, is noted.

The brain is then removed by placing one hand under the frontal lobes and raising it from the orbital plates, the olfactory nerves being raised at the same time ; then the optic nerves, the internal carotid arteries and third nerves are cut ; the tentorium cerebelli is then cut round from its attachment to the clinoid processes, along the margin of the petrous portion of the temporal bone to its junction with the occipital bone, this same cut severing the fourth and fifth nerves ; the sixth nerve is seen internal and below this fold

of the dura mater as the brain is raised ; the seventh and eighth are then cut at their entrance to the internal auditory meatus ; and below these the ninth, tenth and eleventh nerves at their exit through the foramen lacerum posterium ; and the twelfth nerve is cut at the opening of the anterior condyloid foramen.

The knife is then thrust into the spinal canal, and the cervical portion of the cord, with the vertebral arteries, and the cervical part of the spinal accessory nerve, are cut through as low as possible, and the brain, including the medulla and upper part of the cervical region of the cord, removed.

After the removal of the brain, the organ is placed in a clean dish for examination ; but, before this is carried out, the base of the skull should be inspected and all appearances noted ; and then the basal dura mater stripped off, after the opening up of the sinuses at the base of the skull.

The examination of the brain begins with the external envelopes, the attention being directed to the amount and character of the subarachnoid fluid both on the surface and at the base ; and the appearance, adherence and condition of the pia mater, together with its vessels. In this examination of the brain, as a rule, it is sufficient to remove the pia mater from the base and to note the vessels of the circle of Willis and the main cerebral arteries ; but, in cases of injury to or disease of the cortex of the brain, it is necessary to remove the whole pia mater. This can be readily done at the post-mortem, and most easily under water in a vessel deep enough to contain the organ. This is followed by a minute external examination of the lobes, convolutions and fissures of the cerebrum and cerebellum. Careful measurements must always be taken of tumors, injuries or bruises. The lateral ventricles are then opened by cutting the corpus callosum on either side at the margin of the gyrus fornicatus. The fluid seen is noted as to amount, colour and consistence. The fornix and corpus callosum are then raised by a cut just behind the fifth ventricle and thrown backwards, thus exposing the third ventricle, with the corpora striata, optic thalami and

velum interpositum. The vessels of this infolding of the pia mater with the choroid plexuses are then to be noticed. The fourth ventricle can then be opened by cutting through the centre of the cerebellum from above downward, the same cut passing first between the corpora quadrigemina on either side and opening the iter.

The internal structure of the cerebrum is then examined by making sweeping cuts from before backwards through the cortex and white matter, downwards to the lower border of the basal ganglia, each section exposing the whole surface of the brain at its own level, the slices being about one-third of an inch thick. The crura are then cut through, and the cerebellum, pons varolii and medulla separated from the cerebrum. A median section is then made through the pons and medulla, and afterwards transverse sections (though some prefer to make the transverse cuts alone) about one-twelfth to one eighth of an inch apart.

The cerebellum is examined by similar cuts, either transversely or vertically made.

The natural sequence in the autopsy is to next examine the spinal cord, though as a matter of practice this examination is postponed until the last, and, as before said, is only occasionally carried out in medico-legal inquiries when the cause of death is obscure and where the organs have to be preserved for analysis, or in pathological work when no organ should be ignored. To take out the spinal cord the body is placed on its face, with a block under the chest in order to throw the head down and forwards, and to arch the back. A medium incision is then made through the skin from the base of the skull to the lower lumbar region, and the tissues cut close to the line of the spinous processes as far down as the laminæ. These are then sawn quite through, the saw being directed a little obliquely inwards, until the bony canal is reached. It is important to saw these bones through completely, taking care to avoid injury to the cord itself. By this process the removal is materially expedited, and there is less chance of the destruction of the tissues internally, which might be the result of the use of forceps or chisel.

The posterior occipito-atlantoid ligaments are then cut and the ligaments between the spines and laminae of the first and second lumbar vertebræ. The ligamenta subflava on either side of the spines are to be cut by a knife if they have not already been severed by the saw. The posterior segment of the vertebral canal is now raised, and removed by a pair of bone forceps. Some examiners prefer to cut all the laminae with a curved, strong, specially designed spinal forceps, but the use of the saw is the safer practice.

As soon as the spinal dura mater is exposed, it should be examined in situ, to discover any unusual bulging from within or unnatural appearances without. The cord and its membranes can then be removed together, or the dura mater can be slit up before removal of the cord, and the appearance of the arachnoid and pia mater noted. Only a general examination of the vessels is now made, as the determination of their condition is only to be decided by the microscope. Unless there is evidence of some gross lesion, such as hæmorrhage above or beneath the dura, or tumor either of the membrane or bone, or disease of the vertebræ, it is not necessary to open the dura mater before removal of the cord.

The cord is removed by sections of the nerves at their entrance into the intervertebral foramina. The dura mater is then stripped off and the cord cut by transverse sections about one-fourth of an inch apart, and, after an inspection, of the surfaces, the segments are to be placed in some preservative such as Muller's fluid, permanganate of potash, or alcohol.

CASE I.

Post-mortem made 12 hours after death at 10.30 a.m., 19th of Nov., 1894, on Stephen Campobranca, about 40, an Italian.

Rigor mortis was present and the dependent parts showed slight purplish discolouration. The body was that of a well-nourished, muscular man, of dark complexion, with strongly marked aquiline features, black hair and moustache, the eyes brown and pupils moderately dilated, the forehead high, narrow and receding, the mouth well shaped and small.

The teeth were regular, but discoloured, and the lower row appeared to be ground down by friction. Over the inner third of the left eyebrow was a small circular wound, one-fourth of an inch in diameter, with ecchymosed black edges. The left side of the face and forehead showed a number of black pigmented spots, as if from gun powder, occupying a space of five by four inches. On the left side of the prepuce of the penis was a circular cicatrix about half an inch in diameter. The lymphatic glands of both groins were enlarged and hard. On the first metacarpo-phalangeal joint of the right hand was a clean incised wound extending from side to side. There was a small bruise in the first joint of the thumb.

Head.—The scalp was then removed and the opening in the left supraorbital region was seen to correspond to an irregular opening in the skull immediately above the supraorbital notch, and situated one inch from the median line of the forehead. This opening was an irregular oval in shape, measuring vertically seven sixteenths of an inch and transversely six sixteenths of an inch. Posteriorly the right parietal region of the skull under the scalp was covered by a black clot of blood. There was a triangular comminuted fracture of the parietal bone just posterior to and below the right parietal eminence. This opening was nearly equilateral, the greatest measurement being one inch and the lowest fifteen sixteenths of an inch. This opening was bevelled above internally and below externally. At the lower part of the opening a small piece of brain protruded through a hole in the dura mater, and on the inside of the scalp was an oval bullet of 32 calibre somewhat scratched and flattened. The distance between the two openings was estimated at about five inches and three-quarters. The skull cap was then removed, and the dura mater was seen to have perforations in front and behind, corresponding to the wounds of the skin and skull. The whole of the parietal lobe and a portion of the occipital lobe were covered by a thin subdural black clot. The brain weighed forty ounces. There was a small opening about one-third of an inch in diameter in the left superior frontal

convolution, just above its junction with the first orbital convolution. On further examination of the brain, it was found that the opening traversed the brain obliquely upwards and to the right, destroying the right side of the rostrum of the corpus callosum, then entering the gyrus fornicatus of the right hemisphere, destroying the lenticular nucleus of the anterior portion of the internal capsule, and making an exit through the lower gyrus of the supramarginal convolution. The path of the missile was five and one-half inches long, and was marked by softened, red, ecchymosed brain tissue. The posterior opening was larger than the anterior, but too much softened to be measured.

Thorax.—The lungs somewhat overlapped the pericardium. There were some easily broken down adhesions of the back of the right lung. The heart weighed fifteen ounces and was flaccid; the cavities containing a small quantity of black fluid blood. The wall of the left ventricle measured seven-eighths of an inch in thickness; the right, three-sixteenths of an inch. The opening of the aorta was two inches and three-quarters in circumference; that of the pulmonary artery, three inches; the mitral opening, three inches and three-quarters; the tricuspid, four inches and a-half. About three-quarters of an inch above the aortic valves the vessel was dilated and pouched, the circumference being three inches and three-quarters. The inner wall was irregular and marked by atheroma; probably syphilitic.

The lungs were of good volume, filling the pleural cavities. The left lung overlapped the heart. The anterior portion was emphysematous. The bronchial walls were soft, reddened and swollen, and the posterior portions of the lungs were congested and full of black, frothy bloody fluid.

Abdomen.—The intestines and other organs were normal in position, and a small amount of omental fat was noticed. The capsules of the kidneys stripped off readily, and each organ weighed five ounces. The substance was dark red in colour, firm in consistence and apparently normal. The spleen weighed six ounces, and was of a somewhat granular, mottled appearance on section. There was old perisplenitis.

The liver weighed fifty-one ounces, and was of a dark red color, and apparently normal in structure. The stomach contained about three ounces of partially digested food, apparently fruit and milk. The walls were of normal appearance. The intestines were normal in position and appearance.

