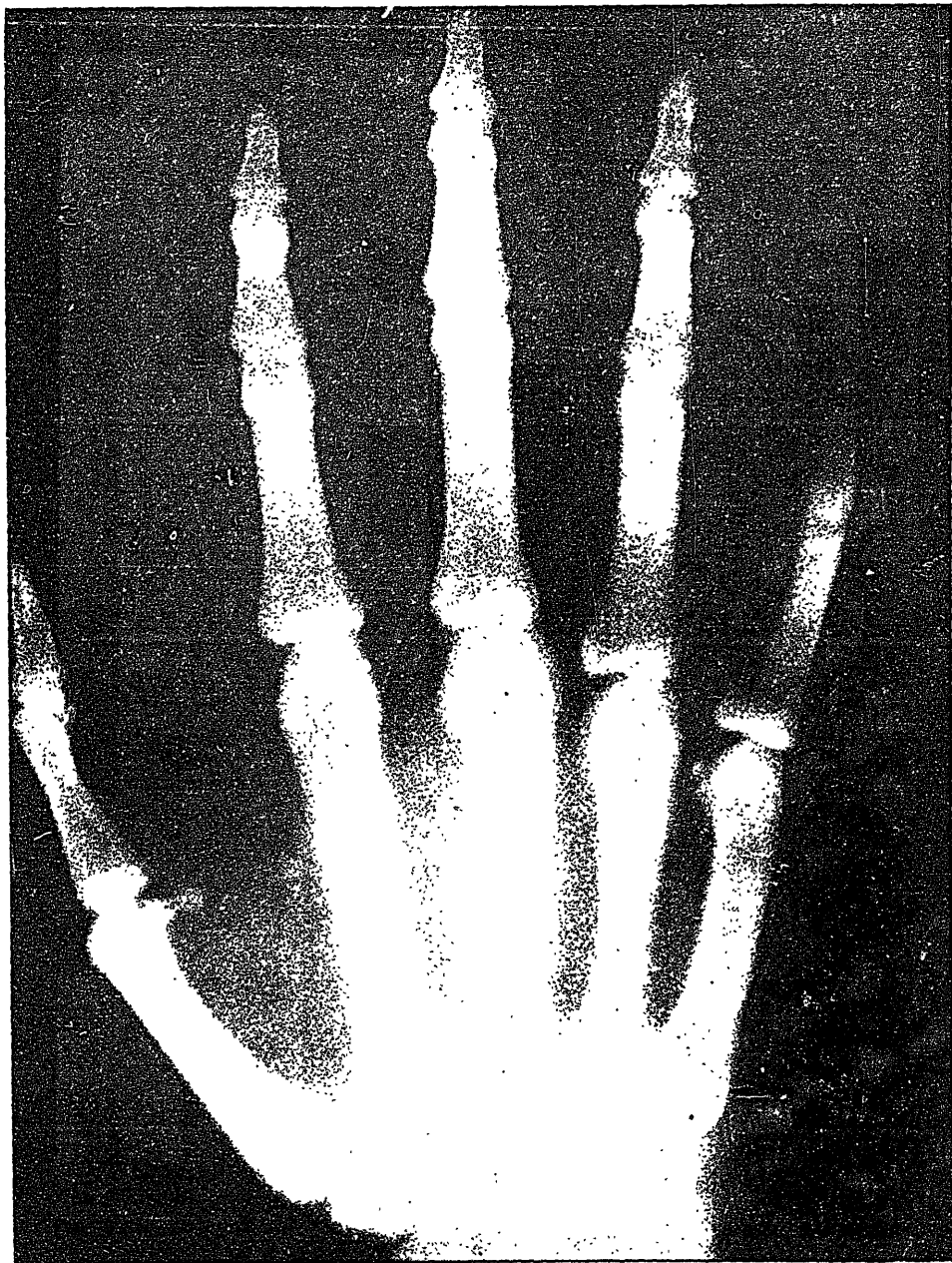


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PHOTOGRAPH OF LIVING HAND SHOWING BONES.

THE

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## Original Communications.

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### THE NEW PHOTOGRAPHY WITH REPORT OF A CASE IN WHICH A BULLET WAS PHOTOGRAPHED IN THE LEG.<sup>1</sup>

By J. Cox, M.A.

Wm. C. McDonald Professor of Physics, McGill University, Montreal.

AND

ROBT. C. KIRKPATRICK, B.A., M.D.,

Demonstrator of Surgery, McGill University; Surgeon to the Montreal General Hospital.

Everyone is familiar with the phenomena produced by discharging an induction coil through an ordinary Geissler tube. The vacuum of such a tube corresponds to a pressure of about one-thousandth of an atmosphere, or something less than one millimetre of mercury. On closer inspection the negative electrode, or Kathode, is seen to be covered with a velvety glow. Next comes a short dark space from which a faint violet cone spreads along the tube; the rest, and by far the larger part of the tube, is filled with a cloudy light whose colour depends on the gas within the tube. This light is generally arranged in regular patches or striæ and extends right up to the anode or positive pole.

Some twenty years ago Crookes showed to the British Association a number of tubes in which the exhaustion was carried to the millionth of an atmosphere. In these tubes the phenomena, as had been previously observed by Hittorf, are entirely different. As the vacuum increases the dark space spreads from the Kathode till it fills the whole tube, and the faint violet cone of rays from the Kathode excites brilliant fluorescence in the walls of the tube or any mineral or screen placed to receive them. Crookes exhibited experiments to

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<sup>1</sup> Demonstrated before the Montreal Medico-Chirurgical Society, Feb. 7, 1896.

prove that these 'Kathode Rays' not only cause fluorescence, but (1) proceed in straight lines independently of the position of the anode, (2) violently heat the glass or the objects on which they impinge, (3) can set fans in rotation by their impact, (4) are deflected by a magnet, and (5) repel each other when two streams are sent in parallel directions.

Three views have been held with regard to these Kathode rays. Crookes maintained that they were streams of the remaining molecules of the rare gas, which having conveyed the positive charge to the Kathode left it with a rush which carried them far down the high vacuum before the rare collisions with other molecules brought them back to the usual state of confused motion in all directions. To the gaseous particles in this high vacuum he gave the name of "radiant matter," or matter in the fourth state of aggregation. Dr. Puluji, of Vienna, controverted Crookes' opinions, and made careful researches to prove that the rays were streams, not of gaseous molecules, but of particles actually torn from the Kathode itself.

Finally Hertz and Lenard came to the conclusion that they were not matter at all, either gaseous or belonging to the electrodes, but "Processes in the *Æther*," *i.e.*, vibrations or radiations of some kind analogous to ultra-violet, or infra-red light.

Three years ago when Prof. Hertz and Dr. Lenard showed me these rays, for the first time brought outside the glass wall of the tube, in Dr. Lenard's room at Bonn, they spoke of them as "molecules," but in the later part of his research Lenard proved that when once excited they could travel across the highest vacua, and for this and other reasons concluded they were phenomena of the *Æther*.<sup>1</sup> Dr. Lenard placed an aluminium window opposite the Kathode, and the rays passing through the metal caused fluorescing bodies to shine at distances of 6 centimetres in air, 4 in carbonic acid, and as much as 30 centimetres in hydrogen. Lenard found they affected a photographic plate, and even obtained some shadow photographs by their means.

It was not till last December that the next step was made known to the world by Dr. Roentgen in a paper communicated to the Academy of Wurzburg. It appears that while experimenting with a Crookes tube, which had been covered with black cardboard, in order to see if the eye could detect any rays emerging from the tube and capable of penetrating the opaque covering, Dr. Roentgen noticed that fluorescence was being excited in a screen painted with fluorescing material at some distance from the tube. Following up the hint, he obtained the effect up to distances of two metres, and by means of

<sup>1</sup> Lenard Weidemann's *Annalen*, 1894.

the shadows cast on the screen, soon determined the relative transparency of many substances to the "rays;" he concluded that they were not the Kathode rays themselves, but emanated from those parts of the glass that were caused to fluoresce; that they were probably incapable of refraction, or of *regular* reflection, though he found evidence that metals and glass could produce a scattered reflection, as a white wall does with ordinary light. The paper, which is a model of scientific caution, condensation and accuracy, details researches on many other points, such as the susceptibility of the rays to magnetic and statical electric influences, to polarization and to interference, and ends with the very interesting but guarded suggestion that we may here be at last in presence of those longitudinal vibrations of the æther which many physicists have held must accompany the transversal vibrations (*i.e.*, those at right angles to the ray) which constitute ordinary and polarized light, though hitherto they have not been detected.