Pelvis.—The bladder contained a few ounces of clear, pale urine. Its wall was normal.

Progress of Medical Science.

MEDICINE AND NEUROLOGY.

IN CHARGE OF

J. BRADFORD McCONNELL, M.D.

Associate Professor of Medicine and Neurology, and Professor of Clinical Medicine
University of Bishop's College; Physician Western Hospital.

MEDICINAL AND PROFESSIONAL ERUPTIONS CAUSED BY ARSENIC.

Cathelineau—*Archives Générales de Médecine*, August, 1898.

ARSENICAL eruptions are produced by occupation, by medicinal use, or accidentally.

I. OCCUPATION.—In these cases arsenic acts by contact or by its fumes.

Mines.—The chief are those in which the workmen are daily handling arsenic, or in which they are exposed to its fumes during the treatment of arsenical mineral, such as—mispickel FeSAs, cobaltine CoAsS, kupfernichel NiAs, disomre NiAsS. The powdering of the ore, the withdrawing it from the galleries of the mines, or from the ovens after sublimation of the white arsenic, and the packing in barrels are the most dangerous processes, one half of the workmen employed presenting some eruptive phenomena.

Arsenical Colours.—The various green pigments containing arsenites of copper, such as Scheel's green, Schweinfurth green, Veronese green, etc., cause eruptions on the skin of the workmen employed.

Coloured Papers.—When arsenical colours are used, some of the workmen have their hands constantly in contact

with the arsenical compounds, others inhale the fine particles detached by the brush during the glossing process.

Artificial Leaves and Grasses.—The cloth is covered with a paste of Schweinfurth green, and dried. All who handle the articles are liable to be affected by the arsenic.

Painters.—Arsenical paint is particularly used for protecting wood intended for hot climates from the attacks of insects.

Fuchsine Manufacture.—In the manufacture of aniline colours, arsenic acid is often used for the purpose of oxidising the aniline, and the workmen are in continual contact with arsenic and its fumes.

Leather-dressing.—A paste of yellow sulphide of arsenic and lime is used for clearing the skins.

II. MEDICINAL USE.—This may cause toxic symptoms from the use of arsenical pomades or depilatories. A strong preparation is less dangerous than a weak one, as the intensity of the inflammatory reaction interferes with the absorption of the poison. Other common preparations which, taken internally, may give rise to eruptions are *Fowler's solution*, *Asiatic pills*, *granules of dioscorides*, *Boudin's solution*, *Pearson's solution* and the water of the Perrière spring at La Bourboule.

III. ACCIDENTAL POISONING.—This may occur from water, wine, bread, etc., and sometimes be epidemic in character. In other cases it arises from clothing or wall papers coloured by arsenical pigments. Finally, arsenic may be mistaken for sugar, plaster or chalk.

Symptoms.—The outbreak of the eruption is generally after the third day; it is usually polymorphic, and there may also be œdema of the face and eyelids and pruritus.

The following forms of eruption are found :—

(1) *Erythematous*, chiefly affecting the neck, shoulders, chest and joints; as a rule, pruritis is marked.

(2) *Papular*: Discrete papules of a bright red-brown colour, and the size of a pin-head; they may be generalized or confluent, and itching is usually present.

(3) *Urticarial* is less common, and affects the face and neck.

(4) *Vesicular* is the most frequent of all, and may accompany or follow erythematous rashes; the arms, forearms, head and back are the habitual sites. A special variety of the vesicular arsenical eruption is "arsenical zona."

(5) *Pustular* resembles discrete smallpox upon the trunk and proximal parts of the limbs, genital organs, or the

parts of the body in actual contact with arsenical compounds. The pustules may be the starting point for ulcerations.

(6) *Ulceration* follows sometimes a papular or pustular stage. The head, the limbs, the scrotum and the tongue or lips are usually the parts affected.

(7) *Petechial* and bullous forms of eruption are occasionally found.

(8) *Melanosis*.—Pigmentation is produced in chronic forms of poisoning by repeated doses of arsenic, and usually appears in from three weeks to three months. It commences by a yellowish-brown colouration on the face, the trunk, or the limbs. It may affect large surfaces, but usually forms rounded lenticular spots, some of which may coalesce. If the use of arsenic is continued, the colour becomes a deeper brown, bronze, or slate colour, which is most intense in the axillæ, popliteal spaces, labia majora, and round the anus. The palms and soles may be free from pigmentation. Young subjects appear more predisposed to pigmentation than adults or old people, and women rather than men. The pigmentation may remain three years after the cessation of the administration of arsenic.

(9) *Kerato-dermia* is another result of the prolonged use of arsenic. It is limited to the palms and soles, and varies from a simple epidermic exfoliation to thick, warty, or smooth patches; the lesions may be transient or persistent, but are always symmetrical. In a few cases the warty patches may become epitheliomatous.

The dose of arsenic required to produce eruptions varies with the tolerance of individual patients; after single large doses (*e.g.*, attempted suicide) symptoms may appear as early as the second or fourth day, and melanosis after the tenth day. When the absorption of arsenic ceases, the eruptions disappear as the poison is slowly eliminated from the body.

THE PHYSIOLOGIC AND THERAPEUTIC ACTION OF EXTRACT OF THE MAMMARY GLAND.

Shober (John B.)—*Medical News*, August 27, 1898; *Medical Chronicle*.

The author's attention was called to the possible value of mammary gland extract in the treatment of uterine fibroids by a paper by Dr. Robert Bell, of Glasgow, published in the *British Gynecological Journal*, XII, pp. 157-170; 1896-7, and in the *International Medical Magazine*, Vol. V.,

pp. 379-386, 1896. Dr. Bell reported two cases of fibroid tumour of the uterus and two cases of menorrhagia and dysmenorrhœa, in which remarkable results were obtained by the use of mammary gland elixir.

In November, 1897, Dr. Shober began the employment of mammary-gland extracts and desiccated powders in the treatment of fibroids of the uterus. He gives details of four cases in which he has used it, all showing marked benefit.

The author concludes that the influence of mammary-gland products in the treatment of fibroid tumours of the uterus, as shown in these cases, is unusual. The women were all under the age of 35 years, therefore the menopause cannot be said to have had any influence on the results which have been obtained. "Without the aid of any other form of treatment, the tumours are decreasing in size, and the general health of the patients is steadily improving. Under the influence of the drug, menorrhagia and metrorrhagia cease, and the menstrual periods come on at regular intervals. Even, if under a prolonged course of treatment, these tumours are not dissipated, we can at least claim that the necessity for operative interference has been delayed."

Dr. Shober does not attempt to offer an explanation of the physiological action of mammary gland. He thinks it is evident that it has a powerful influence upon the uterine muscular connective tissue, acting in a manner somewhat similar to ergot. The fact that in two cases large doses of the gland caused cramp-like or contracting pains in the tumours would bear out this view.

RADIOSCOPY OF THE LUNGS.

Dr. Albert Abrams (Heidelberg), professor of Pathology in Cooper Medical College, in an interesting article on this subject (*Philadelphia Medical Journal*, November 26, 1898; *St. Louis Medical and Surgical Journal*), first refers to *pulmonary atelectasis*, a subject he has written on in previous papers, the essential facts in regard to which are as follows: (1) There are present over the thorax of apparently normal individuals constant areas of diminished percussion-resonance varying from dullness to flatness; (2) The areas vary in number and situation, as far as the individual is concerned, but in the aggregate they admit of definite localization; (3) I have demonstrated these areas of dullness as *atelectatic zones*; (4) Repeated forced inspirations will dispel them in children, as well as in adults,

although they will appear (usually after two or three minutes) when tranquil breathing is resumed, and will continue as such until an increased demand is again made on the vital capacity of the lungs; (5) In children, less often adults, an *anemia* that I have designated as *pulmonary* is associated with the atelectatic zones, and the specific treatment of *pulmonary anemia* is through lung-inflation secured by pulmonary gymnastics; (6) The atelectatic zones bear an almost definite relation to the points of election and paths of distribution of the lesion in chronic pulmonary tuberculosis.

He then formulates the following conclusions:

1. Atelectatic zones may be demonstrated in a large number of individuals.

2. These zones throw circumscribed shadows on the fluoroscope, which will vary according to the degree and area of the pulmonary atelectasis.

3. The shadow cast by the atelectatic zones can be made to disappear by continuous forced breathing, and they will reappear after a variable period when quiet breathing is resumed.

4. Before deciding whether the shadow cast on the fluoroscope is really due to pulmonary consolidation, the subject should be instructed to make forced inspirations; if the shadow disappears and is supplanted by a bright reflex, it is due to atelectasis; if the shadow persists, pulmonary consolidation may safely be concluded to exist, excluding, of course, other anatomic conditions that would interfere with the transmission of the Roentgen rays to the fluoroscope.

5. Radioscopy of the lungs demonstrates that the opacities on the fluoroscope corresponding to the atelectatic zones greatly exceed the percussional areas of the latter; and, furthermore, that in individuals in whom no zones can be demonstrated, opacities are sometimes present, which disappear after forced inspiration.

6. Before and during a radioscopy examination of the lungs, it is always imperative to instruct the patient to practice forced breathing.

PATHOGENESIS OF RICKETS.