Near the end of this admirable paper about twelve lines are devoted to some curious photographs or "silhouettes," obtained by making use of the fact that certain substances are much more transparent than others to the Roentgen rays.

It happens that metals and bones are much more opaque than ebonite, wood, paper, flesh and liquids. Hence, Dr. Roentgen says, he has obtained pictures of wires upon a bobbin, weights inside a box, and the bones inside his hand; and he modestly suggests that there will be useful applications in surgery. Lead being the metal usually fired into human bodies, is fortunately one of the most opaque substances and casts a very black shadow. Hence the possibility of locating bullets, or observing malformations or fractures in the bones.

It is this startling aspect of the discovery which has seized on the popular imagination, and led to all kinds of wild speculations on the part of those who failed to understand the first brief reports of Dr. Roentgen's results. When further research shall have increased the sensitiveness of this process as much as the modern dry plate exceeds in speed and brilliance the slow and misty daguerrotypes of the early photographers, there is no reason to despair of obtaining pictures, at least in outline, of those organs of the living body (and their contents) which are not hidden behind too great a thickness of bone. For the present we must be content to obtain, by a long exposure, a shadow of the bone or foreign substances divested of the surrounding flesh. The process simply consists in placing the object to be pictured between a Crookes tube and a sensitive plate enclosed in an ordinary plate holder, or, better, in black and orange paper. The operation is

carried on in ordinary daylight, since the plate is never exposed to it. The plate is developed and fixed in the usual way.

Nothing has yet been done, beyond what was accomplished by Dr. Roentgen himself, to elucidate the nature of the new rays, but his photographic experiments are beginning to be repeated. With the splendid McDonald collection of apparatus at hand, I found no difficulty in reproducing them at the first attempt, in which I was aided by Mr. Nevil Evans. Wasting no time over photographs of coins or other small objects, we have obtained the pictures of hands now exhibited.

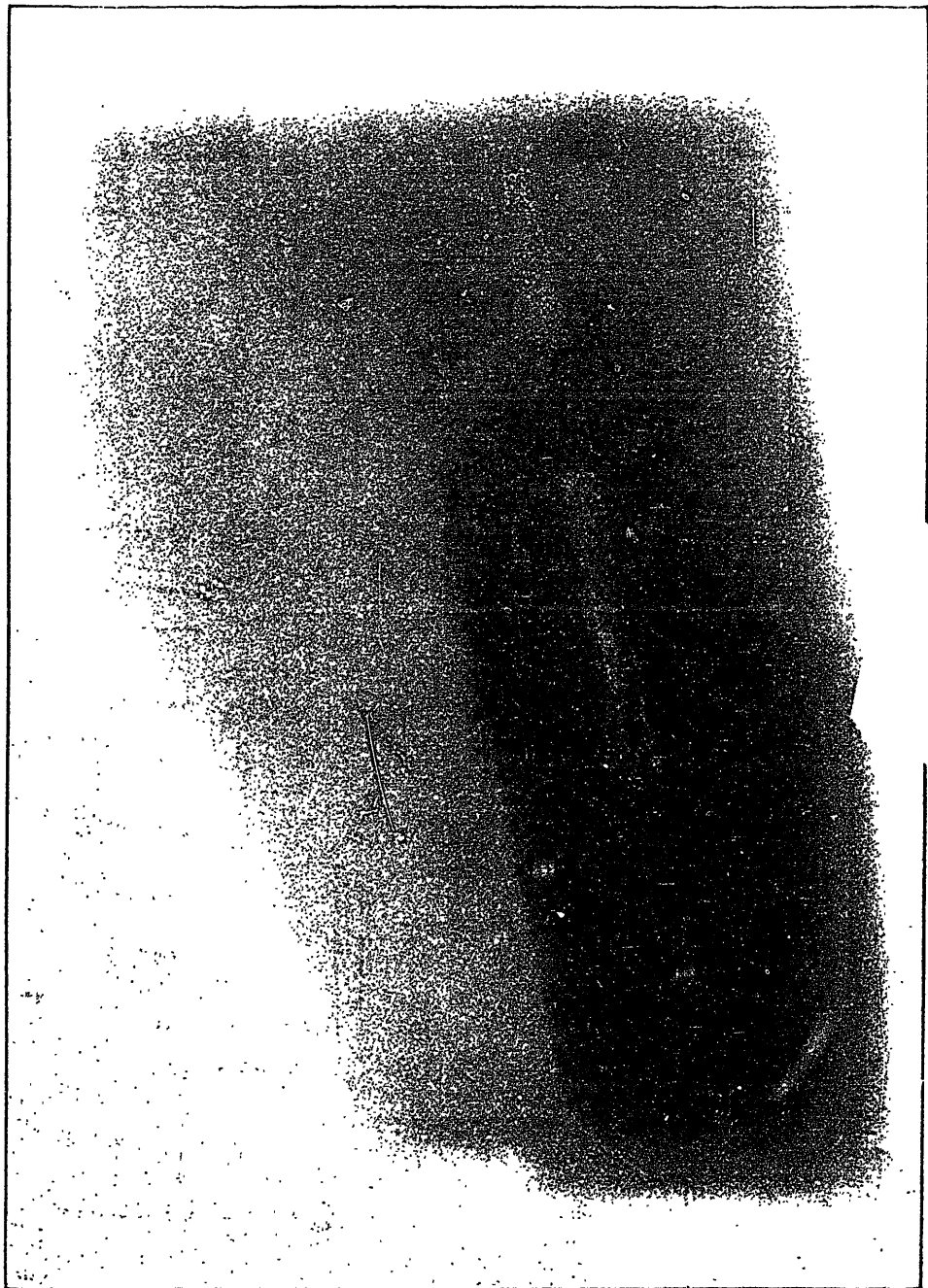
What will mainly interest your Society is that within four days of our first attempt we have made two trials of the process as applied to surgery. On Wednesday Dr. Armstrong kindly brought me a case of injury to the hip; but I am sorry to say that after one hour's exposure we obtained not a trace upon the plate (22 in. x 18 in.). I am inclined to attribute this failure to the presence of lead in the black paint of the dark slide kindly loaned by Messrs. Notman, as lead even in a pigment has been found to obstruct the rays.

This morning (Feb. 7th) Dr. Kirkpatrick was good enough to give me the opportunity of trying to locate a bullet which had begun to cause trouble in the leg of a patient. As this is probably one of the earliest cases of the successful application of Roentgen's rays, especially in penetrating such a thickness of flesh, the negative, which clearly shows the flattened bullet lying between the tibia and fibula, will be seen with interest. The plate was a Stanley (sensitometer 50) and the exposure 45 minutes. It is clearly under exposed, and should have had at least an hour and a half. Near the top of the plate may be observed a copper wire tied round the leg, 3 centimeters above the entrance to the wound, from which to measure distances. (This wire does not show clearly in the print, although quite apparent in the negative.) The bullet was 6 centimetres below the wire, where indeed it had been suspected to lie. It may be said that in this case the new process converted a surmise into a certainty.

The tube which I have found by far superior to all others tried at present is a Puluje tube containing a brilliant fluorescing screen, and hence called the "Schirm-Lampe." It is No. 3080 in the catalogue, of Geissler, of Bonn, (price 15 marks).

This tube was excited direct from the secondary of the large Kukenkorff coil (10 inches spark) fed with 4 ampères at 8 volts on the primary.

The very perfect photograph of the hand showing sesamoid bones was taken with the same arrangements (except that the plate was wrapped in orange paper instead of being placed in a dark slide) by



PHOTOGRAPH OF BULLET LYING BETWEEN TIBIA AND FIBULA.