Dr. Babeau, in the *Four. de Cliniq. et de Thérup Inf.*, September 22, 1898 (*St. Louis Medical and Surgical Journal*), from clinical observations and from analyses of urine and feces, concludes:

1. We can in rickets distinguish several periods:

(a) A primary rachitic period in the course of which a

child up to that time healthy eliminates lime in excess, either by the urine or by the feces.

(b) A secondary period of confirmed rickets (properly so called), during which are produced deformities and spontaneous fractures consequent on this exaggerated loss of lime.

(c) A third period without abnormal loss of lime by urine or feces, the deformities being the sole indications of an anterior rachitic period in a subject whose nutrition has become normal again.

2. In each of the phases of the disease we establish a relation between the chemical composition of the bones and the variable elimination of lime in these different phases.

3. In most rachitics we find digestive troubles at the outset of the disease.

4. The increased elimination of lime by the feces is explained by these digestive troubles themselves, and is due to defective absorption of the lime or its salts.

5. The increased elimination of the salts of lime by the urine is due to a state of acid diathesis (Baumel).

6. The cure results from a re-establishment of the normal state of the digestion, of the absorption, and of the alkalinity of the blood.

TREATMENT OF WHOOPING-COUGH.

Dr. Arthur H. Bigg says (*Physician and Surgeon, St. Louis Medical and Surgical Journal*) that, of the non-malignant diseases incident to childhood, few are more distressing, either to the subject or to the beholder, than whooping-cough.

The objective symptoms of this disease are too familiar to need describing here; suffice it to say that in severe cases they present during the spasmodic stage a vivid and realistic picture of progressive and apparently inevitable suffocation, than which, if there be a more painful clinical phenomenon to witness, it is unknown to the writer.

After discussing the subject, he arrives at the following conclusions:

1. The associating of excessive mucous discharge with the spasmodic stage of pertussis, taken in connection with the prompt relief of the cough that followed its expulsion, suggests its causal relation to the intense reflex excitation which is characteristic of the paroxysms.

2. Its manner of offending is probably by its irritating contact with the nerve endings in the mucosa. Hence the

temporary efficacy of the emetics, ipecac and alum, in causing its forcible ejection from the body.

3. Biniodide of mercury, by its specific liquefying action upon the glandular secretions, exerts an antidotal influence upon the disease, and thus directly lessens reflex excitability. Its potent germicidal property also renders it fully equal to any possible indication in that direction.

4. The use of the biniodide of mercury, as outlined above, is so far from being fraught with harm to the patient that, on the contrary, its wholesome stimulation of the emunctories, and its beneficent action upon the blood itself renders it a direct promoter of somatic nutrition, while the ease with which it can be administered marks it as an ideal remedy for the class of patients who constitute one's clientele in this disease.

With the pleasing recollection of many distressing cases so modified by the treatment here advocated as to be borne by the little sufferers with comparative comfort, I am glad to assume the initiative in recommending it to the favorable notice of those of the profession whom this thesis may reach, and who are not satisfied that they already possess the knowledge of a better system.

HYSTERICAL PAROXYSMAL ŒDEMA.

EDGEWORTH (*Bristol Medico-Chirurgical Journal*, September, 1898, p. 206; *American Journal of the Medical Sciences*) reports three cases of paroxysmal localized œdema.

The first case was a man, aged twenty-four years, who gave the history that he would go to bed quite well, and awake in the morning to find that some part of the body, the foot or leg, arm or hand, often the face, and rarely the trunk, had become markedly swollen. This would last all day, and gradually subside. There was a burning, itching pain in the slightly red, swollen part, which could not be indented by the finger. There was no anæsthesia, analgesia or thermo-anæsthesia of the skin in either the affected or the normal parts. The patient was observed in several repeated attacks. In one attack the lips and the left side of the face were involved. There was no family history of any similar affection. The case was treated by arsenic in increasing doses, and the attacks became less acute and occurred only at greater intervals.

In reviewing the distribution of the areas of œdema in this case, Edgeworth decides that they were very similar to

the alterations in sensibility in some cases of hysteria. The case was considered one of vasomotor neurosis, of cerebral and probable cortical origin.

A second case, a man, aged twenty-two years, had during twelve months been troubled with localized swellings of the hands, or hands and forearms, or feet. These would last twenty-four hours and then subside. In one of the attacks in which one of the hands and forearms were involved, the affected area corresponded accurately with that covered by a high-buttoned glove. In this attack the skin affected by the œdema, and for some distance above it, was partially anæsthetic to touch and to heat and cold, and totally analgesic to the prick of a pin.

In this case the fact that the area of the disturbance of sensation was not limited to the area of œdema alone suggested strongly that the condition was of an hysterical nature.

The third case was that of a woman, aged thirty-seven years, who would be awakened between 2 and 3 a.m. by a numb pain in the left arm, and find that the arm from the shoulder downward was slightly hot, not red, but felt heavy. She would fall asleep again, and by morning the swelling would almost entirely have disappeared. In this case there were almost complete analgesia and thermo-anæsthesia, while tactile sensibility was normal.

Sydenham first described an hysterical œdema. It is rarely an isolated phenomenon, generally co-existing with arthralgia, paralysis or contracture. While its duration is variable, it is usually a most persistent phenomenon, and may last for years.

The cases reported by Edgeworth differ from these, more especially in their paroxysmal type, though otherwise they are similar. During recent years a disease has been differentiated, to which various names have been given: angio-neurotic œdema, paroxysmal œdema, vasomotor œdema and Quincke's œdema. The disease has been well described by Osler. It is characterized by local œdematous swellings, more or less limited in extent, and of transient duration. Severe colic is frequently associated with each attack. There is often a marked hereditary disposition; in one instance the disease was traced through five generations in one family. Its pathology is quite unknown, though Quincke and most observers consider it to be a vasomotor neurosis.

Edgeworth claims that his cases do not exactly conform to the descriptions of angio-neurotic or Quincke's œdema.

He thinks that hysteria was an important etiological factor in the cases he reports. In the matter of treatment, arsenic in large doses is worthy of trial, and in one of Edgeworth's cases appeared to cure an affection which had lasted eleven years.

VALUE OF THE SIGN OF KERNIG IN THE DIAGNOSIS OF MENINGITIS.

NETTER (*Société Médicale des Hôpitaux*, July 22, 1898; *American Journal of the Medical Sciences*) calls attention to this phenomenon, which was first remarked in 1882 by Kernig, of St. Petersburg, and was subsequently confirmed by Henoch, Bull, Blümm and Friis. It is elicited in the following way: The patient is placed in dorsal decubitus, care being taken that the legs are relaxed and fully extended at the knee. When the child is raised to the sitting posture it is found that the knees are more or less flexed, and, despite all efforts, cannot be completely extended on account of contracture of the posterior muscles of the thighs. In some cases the angle made by the thigh and the leg is a right angle, and in no case has it been found to be greater than 135° or 140° . Complete extension becomes possible when the patient is put upon the back again. According to Netter's observation in forty-six cases of meningitis of whatever nature, this sign was wanting in but five cases, or about 10 per cent. It has not been observed in other conditions, having been found absent in numerous cases of typhoid fever, pneumonia, acute articular rheumatism, chorea, central affections in infants, erythema nodosum and similar diseases. Netter believes that the presence of this sign confirms the diagnosis of meningitis when the symptoms are obscure, and suggests a latent meningitis when it is the only symptom present.

Two cases are quoted. One was a clear case of typhoid fever, but Kernig's sign was present. The patient died of a perforation, and the autopsy revealed the presence of a meningitis due to the staphylococcus aureus, together with the intestinal lesions of typhoid fever.

A second patient presented Kernig's sign, with slight symptoms of meningitis. Lumbar puncture was made, but withdrew no fluid. After a remission of ten days fever reappeared, and a fluctuating mass was discovered over the sacrum. This was incised, and the pus was found to contain the meningococcus. The infection had spread from the

spinal canal, following the track made by the needle. The presence of meningitis was thereby established.

All varieties of meningitis are said to produce this sign, including tuberculous meningitis, secondary forms, and cerebro-spinal meningitis.

THE SYMPTOM OF BOLOGNINI IN MEASLES.

A. KÖEPPE (Centralblatt f. innere Medicine, 1898, No. 26, S. 673; American Journal of the Medical Sciences) refers to a symptom described some years ago by Bolognini as existing in measles. This consisted in a peculiar sensation of friction, felt when gently rubbing the tips of the fingers over the surface of the abdomen with gradually increasing force. This phenomenon, which, according to Bolognini, could be felt from the prodromal period well on to the end of the disease, was considered to be due to a morbillous eruption upon the peritoneum, and he considered that it offered a diagnostic sign of measles.

Recently Köppen had opportunity to control these observations in the course of an epidemic of the disease, during which he specially examined 316 children, several of them on more than one occasion. The symptom of Bolognini was observed in only 154 of these patients. Moreover, the author has been able to convince himself that the phenomenon consists not in a sensation of friction (frottement), but rather in a fine crepitation which recalls that given by subcutaneous emphysema, and seems to be due to the presence of bubbles of gas in the intestines. Indeed, most of the children in whom Köppen found this symptom were suffering from diarrhoea with foamy stools.

Finally, the author has observed the existence of this symptom, though to a less marked degree than in measles, with children suffering from digestive troubles and who were free from measles. With healthy subjects he has never observed the phenomenon.

It follows from these later observations that the symptom observed by Bolognini, while very frequent in measles, cannot be considered as a pathognomonic sign of this affection.

THE TREATMENT FOR INTESTINAL WORMS.

In the *Revue de Therapeutique Medico-Chirurgicale* of June 1, 1898, Lyon tells us that the patient should have nothing for his dinner or supper save a bowl of milk or soup:

The bowels should also be carefully washed out in the evening by an injection and the vermifuge taken, a purgative and rectal injection being used the next morning. He believes that the sulphate of pelletierine in the dose of 2 to 4 grains is best given in a mixture containing tannin; thus he prescribes:

- R Sulphate of pelletierine, 3 grains.
 Tannin, 15 grains.
 Distilled water and simple syrup, 2 ounces.
 Essence of orange, 10 drops.

This is to be taken in two doses at half-hour intervals. Ten minutes after the ingestion of the second dose a large draught of Hunyadi water should be taken. Such a prescription should not be given to a pregnant female, nor to very old persons. In other instances the following prescription may be used:

- R Oleoresin of male-fern, 1 to 2 drachms.
 Syrup of ether, 1 ounce.
 Mint water, 1 ounce.
 Syrup of acacia, 3 ounces.

To be taken in two doses two hours apart. Or the oleoresin of male-fern may be given in capsule with calomel, 7 grains of the oleoresin and 1 grain of calomel to be put in one capsule; twelve to sixteen of these capsules are to be prepared, and two should be taken every ten minutes. One hour after the last capsule is administered a purgative may be given.

Lyon points out the fact which is well known to therapeutists, that castor oil should not be given after male-fern, as it favors the intoxication with flicic acid. For the removal of round worms, Lyon advises the use of santonin combined with calomel; two to five grains of santonin may be given with a grain or two of calomel, divided into three cachets. For the removal of seat-worms Lyon suggests injections with salt water, the use of castor oil or of thymol (three grains in two ounces of olive oil). In other instances glycerin suppositories may be used with advantage, or, again, a solution of boric acid may be employed.—*Therapeutic Gazette.*

CAUSES AND TREATMENT OF THE SEBORRHOIC ECZEMA OF INFANTS.

Marfan (*Die Therapie der Gegenwart*, 1898, iv., 395). As a primary cause of this affection, the so-called neuro-

arthritic diathesis is frequently made responsible. If we understand by this that seborrhoeic eczema is more frequent in children born in families where one or more members have been affected with hemicrania, hemorrhoids, obesity, eczema, gout, asthma or neuropathic disturbances, we may accept this dictum. The arthritic diathesis is, however, only a predisposing cause, and it is not absolutely necessary that it be present.

As regards the influence of teething, Marfan, after an observation extending over several years, has come to the conclusion that this is no predisposing cause. According to him, the main cause should be sought for in over-nutrition of the infant. The patients are either nurslings which are put to the breast day and night at irregular intervals whenever they cry, particularly at night, and who receive from twelve to fifteen meals in twenty-four hours, instead of being nursed at regular intervals of from seven to eight times, or else bottle-fed babies who are too early put on pure cow's milk, or given the latter in too large quantities and too frequently. These children, as a rule, suffer from indigestion, generally in a light form, but occasionally also of a graver nature. As an additional factor in the occurrence of the seborrhoeic eczema of infants, the ingestion by the mother of alcohol, coffee, smoked meats, fish, etc., has been mentioned, as also changes in the mother's milk, due to an eczema of the former, and also long-continued nursing, milk which is too rich in fat, etc. It is impossible to state positively in how far this may influence the occurrence of this affection; we know it to be a fact, however, that Marfan was able to demonstrate over-nutrition in all cases of infantile seborrhoeic eczema. Hence, regulation of the diet is the first principle of successful treatment. It is also necessary to look into the condition of the intestinal canal. These children should be ordered a diet of boiled water one morning every two weeks, and should receive one dose of the following every half hour:

R Calomel 0.01—0.02 (1-7 to 2-7 grains).
 Sacch. 0.5 (7.7 grains).
 Ft. chart. tales No. iv.

These small doses are very effective, and quite injurious. It should, however, be stated that calomel is not to be ordered before the child is three or four months old. As a local application, Marfan employs a 1 per cent. solution of picric acid. At first cataplasms of amyllum should be applied moistened with a little picric acid. After the crusts have fallen, the diseased parts are painted with the picric acid

solution every second day, and then covered with a dry cotton bandage. As soon as the skin becomes more dry and the redness disappears, this lotion is discontinued, and an ointment of oxide zinc substituted for it.—*Pediatrics*.

THE TREATMENT OF PNEUMONIA IN CHILDREN.

The following abstracts are made from the discussion held in the section of Pediatrics of the New York Academy of Medicine, November 10, 1898, and printed in the *Medical News*, November 19, 1898 (*University Medical Magazine*).

Chapin, in the management of the fever of pneumonia, says that it is quite possible that a certain grade of fever may have a beneficial action when it accompanies the reaction of the tissues to infective and inflammatory irritation. It is also a clinical fact that children, as a rule, stand high temperature well. When this is the case it is folly to upset the stomach by drugs, or weaken the heart by antipyretics in combatting a temperature that is not doing any great harm. In such a case the treatment may do more harm than the symptom against which it is directed. There are times, however, when high temperature calls for special treatment. Some children bear high temperatures well; others very poorly. In the latter, interference is promptly called for, and the indication for treatment is not so much the exact degree of temperature as a disturbance which is being caused by fever. In one case the temperature of 102° to 103° F. may require special treatment, in another one the fever needs no special treatment until 104° or 105° is reached. High temperature may result in extreme cerebral irritation, causing restlessness, or even convulsions; in others, stupor and even coma. The heart becomes weak and rapid; the respiration becomes rapid; digestion and assimilation always suffer more or less. It has been shown by experience that control of the high fever gives a certain measure of relief to these symptoms.

In croupous pneumonia the indications for interference in hyperpyrexia are not so important as in broncho-pneumonia, as the former runs a short course and tends to recover. The first point in the management of fever is to avoid any measures that will leave a bad effect; and thus hinder the future chances of recovery. All depressing remedies come under this head: as the coal-tar derivatives. The application of water is, on the whole, the safest and the most satisfactory method of controlling dangerous hyperpyrexia. Much may

be accomplished by a thorough application of cold to the head. This not only reduces the temperature, but relieves to a certain extent its bad effect upon the brain and nervous system. In order to be effectual it must be applied continuously and thoroughly.

Finely cracked ice placed in bladders, from which the surplus air is expelled, may be moulded around the head, especially at the vertex and occiput. If this does not suffice, compresses should be applied directly to the chest. The child is stripped, wrapped in a blanket, and placed on a table; a stimulant is given and the feet are placed in contact with hot bottles. A compress sufficiently large to surround the chest is plunged into water from 70° to 95° F. and applied to the chest. This is changed every fifteen or twenty minutes. If this does not cause a reduction of temperature, the temperature of the water can be lowered. The addition of about one-fourth part of alcohol seems to heighten its effect. The author invariably employs the tub, on account of the fright to the child and the exhaustion which it causes. In cases of cyanotic children, he has used a warm bath of 100° with friction of the surface.

The treatment of pneumonia in very young children by Holt is summed up as follows :

- (1) No depleting measures are ever admissible.
- (2) Hygienic treatment, including fresh air, proper feeding, and intelligent care is of the utmost importance.
- (3) No unnecessary medication should be permitted.
- (4) Many annoying symptoms may be relieved by local treatment, such as the cough by inhalations, pain by counter-irritation, restlessness by the ice-cap or sponging.
- (5) Stimulants should be deferred until demanded by the condition of the pulse.
- (6) High temperature is much more safely and effectively controlled by the use of cold than by drugs.
- (7) Greater caution is necessary in the use of powerful stimulants than is generally observed.
- (8) Rest is quite as important as in other serious diseases.

Koplik, in a paper on the same subject, says that we must remember that acute primary broncho or lobar-pneumonia in infants and young children is an infectious disease, and the lines of treatment will be largely influenced by this fact. Certain cases have subnormal temperature with exceedingly rapid heart, and in these we must sustain the heart with digitalis or with strophanthus. It must be given in half-minimum doses, frequently repeated, until the result is attained. Strychnine

in doses of one-four-hundredth grain, given hypodermically, is a very useful drug.

In acute heart-failure the main relief must be placed on hypodermics of alcohol and ether, first the latter, then the former. Poultices are valueless; opium is badly borne in asthenic cases. The high temperature often requires active interference, and baths are, perhaps, the best general treatment.

All baths should never be given when the temperature is starting on the decline. He thinks that very small doses of antipyretics are readily borne and useful. In cases where the heart is well sustained, it is useless and harmful to use alcohol. The patient should be isolated from other children. Ventilation, the constant change of air, is necessary. The temperature of the sick-room should be from 65° to 70° F.

PRACTICAL ADVICE ON THE ADMINISTRATION OF CHLOROFORM.