Messrs. King and Pitcher, of the McDonald Physics Building, on the evening of February 7th. The exposure was, in this case 30 minutes.

A photograph of the arrangements in the Physics Lecture Theatre will make clear any omissions in my account.

I must leave Dr. Kirkpatrick to explain the medical aspects of the case.

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The patient was shot in the leg on Christmas night last. He entered the Montreal General Hospital at once, when efforts were made to find the bullet.

These having proved ineffectual, the wound was cleansed and an antiseptic dressing applied. The wound healed in a few days and the patient left the hospital apparently well. However, February 1st he began to suffer pain, and a tender point developed on the inner side of the leg, just behind the tibia and 3 c.m. below the point of entrance of the bullet, which was on the back of the calf toward the outer side.

On February 7th the bullet was photographed and our surmise as to the location of the bullet was proved to be correct. He re-entered the hospital, and the next day I made an incision parallel to and just behind the tibia, and found the bullet lying against the outer edge of this bone. The bullet, which was flattened, weighed sixty-four grains, and measured twenty-three mm. in length by fifteen in breadth. A groove ran longitudinally along the surface of the bullet showing where it had rested against the edge of the tibia.

Although the plate was so much under exposed that it was with great difficulty that a print was obtained from it, still the location of the bullet was plainly indicated in the negative, and any doubt which I had regarding its situation was at once removed.

The patient recovered rapidly and left the hospital ten days after the operation.



# AMPUTATION OF THE UPPER EXTREMITY, TOGETHER WITH THE SCAPULA AND OUTER TWO-THIRDS OF THE CLAVICLE<sup>1</sup>

By GEO. E. ARMSTRONG, M.D.

Assistant Professor of Clinical Surgery in McGill University; Surgeon to the Montreal General Hospital: Attending Surgeon to the Western Hospital.

Mad. X. Y., *at.* 34, married, III-para., was admitted to the Montreal General Hospital on the 2nd of January, 1895, complaining of pain, swelling and partial fixation of the left shoulder joint. She states that for fifteen years she has suffered more or less from rheumatic pains about the left arm and hand. Two years ago, when pregnant at the eighth month, she fractured the left humerus about its middle during an eclamptic seizure. At this time, before the splints were removed, a small lump the size of a hickory-nut appeared in the anterior part of the axilla. The lump was hard, painless and disappeared in about a year, but the shoulder has been more or less stiff ever since.

In August, 1894, she accidentally struck her shoulder against a door, and three days afterwards she was unable to move the left arm without the aid of the right hand. The shoulder became rapidly swollen and painful, especially behind. About two months ago a distinct nodular swelling appeared in front of the shoulder, which was stony hard at first, but afterwards became softer, and two weeks ago it was aspirated, a reddish-yellow gelatinous substance being obtained. These swellings have persisted, increased steadily in size and been very painful. There is considerable fixity at the shoulder joint. She says that she has lost flesh.

Her family history is negative. She is fairly well nourished. The whole shoulder is enlarged, the upper end of the humerus, neck of the scapula and acromion end of the clavicle being involved. The density varies, being in some parts semi-fluctuating, in others of bony hardness, and in one spot egg-shell crackling is very distinct. There is no tenderness. Fixation of the joint is complete. Vascular, respiratory and urinary system normal.

The diagnosis was myeloid sarcoma.

On the 12th of January, 1895, the whole upper extremity was removed by the method described by Paul Berger in 1887. An incision was made over the clavicle, from the outer border of the

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<sup>1</sup> Read before the Montreal Medico-Chirurgical Society, December 27, 1895.



**AMPUTATION OF THE UPPER EXTREMITY, TOGETHER WITH THE SCAPULA  
AND OUTER TWO-THIRDS OF THE CLAVICLE.**

sterno-mastoid muscle to the acromio-clavicular joint. This incision extended down to the bone, and the periosteum over the clavicle was incised longitudinally, and also a circular incision of the periosteum was made at each extremity of the longitudinal incision. The periosteum was then separated from the bone by a ruginé and the clavicle divided by a saw at each end of the incision and the middle third removed. The subclavius muscle was then separated at the inner extremity and turned outward, thus exposing the subclavian artery and vein. Two strong catgut ligatures were passed around the artery and vein and tied, the artery being tied first, that as little blood as possible might be left in the arm. The vessels were then divided between the ligatures. An antero-inferior and postero-superior flap was then fashioned and the remaining soft parts divided. The operation performed in this manner is practically a bloodless operation, the only hæmorrhage being from the supra-scapular and posterior scapular arteries.