By Professor Berger, of Paris (*La France Médicale et Paris Médicale*, November 18, 1898). This is a lucid and helpful article, and, indeed, worth reading in full. Students would much appreciate the advice tendered by Professor Berger. Since chloroform is the routine anæsthetic in Paris, ether being used to a very small extent, the earlier remarks in this paper have great point.

On opening the subject, it is remarked that every one fears chloroform, and looks upon it as a very dangerous agent; yet every practitioner thinks he can give it, considering accidents as things of fate and unavoidable. Professor Berger totally disputes this last point of view, and affirms that the dangers arise from maladministration, either from ignorance or neglect of rules. Before giving directions for administration, he warns us that some guiding signs have more value than others, and that even to the most important sign an absolute value must not be attached, but it must be considered relatively to others. In chloroform administration two factors appear: Firstly, the chloroform; secondly, its mode of administration.

A. The Chloroform.—The most obviously elementary rule is to use only absolutely pure chloroform. Sufficient importance is not usually given to this point, especially in hospitals. Professor Berger is referring, moreover, to the rectified chloroform, prepared specially for anæsthetic purposes, and delivered quite pure to the hospitals. Now, he says, the same fact has struck himself and his assistants, and

more forcibly so at certain times than others, viz., that there is a marked difference between the anæsthesia obtained in hospital with hospital chloroform and that obtained in private practice with chloroform supplied by druggists who make a specialty of it. In the latter case the anæsthesia was always easily produced, and unmarked by trouble or dangerous symptoms; while in hospital practice the reverse obtained. When Professor Berger pointed out in 1881 the alteration in the composition of the chloroform, and the dangers arising from the faulty manner in which it was delivered and kept in the hospitals, it was answered that the hospital drug was chemically pure, and equal to the best supplied by the outside druggists. Again, in 1897, being alarmed at the unsatisfactory anæsthesias obtained in his hospital practice, and hearing of fatal accidents in other institutions, he made complaints, but was answered much as before. Two months after this he had two deaths in quick succession, being the only ones for six years, and thus realizing his fears. Then he had the chloroform supplied to the hospital purified again by the following processes carried out by the hospital dispenser:

1. Repeated washing with distilled water.
2. Action of concentrated sulphuric acid until the acid ceases to be coloured.
3. Treatment with a solution of caustic soda.
4. Distillation after agitation with 5 per cent. of colza-oil, only collecting the product which passes over exactly at 60.8° C.

During the process there was a loss of 300 to 700 c.c. out of 3 litres. There resulted a marvellous disappearance of nearly all the difficulties which formerly occurred during the use of the non-purified drug.

Does all this mean that the hospital chloroform was impure? In a certain sense it does so. As the drug answered the ordinary tests for purity, and did not contain hydrochloric acid, free chlorine, carbonyl chloride or other irritating products, Berger was forced to suppose that the small quantity of alcohol added for preservative purposes was impure—a mixture of amylic or other alcohols, or of other products passing over at nearly the same temperature during distillation, whose presence, even in infinitesimal quantity, sufficed to irritate the air passages. Now, as is pointed out later in the paper, it is very important to secure a tranquil commencement of the anæsthesia, and this is to be obtained chiefly by using the purest chloroform which the

patient can inhale with facility. The author thinks that accidents for the most part depend on the bad quality of the drug used. Purification alone is not enough; conservation is also necessary, and it is advised (1) that chloroform be guarded from light, heat and air, and especially from light; (2) after rectification, it should be put into small bottles of *colored* glass, so that each bottle will contain sufficient for a single operation.

[In this country not enough attention is paid to this subject. Chloroform is generally kept in large bottles, perhaps often opened and left exposed. Sometimes after use a remainder is carelessly left in a drop-bottle, which is placed in a cupboard more or less open, and then before the next administration a fresh supply is added to the perhaps partially decomposed remainder, which may have been exposed to the action of light for some time. The chloroform most used in Great Britain is delivered, unfortunately, in white glass bottles covered with whitish paper, though by the highest chemical authorities the decomposing action of light is asserted. Personally, I now follow Professor Ramsay's advice, and add a small quantity of calcium hydrate to both stock and drop bottle, and, moreover, besides keeping in a dark place, cover up my bottles with dark brown paper. I believe that the addition of slaked lime certainly does tend to make and keep chloroform "sweet," and that since I have made such addition my results have been better than formerly. Each bottle containing chloroform should be completely filled, so that there be above the liquid no volume of air to decompose the chloroform. C. Schacht in 1867 (*Proceedings of Berlin Chemical Society*) asserted that pure chloroform is decomposed by exposure to light or air; but in the dark it remains unaltered in a vessel only half filled with air.--W. J. M.]

B. Professor Berger next treats at length of the administration of chloroform. A drop-bottle and linen cloth or large handkerchief of fine texture are used. He emphasizes the necessity that the administrator should at any instant be able to speak exactly as to the point of narcotization of his patient. There must be silence and absolute tranquillity during induction of anæsthesia. The patient is to be advised to *breathe through the mouth*, since chloroform vapour in the nasal passages causes a most painful sensation, followed often by protective reflex efforts, which are avoided by mouth-breathing. The breathing must be appreciated by the *ear*, and maintained in regular cadence. The *eye*,

besides observing respiratory movements, takes note of the colour of the face in general and of the lips in particular. The *finger* notes the pulse, palpebral reflex, facial vascular reflex (and especially that of the lips), and degree of relaxation of the muscles as shown by the condition of the jaws. The *nose* tells us better than sight when the addition of more chloroform to the mask is needed. [This hint is a very wise one, for, if the nose of the administrator cannot bear to inhale the vapour, the degree of concentration of that vapour is in most cases too great, when anæsthesia has been established, for the patient to safely breathe it. During the early part of the induction of anæsthesia one should, by frequent smelling, assure one's self that the patient is not receiving too rapid increments in dosage.—W. J. M.]

Professor Berger makes an *absolute rule*. Chloroform should be administered in a continuous manner during the early part of chloroformization; it is to be administered intermittently and at regular intervals from the moment when tolerance is established and the patient is anæsthetic and relaxed.

In regard to the *commencement* of the administration, the author insists on the necessity for gaining the confidence of the patient, the need for quietness and the use of absolutely pure chloroform above all things. As is the induction, so will probably be the continuance of the anæsthesia.

The *period of excitation* is subdivided into: (1) *L'excitation loquace*, which is often absent. It most frequently occurs in nervous people, especially women. This emotional talkativeness can be shortened or entirely suppressed by pushing the administration. (2) *L'excitation inconsciente*, which is never absent, though often very transitory and sometimes unnoticed. The chief sign is raising of the head; other associated conditions, such as congestion, fixed eyes, arrested or laborious breathing are also, of course, well known. This *excitation inconsciente* is perhaps the most important point in the anæsthesia, and must always be looked out for as a landmark, which indicates either that resolution has not happened or that it is about to happen. In alcoholics this is the critical period, and excitement is often intense, causing danger from irregularity or stoppage of respiration, heart fatigue or damage to the nervous centres. Professor Berger in such cases advises to force the doses of chloroform, because the longer and more violent is the excitation period, the narrower are the limits of the period of tolerance and the greater, therefore, the danger of over-dosage.

The Period of Resolution or Tolerance.—The object is

now to maintain chloroformization by intermittent dosage. The chloroform is to be withheld during a number of inspirations, whose proportion is to be increased or diminished according to the rigorous interpretation of the phenomena presented by the patient—*i. e.*, according as he draws near the danger limit or tends to awake. One has, by feeling one's way, as it were, at first—*e. g.*, taking away the mask for two or three inspirations out of seven, and then progressively increasing the proportion of inspirations without chloroform—to find out the dose of the drug needful to maintain proper anæsthesia.

Pallor of the mucous membranes is a sign of commencing asphyxia. Respiration becoming stertorous is a sign that too much chloroform has been given, and when it becomes superficial and only abdominal there is danger.

The importance of a diminution of the facial vascular reflexes as a danger-signal which should constantly be looked for cannot be too strongly insisted on.

Abrupt dilatation of the pupil is almost always a sign of imminent awakening.

The palpebral reflex is a most important guide, but not an absolute one; *e. g.*, in hysterical people it is often slightly marked even in the normal state, and this should always be borne in mind when anæsthetizing women. Again, it must not be forgotten that by constant use the reflex becomes impaired. Occasionally subjects are found to preserve the corneal reflex though they are deeply narcotized.

Awakening is sometimes sudden, and it may occur suddenly—*e. g.*, when from dealing with the deep parts, or parts essentially involved in an operation, the surgeon passes to the sutures. The sensibility of the parts has been gradually blunted, and only a small quantity of chloroform is needed to maintain anæsthesia; suddenly painful excitation of quite another region stimulates a nervous area which up till then had been at rest, and which the previously satisfactory quantity of chloroform does not suffice to anæsthetize. At the end of a laparotomy, when the patient seems to be profoundly asleep, he may show awakened sensibility when sutures are inserted—*i. e.*, stimulation has been transferred from the blunted sympathetic to the more lively spinal nerves.

It is necessary to remember that to a certain extent doses of chloroform accumulate in the system, so that, as the administration progresses in length, one obtains greater effects with relatively small doses, and the limits of safety,

therefore, tend to become contracted, so that the greater care and attention are needed.

Professor Berger, after observing that the administration of chloroform is a surgical procedure which must conform to certain precise rules, in conclusion recapitulates the main principles:

1. The safety of the anæsthesia depends entirely on the continuous and rigorous observation of every physiological phenomenon.

2. If there is one thing to be observed beyond all others, it is the respiration, disturbance of which almost always announces the approach of accidents. *Respiration must be appreciated by the ear.*

3. The examination of the colour and of the vascular reflexes of the face has an almost equal importance to the last.

4. The palpebral reflex is a very sure, but not an absolute, guide.

5. The manner of commencement of chloroformization has a determining influence over the whole duration of anæsthesia.

6. Chloroform is to be administered in a continuous manner at the beginning and during the stage of excitement; afterwards—*i. e.*, during the stage of tolerance—it is to be given at regular intervals.

7. One can only succeed by a “system of oscillations” in determining the limits between which the patient can be maintained during resolution, so as to avoid awaking and accident; but one has above all things to avoid the latter.

8. The longer the period of anæsthesia, the narrower become the limits of the period of tolerance, and one can with smaller doses bring about accidents.

9. If there be the least doubt as to the interpretation of phenomena, stop the administration until all doubt is cleared up.

10. *Finally, and before all else*, the surgeon must be perfectly clear as to the purity of his chloroform.—*Treatment.*

SURGERY.

IN CHARGE OF

GEORGE FISK, M.D.

Instructor in Surgery University of Bishop's College ; Assistant Surgeon Western Hospital.

GUNSHOT WOUND OF ABDOMEN—NINE PERFORATIONS OF SMALL INTESTINE, ONE OF RECTUM, THREE OF BLADDER—LAPAROTOMY—RECOVERY.

By J. M. BATCHELOR, M.D., Assistant House Surgeon, Charity Hospital ; Clinical Instructor New Orleans Polyclinic, New Orleans.

On June 24, 1898, patient, J. L., was brought to the hospital by the ambulance, about thirty-five minutes after receiving a gunshot wound of the abdomen. The patient, boy, aged nine years, was submitted to the writer for examination and treatment. Inspection of patient showed wound of entrance of single bullet, 32 calibre, about one-half inch to left of centre of anus ; wound of exit in abdominal wall, one inch to right of umbilicus, the omentum protruding and lying upon the surface of the abdomen.

Under chloroform anesthesia, abdominal section was done. The bullet was found to have passed through the rectum and neck of bladder, striking the pubis ; it was then deflected upward and forward, slitting the anterior wall of bladder, passing into the bladder and out again near the summit, perforating the small intestine nine times in progress outward.

The intestinal wounds were rapidly closed by the Lembert suture with as little manipulation as possible. Only moderate fecal extravasation took place. The wound in the posterior wall of the bladder was tightly closed with small silk sutures, as was also the wound in anterior wall. The latter wound, because of its low situation and the puerile pelvis, was sutured with difficulty. The wounds of rectum and of neck of bladder were entirely inaccessible, and were therefore left open. The writer then decided, in order to obviate infection of general peritoneal cavity from these unsutured lesions, to close incision of operation and fix the bladder to abdominal wall at inferior angle of abdominal incision ; this was done, completely closing the peritoneal cavity against infection from the two wounds mentioned. A small perforated glass drainage tube was left in the suprapubic wound in front and to the right of the bladder, its

lower extremity resting against the rectum. Before closing the cavity, the protruding omentum was cleansed with warm sterile normal salt solution and returned intact. Thorough irrigation of the peritoneal cavity was done, the normal salt solution being used.

Patient left the table in good condition. The supra-pubic drainage tube was exhausted every two hours for ten days, and was flushed with ten per cent. hydrogen peroxide solution twice daily. This drain afforded escape to probably one-half the urine, the remainder passing through the vesico-rectal fistula and out by the anus. Some urine was voided per urethram during the first forty-eight hours, and afterwards at irregular intervals—sometimes once in thirty-six hours, again seventy-two hours elapsing. Gradually, however, the drainage tube was withdrawn, and this wound, together with the vesico-rectal fistula, closed on the thirtieth day, the entire urinary secretion being voided per urethram.

Nourishment was administered regularly at two-hour intervals after first twelve hours succeeding operation. Bowels moved spontaneously at end of twelve hours. Nausea was never a symptom.

This case has seemed to present unique features which warranted its report.

The kindly healing of the two sutured wounds in the bladder, the number of intestinal wounds sutured and their prompt union; the returning intact of two inches of omentum, which had been soiled; and, finally, the complete repair and closure of the vesico-rectal fistula have all seemed worthy of observation.

The patient was discharged, cured, July 27, 1898.—*New Orleans Medical and Surgical Journal*, Dec., 1898.

HERNIA OF THE BLADDER.

Mr. Carlier, in *Gazette Hebdomadaire de Médecine et de Chirurgie* of September 22, 1898, reports that a man, *æt.* 66, detected, fifteen years ago, and after a strain, a tumor in the right groin. This man also noticed that, after emptying his bladder, he would still urinate by compressing this tumor. At present he has a hernia of the bladder in the right scrotal region, and he can always urinate twice in succession.

Two months ago this man had retention of urine caused by a urethral calculus removed by incising the meatus.

Mr. Carlier recalls the fact that two years ago he had treated a butcher, *æt.* 63, who also perceived the existence of a tumor in the right groin after an effort. Symptoms of re-

tention caused by a stone, appeared, ceasing as soon as the calculus was eliminated. The patient then showed signs of prostatic trouble with calculi formation in the bladder, and probably also in its herniated portion. He succumbed to urinary fever.

Mr. Carlier fears for his patient the formation of other calculi in the hernial pouch and death from urinary fever.—*New Orleans Medical and Surgical Journal*, Dec., 1898.

SOME RUDIMENTS OF INTESTINAL SURGERY.

Frederick Treves (*British Medical Journal*, November 5, 1898) remarks that in a fatal case of acute intestinal obstruction the undoubted occlusion is by no means either the most serious or essential element, but that the fatal issue depends upon the rapid absorption of the products of decomposition from the patient's bowel. Those dying unrelieved from such a condition really succumb to poisoning,—to an intestinal septicemia. In an acute case death may take place within seven days, during which time three stages may be recognized :

(1) In the first stage the symptoms are those of intense abdominal pain, collapse and vomiting ; these being due in nowise to the fact that the bowel is occluded, but to the sudden and painful impression that has been made upon the abdominal nerves. Hence they are fully nervous in character, as they may equally well mark the passage of a gall-stone, the torsion of an abdominal tumor, or the perforation of an ulcer of the stomach.

(2) In this stage the symptoms attain more individuality and depend without doubt upon the mechanical obstacle of the bowel. The pain is now due to a large extent to the disordered and futile peristaltic movements, while the absolute constipation and the persistent vomiting depend upon the blocking of the bowel. The stercoraceous vomit bespeaks a rapid decomposition taking place in the intestinal contents, such change being dependent partly upon the retention and probably to a larger degree upon the vascular and other changes in the intestinal walls. Finally, there is an increasing abdominal distention ; the meteorism depending in large part upon the vascular changes in the bowel walls.

(3) In the final stages the symptoms are those of poisoning ; the septic matter being derived from the patient's own bowel. It is this rapid onset of septicemia which makes the operative treatment of acute intestinal obstruction so futile in

the majority of cases, and therefore to advance the therapeutics of intestinal obstruction one must deal with this element of septicemia. The stomach seems not to lend itself to this form of blood-poisoning; the colon too would appear to possess a natural immunity up to a certain point; but in the lesser bowel the process is desperate, rapid, and almost hopeless. The treatment demands two things:—

(1) Early operation.

(2) Evacuation of the bowel contents after the strangulation has been relieved. As the patient is really dying, not because his bowel is occluded, but because the distended gut above the obstruction is producing a poison which is rapidly sapping his strength, so the real danger rather lies, not at the seat of obstruction but in the contents of the intestinal canal. Consequently of recent years he has not considered the operation complete until he has emptied the bowels of its contents. This is most conveniently done by bringing the most distended portion of bowel to the parietal incision and evacuating it by means of a glass tube, secured to the bowel by a single encircling thread, the small artificial anus being closed without difficulty by subsequent operation. This measure has had the effect, in his own practice, of reducing the mortality one-half its original rate.