The brachial plexus was divided high up.

There was no shock following the operation, because there had been no hæmorrhage. The patient made an uninterrupted recovery and was discharged seventeen days afterwards.

She remains in perfect health up to the present. She is strong and active. There is remarkably little deformity noticeable when she is dressed, in fact if met on the street one would think that she had her arm under her cloak.

The dangers of the operation, hæmorrhage, entrance of air into the sub-clavian vein, and sepsis, can all be controlled by Berger's method.

## A TRIP AMONGST THE GYNÆCOLOGISTS OF NEW YORK.

By C. L. PREVOST, M.D., Ottawa.

(Continued.)

Quite close to the Central Park, at the corner of 106th street and 8th avenue, is situated the New York Cancer Hospital.

Rather young, this hospital, scarcely eleven years in existence, and still, similar to Cornicille's hero, valour has not awaited the number of years. You may judge for yourselves by the following statistics out of the tenth annual report of this hospital. From January, 1894, to January, 1895, 751 patients were treated, 688 operations performed, including 142 abdominal sections, 21 abdominal and 16 vaginal hysterectomies. Mortality after all operations 4.15 per cent. Remember that in spite of its name this hospital is not exclusively destined to cancerous affections: it is an institution similar to all others and where all kinds of patients are admitted. A post-graduate course for nurses is attached to it and has been unusually successful.

The gynæcologists attached to the New York Cancer Hospital are Dr. Coe, one of the editors of the remarkable treatise of Clinical Gynæcology you all know, and Dr. Paul Outerbridge, whom it was my good fortune to see operate several times, and of whom I want to say a few words. Socially speaking, Outerbridge is a most charming man, obliging, affable and always ready to give any explanation required. As an operator he is neither fast nor slow, and therefore just right. Above all he is endowed with a truly angelic patience, which I envy with all my heart. I saw him at work in a case of intra-uterine tumour occurring in a woman of 38 years, on whom he operated before us. At the examination the point of the fibroid could be seen protruding through the os. The tumour appeared to be very large, and Dr. Outerbridge would very willingly have performed hysterectomy, but the patient, unmarried, retains still some hopes, quite legitimate after all, and she is anxious to keep her uterus, even be it only a second-hand one. Therefore the extraction will be attempted per vaginam by morcellement of the tumour in the uterus. In these cases of intra-uterine fibroids the authors advise that kind of operation if the operator is satisfied that he possesses a more than ordinary amount of patience and endurance, and surely they are right. Never have I seen such a laborious piece of work. During two full hours the operator was busy cutting up and removing pieces of the

fibroma, which, judging by the fragments piled up in the dish, must have weighed over seven or eight pounds. Sim's speculum placed on the posterior commissure and a retractor on the anterior wall, the operator seized with a large vulsellum the part of the tumour which protruded, and with the finger he would detach the uterine wall all around and then cut out a fragment with strong curved scissors, to begin again the same manœuvre. At the end of two hours the morcellment was not over, and in spite of the number and the size of the pieces which he had succeeded with such trouble in cutting and removing there was still some more to extirpate. The fibroid filled the whole uterine cavity and was inserted on the very bottom, as well as on the lateral walls. The cervix was not divided, but off and on Outerbridge would introduce the large metallic dilator called after him, and which is after all but a modification of Goodell's, and with that instrument he would divide the cervix, which contracted again owing to the manipulation on the fundus of the uterus. During the whole operation an assistant kept pressing the uterus downwards through the abdominal wall, but adhesions prevented the organ from coming down the pelvis and rendered the operation still more difficult. Some symptoms of collapse decided the operator to leave the operation incomplete and made him regret not having pursued the course he generally adopts in similar cases, that is, do a cæsarian operation—open the abdomen, split the uterus, enucleate the tumour, and then suture the uterine walls.