This latter method of treatment was advocated by Travess some eighty years ago, and the advances of a century have done nothing to overthrow his arguments. To appreciate and deal with septic processes within the intestinal canal must be one of the very first rudiments of intestinal surgery. Antiseptic surgery has practically left untouched those forms of infection in which the septic element is, in a certain sense, introduced into the system from within. Allusion has been made to the infection in acute intestinal obstruction; without going fully into the matter, it may be said that, in the majority of non-traumatic cases of peritonitis—excluding the puerperal and the tuberculous varieties—the infection comes from the patient's own bowel, and is caused by the bacillus coli communis. It is possible that this micro-organism will be found to include several different species. Experiments have shown that the peritoneum will stand a moderate degree of infection from this bacillus, provided it comes from a normal bowel, but that the same degree of infection from an unhealthy bowel would produce a peritonitis. Experiments have also shown that in an artificial compression of the bowel the epithelium rapidly desquamates, the vessels dilate, and there is an abundant infiltration into the wall of the intestines, and that the virulence of the micro-organism

is infinitely greater in the disturbed portion of the bowel. These facts impress upon us the importance of gentle handling of the bowel during the operation and evacuation of the obstructed loop. From these few remarks it is evident that the need of further bacteriological studies in regard to the bacillus coli communis is urgent. Their function and purpose, the circumstances modifying their virulence, the conditions needed to apply the principles of antiseptics to the lumen of the bowel, all need to be inquired into. In regard to inguinal colotomy, the author remarks that this operation has entirely superseded that of the loin. The two former objections to this operation—namely, contraction of the orifice and prolapse of the bowel—seldom occur at present. The catarrh of the bowel and also the prolapse of the bowel can be eradicated to a large extent by strict antiseptic treatment of the wound. The necessity of this operation has been rendered less frequent by the numerous instances of resection, especially for cancer. In carcinoma the best results are obtained when the growth is situated in the sigmoid flexure, or in such other portions of the large intestine as have a free mesocolon, and where the bowel is denuded of peritoneum. It is essential for success that the growth be dealt with early, and that the excision of the gut and the associated mesocolon be dealt with as liberally as possible. When excision is impossible, a lateral anastomosis can be carried out, as experience has shown that a considerable portion of the circuit can be thrown out without inconvenience to the patient. The best stitch for intestinal suturing is still the ancient one, which includes a fine continuous suture of the mucous membrane, combined with a few interrupted Lembert sutures. When suturing is impracticable, on account of the difference in size of the two segments, the Murphy button seems to fill nearly all requirements. The author has used the Murphy button in fifty cases, and finds two objections, indefinite retention and contraction of the artificial opening, these two being in close relation as cause and effect. Those cases of contracture are most liable to occur when the upper viscus, be it stomach or colon, is much dilated at the time of operation.—*University Medical Magazine*, Jan., '99.

DISLOCATION OF THE ULNAR NERVE.

John H. Jopson describes this rare accident in the *Philadelphia Medical Journal* of September 10, 1898, and gives a synopsis of the literature. Nine cases have been reported in which the dislocation is described as congenital, habitual,

or spontaneous; the remaining sixteen, including his own, were traumatic.

The persistent pain in the writer's case and the fear of neuritis led to operation. An incision was made over the usual seat of the nerve, which was easily exposed by dividing the fascia, about three inches of the nerve being freed above and below the elbow. The groove for the nerve was either absent or filled up, and the fascia enclosing the nerve seemed to have been separated from the olecranon. The fascia covering the heads of the flexor carpi ulnaris muscle between the olecranon and the internal condyle was divided, and a longitudinal incision was also made into the internal head of the triceps above, parallel with the edge of its tendon. The nerve was replaced in the groove thus formed, and two loops of kangaroo tendon were passed through the tendon of the triceps and loosely around the nerve, and tied, care being taken not to cause any constriction of the nerve. Sutures of catgut were then used to unite the fascia over the nerve, between the olecranon and the internal condyle. The wound was closed without drainage, and the arm dressed in the extended position on a straight splint, with a little padding in the flexure of the joint, and with an extra pad over the internal condyle. Following the operation there was practically no pain. Careful watch was kept for sensory and motor changes in the distribution of the nerve, but beyond a little tingling in the ring and little fingers on the second day, felt only when the bed was jarred by some one walking across the ward, there was nothing of moment. The wound was dressed in a week and found practically healed, the sutures being removed a few days later. The patient was discharged on April 3, and the splint removed on April 9, three weeks after the operation. The nerve could be felt in the position where it was secured. Flexion was free up to a point somewhat beyond a right angle, when pain was experienced at a position corresponding to the tendon stitches. This gradually disappeared, and, when last seen, on May 30, more than two months after the operation, the boy had regained complete use of the arm, the nerve was apparently firmly fixed in its natural place, and there was no pain or discomfort of any kind.—*Medicine*, Nov., '98.

SALT SOLUTION IN SURGERY.

Dr. Hunter Robb, quoted in the *Railway Surgeon* of August 9, 1898, strongly advocates the extended use of normal salt solution in surgical operations. He has used salt solution for irrigating the abdominal cavity for the past eight years,

and for the past three years he has left in the abdominal cavity from 300 cubic centimeters to several liters of salt solution at a temperature of 112° F. after every abdominal operation, when not employing drainage. From observation he is convinced that this procedure diminishes the shock which generally follows a serious operation, and he also believes that it diminishes the thirst of which patients so frequently complain after such operations. In those cases in which pus has escaped into the abdominal cavity, he employs it according to the method recommended by Dr. John G. Clark, and in many cases in which large quantities of pus had escaped into the abdominal cavity, after the latter had been thoroughly cleansed, he has poured into the abdomen from 500 to 1,000 cubic centimeters of the salt solution and placed the patient in the position suggested by Dr. Clark, with the head down and feet elevated, in the treatment of this class of cases.

It has also been Robb's practice for the past three years to use irrigations with salt solution during plastic operations. Since adopting this procedure he has seldom met with any microscopical pus formation after plastic work, and is led to believe that the irrigation with salt solution has in some way contributed to this result. To save time he sterilizes a sufficient quantity of salt in a test-tube in the autoclave, or Arnold steam sterilizer, and then places the necessary quantity in a sterile fountain syringe or glass vessel and adds the requisite amount of sterilized water.

The only objection to using this fluid during plastic operations would be that it prevents clotting of blood from the cut vessels. Robb does not think that this disadvantage is of great importance, as with a very little experience the operator will soon recognize what vessels it is necessary to ligate, and how far pressure will suffice.

[In plastic surgery Krause has pointed out that no solutions of any kind should be brought in contact with the wound since primary agglutination of parts takes place less rapidly and firmly. This agglutination takes place, as Graser has shown, by virtue of the formation of fibrin. As the salt solution interferes with fibrin formation, it should not be used in plastic work.]—*Medicine*, Nov., '98.

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Correspondence.

INTERPROVINCIAL REGISTRATION.

Editor CANADA MEDICAL RECORD:—

DEAR SIR,—The present time is a most favorable one for the movement which is being so ably furthered by Dr. Roddick, our popular and influential representative in the House of Commons. Not only have we Sir William Hingston to support him in the Senate, but at the present time the Provincial Legislatures are all in accord with the Federal Parliament, and will do almost anything which the latter may ask of them. The colonial secretary, Mr. Jos. Chamberlain, is most favorably disposed towards Canada, and with his immense influence could obtain for us any legislation we might require. With the whole profession in Canada in favor of it, and the Provincial Medical Boards and Legislatures raising no objection to it, I think that there would be no insurmountable difficulty in getting a short act passed by the Parliament of Canada, and even if necessary by that of Britain.

I would, however, like to point out a much simpler method of obtaining what we desire, namely, by changing the name from Dominion Board to University of Canada. There was nothing in the British North America Act to

prevent the Parliament of Canada from granting a charter to a University of Canada with power to give degrees in medicine, the holders of which would be entitled to practice in all parts of Canada. The act granting this charter could if necessary be ratified by the British House.

As the University of Canada would be an examining body and not a teaching one, it would in no way interfere with the rights of the Provincial Boards or Medical Schools, which would continue to carry on their work precisely as they are doing at present, for those who were satisfied to practice in their own province only. Those who wished, however, to practice all over the Dominion must pass through a uniform portal, the barriers of which should be at least as high as those of any Provincial Board. And that portal would be the matriculation and final examinations of the University of Canada. Even when armed with this degree, its holder must obey the same regulations and pay the same fees annually as the other practitioners of the province in which they desire to practice. By calling it the University of Canada, it would become a national institution and an object of national pride, so that the Government of Canada would come to its aid financially during the first few years, after which it would be self-supporting. I do not see any difficulty either in the matriculation or final examination. Some man of high standing would be appointed in each provincial capital or chief city to hold the entrance examination simultaneously. Sealed examination papers would be sent to him some days before, but would only be opened by him after all the candidates had entered and the doors were locked; this would be taking place at the same hour and minute in the seven distant cities from Halifax to Vancouver. When the allotted time was up, the papers would be signed and sealed by the examiner and forwarded to the central committee, who without knowing the writer's name would apportion the merited marks and forward certificates. On presentation of these certificates and proof of five years' study of medicine, the candidates could come on a fixed date every year before the examiners of the University, who would be chosen from the present provincial examiners or other eminent teachers.

As to the clinical examination, the committee on clinics together with all the candidates could take a two hour and a half ride down to Montreal and hold the examination at the big hospitals, and return to Ottawa the same or the following day. As soon as the results of these examinations had been added to the others, the convocation could be held and the degrees be signed and given by the Governor-General. The examination might be more severe on practical subjects for those who had been over ten years in practice, and more severe in theoretical subjects for those who had just left the medical school. The fees should not exceed fifty dollars, which with a government grant of ten thousand dollars a year for ten years would be ample to defray all expenses, as examinations would be held only once a year in the month of June.

Trusting that you will help this matter with your editorial influence.

I remain, yours sincerely,

A. LAPHORN SMITH.

Book Reviews.

A Treatise on Fractures and Dislocations.—For Practitioners and Students. By Lewis A. Stimson, B.A., M.D., Professor of Surgery in Cornell University Medical College, New York. In one octavo volume of 823 pages, with 321 engravings and 20 full-page plates. Cloth, \$5 *net*. Leather, \$6 *net*. *Just ready*. Lea Brothers & Co., Philadelphia and New York.

This admirable volume, although a second edition to the volumes published in 1883 and 1888, has been so largely rewritten that it is practically new. By the eminently practical way in which the author deals with his subject, one can imagine, to some extent, the large range of material which has passed through his hands. With regard to the influence of the X rays on the diagnosis of fractures, it is interesting to note his opinion that "it cannot fairly be said that they have yielded much information of practical value which could not have been obtained by palpation." Undoubtedly, future improved methods and apparatus will eliminate many of the misleading appearances of to-day.

After a review of the Pathology, Etiology, Diagnosis, general treatment, etc., we come to fractures of the skull, and find that circumscribed fractures of the vault and fissured fractures, with injuries of the brain, have been substituted for the old classification

of fractures of the base and vault, with good advantage. A classification of this kind gives prominence to the brain lesion, which is of primary importance, the fractured skull rarely giving much trouble if the brain or coverings are not injured.

The illustrations throughout are very good, and many good hints of recent suggestion are included in the methods of treatment. It is interesting to note that several fractures of the humerus at or just below the surgical neck have been reported on attempting reduction of shoulder dislocation by Kocher's method.

The work is certainly its own best recommendation, and will win its way among surgeons as a familiar friend, while to the physician and student it is an invaluable reference work.

The American Year Book of Medicine and Surgery.—

Being a yearly digest of scientific progress and authoritative opinion in all branches of medicine and surgery drawn from journals, monographs and text-books of the leading American and foreign authors and investigators, collected and arranged with critical editorial comments by Samuel M. Abbott, M.D.; John J. Abel, M.D.; J. M. Baldy, M.D.; Charles H. Burnett, M.D.; Archibald Church, M.D.; J. Chalmers Dacoste, M.D.; M. A. Newman Darland, M.D.; Louis H. Duhring, M.D.; D. T. Edsall, M.D.; Virgil P. Gibney, M.D.; Henry A. Griffin, M.D.; John Guiteras, M.D.; C. A. Hamann, M.D.; Alfred Hand, jun., M.D.; Howard F. Hansell, M.D.; Milton B. Hartzell, M.D.; Barton Cooke Hirst, M.D.; E. Fletcher Ingalls, M.D.; Wyatt Johnston, M.D.; W. W. Keen, M.D.; Henry G. Ohles, M.D.; Wendell Rehn, M.D.; David Rusman, M.D.; Louis Starr, M.D.; Alfred Stengel, M.D.; G. N. Stewart, M.D.; J. R. Tillinghast, jun., M.D.; J. Hilton Waterman, M.D. Price \$6.50, cloth; \$7.50, half morocco. Under the general editorial charge of George M. Gould, M.D. Illustrated. M. B. Saunders, 925 Walnut st., Philadelphia. Canadian agents, J. A. Carveth & Co., Toronto.

This excellent year book has steadily grown in popularity since its first appearance a few years ago. It is a large volume of over one thousand pages. As evidenced by the staff of compilers, the best ability is engaged in the selection and preparation of the material so that each department contains the cream of the progress made. The present edition has a more finished appearance than its predecessors, experience in the work of choosing and condensing the material culled from the widest sources has enabled the writers to give attractive resumés, devoid of the crudities apparent in parts of the earlier editions, and hence these pages represent a vast amount of matter, condensed into short articles, well adapted for ready reference. All the departments of medicine are represented, and the material is culled from the widest sources so that one can be speedily informed of the advance being made on every variety of subject on practical medicine. Many illustrations and tables enhance the value of the work. A list of the journals quoted from appears at the foot of each page. Heavy large type headings appear at the beginning of the different subjects

considered on each page, and a very full index enables one to find the article on any subject desired. Paper, printing and binding are after the style of Saunders' well-known text-books, all of the best quality. The purchasers of this volume yearly need replenish his general text-books only at long intervals, as he will find here the additional information which leads to the demand for new editions.

The Medical News Pocket Formulary for 1899. By E. Quin Thornton, M.D., demonstrator of Therapeutics' Pharmacy and Materia Medica in the Jefferson Medical College, Philadelphia. Price, \$1.50 net. Lea Brothers & Co., Philadelphia and New York, 1899.

In this pocket volume of 272 pages, formulæ are given under the heading of each disease, containing the most approved combinations prescribed by leading authorities. While one should be able to frame prescriptions suitable for the case under treatment, much experience is required before the best and most elegant combinations are discovered by experience. Hence for the young practitioner especially and even those of longer practice who may be wedded to older methods and formulæ not noted for elegance or skillful combinations, the suggestions to be obtained from this collection cannot but prove to be of the greatest assistance, no matter what his experience is, for the selections are supposed to represent the expert experience of the best authorities. Tables are given of weights and measures, poisons and antidotes, and doses and incompatibles.

Three Thousand Questions on Medical Subjects, arranged for self-examination, with the proper references to standard works in which the correct replies will be found. Second edition enlarged. Price, 10c. S. Blaburton, Son & Co., 1012 Walnut street, Philadelphia, 1899.

The object of this little volume is to enable the student to examine himself on the various branches of the medical curriculum. The questions embrace the practical aspect of the subjects mostly, and a list of books is given to which references can be made to get the full answer. The student who can give correct replies to these questions should find an ordinary examination comparatively easy.

PUBLISHERS DEPARTMENT.

The event of the literary year will be, undoubtedly, the great novel upon which Count Tolstoy has been laboring in order that he may devote the proceeds to the transportation to Canada of three thousand Russian Quakers. It is generally believed by his friends that this work will probably mark the conclusion of Count Tolstoy's literary career. Not merely on this account, but because of the subject treated, it will attract the widest attention, the world over. It is a profound study of the life of man and woman, and treats of the three

phases of love—that of the youth, that of the young man, and that of the man in mature age. THE COSMOPOLITAN MAGAZINE announces that it has secured the sole right of publication.

LITERARY NOTES.

That neither patriotism nor good sense is yet extinct among Spanish writers on public affairs is clearly proved by the article on True Rational Greatness which *The Living Age* publishes in its number for March 4. It is written by E. Gomez de Baquero, and is translated from *La Espana Moderna*. It is a very sane and candid article, and shows a clear perception of the needs of Spain.

The "Paladin of Philanthropy," about whom that delightful essayist, Austin Dobson, discourses in a paper contained in *The Living Age* for March 4, is General James Edward Oglethorpe.

Professor James Sully's article on "Dollatry" in *The Living Age* for Feb. 25th is a delightful study of child-nature as exemplified in the care of dolls.

The Living Age, which in its serial, "The Etchingam Letters," is giving from week to week most charming specimens of epistolary cleverness, contains in its issue for Feb. 25th an article on "Women as Letter-Writers" which its women-readers can hardly fail to appreciate.

The paper entitled "Impressions of American Universities," which *The Living Age* reprints from *The Nineteenth Century*, shows how our American institutions strike our English cousins.

DR. G. W. SHERMAN OF DETROIT, ON PROTONUCLEIN IN GENERAL PRACTICE.

My first practical experience with protonuclein was on myself. About two and half years ago I was taken with a severe attack of acute catarrhal inflammation of the nasal mucous membrane, which rapidly extended down the trachea into the bronchi. It began on a Friday morning with an almost incessant sneezing, accompanied by blocking of the nose, fullness in the head and headache, followed later in the day by a thin, copious discharge from the nose, and an irritating cough. By 5 o'clock p.m. the same day my headache was severe, my limbs all ached, and on taking my temperature it registered 101°. I had had similar attacks before, none apparently quite so severe, which always run a course of from one to three weeks. I had tried quinine and other remedies without any appreciable benefit, and was a willing subject to try something new. I had a few samples of protonuclein and began to take them *ad libitum*, starting about 5 o'clock in the evening. By Saturday morning I felt some better, and continued taking the preparation through all that day, still *ad libitum*, and by evening, twenty-four hours after I began its use, felt considerably improved. I continued taking more during Sunday, when my nose cleared up and the headache, fever, cough and soreness in my limbs disappeared. By Monday evening, after three day's treatment, I was practically well and attended a meeting of the Detroit Medical and Library Association. Since then I have always prescribed protonuclein in these acute catarrhal affections with the same happy result. Experience has taught me that the proper dose for such cases, in the adult, is from six to twelve grains repeated every two to three hours. The treatment should be continued with smaller doses for a few days after the disease has disappeared to prevent a relapse.

I have found protonuclein especially useful in the treatment of bronchopneumonia in infants and children. In these cases I usually give from two to four grains, according to age, repeated every two to three hours, and find that a recovery takes place in from three to five days. I have had remarkable success in treating pneumonia with this preparation.