I saw also in the same service a woman who had her womb removed four years ago for cancer of the cervix. She felt well ever since and began only lately to complain of some pains in the pelvis. She was examined and a small mass was felt on the right side of the vagina. Dr. Outerbridge made a vaginal incision and removed a tube adherent to the bowels and the seat of a neoplasm, which might be a return of the primitive malignant affection. After the operation a vaginal dressing was applied upon the same principle as the Mikulicz; a large piece of iodoform gauze was pushed up to the bottom of the vagina and filled with long bands of the same material.

At last, the very day I left New York, I had the good luck of seeing Outerbridge extirpate by the vagina a large fibromatous uterus in a state of complete prolapse. Nothing simpler than the manner in which this hysterectomy was performed. The whole operation hardly lasted twenty-five minutes. No retractors, nothing but a Sim's speculum on the posterior wall of the vagina. The Douglas's pouch was opened with scissors, no gauze was introduced; then incision of the cul-de-sac, always with the scissors, rapid separa-

tion of the bladder, and opening of the vesico-uterine fold of the peritoneum; fundus of the uterus brought down through the anterior rent; broad ligament grasped between the thumb and fingers of the left hand and pierced by Cleveland's passer, armed with a double catgut strand which was cut in the loops and laid above and below. Same manœuvre on the other side—section and extirpation of the uterus, no guaze applied, no clamps used, only a slight plugging of the vagina with iodoform gauze, and that is all.

Such is, gentlemen, in my humble opinion, the ideal method of doing vaginal hysterectomy. I am well aware that this operation does not always present such facility of execution as in the case just cited, where the prolapsed uterus protruding through a large vagina allowed the surgeon to operate, as it were, out of the vulva. Still, even in less favourable cases, I fail to see the great advantage of placing on the ligaments clamps, which, to begin with, are far from being so easy to apply as it has been said, and which expose the operator to many inconveniences, certainly not void of certain dangers, such as pain, pinching of the intestine, and even gangrene by pressure, either of the vulva or the bowels, in spite of all precautions taken to surround the clamps with gauze. Besides, the operation seems unfinished when the patient is put to bed with ten or twelve long forceps hanging out of her genitals. Why not use good and strong ligatures? With a little dexterity they are rapidly applied, and if the catgut is of good quality, aseptically prepared and snugly tied, the danger of hæmorrhage is not any greater than with the clamps.

I know that by this confession I repudiate a mode of operating which is universally adopted in France. In fact the clamps are exclusively used by Rein, Segond and Richelot in Paris, Doyen in Reims, and Jacobs in Brussels. The latter went through New York lately and has performed in several hospitals many vaginal extirpations with clamps. His immense experience (more than 400 cases) and his skill would permit, it is true, his completing the whole operation within a few minutes; however, in spite of the luminous trail left by his passage through the great American city, his method does not seem to have produced a very deep impression, since the majority of American gynæcologists continue to do their hysterectomies by the means of ligatures. There are some exceptions, I know. For instance, I saw at the Post-Graduate, Prof. Dudley extirpating through the vagina a fibromatous uterus without a single ligature. He opened the cul-de-sac with Paquelin's thermocautery, applied clamps on the uterine arteries, brought down the fundus of the uterus through the

posterior cul-de-sac and applied again two clamps, one on each side, upon the ovarian arteries, on the superior border of the broad ligaments, reversed below by the somersault of the uterus, and then removed the latter. But, I repeat it, even in this case it would have been just as easy to apply ligatures, and the operation would not have been prolonged in a very noticeable manner.

These facts, however, demonstrate the general tendency now-a-days to perform by the vagina operations which a few years ago were universally done by cœliotomy. The route is safer, the shock infinitely less, almost nil, the dangers and inconveniences of abdominal section avoided. The lesions of the appendages have become amenable to surgical interference per vaginam; purulent collections of the pelvis are daily opened by the incision of the cul-de-sac; the degenerated tubes or ovaries are removed by the same way, and even uterine fibroids, when they are not too voluminous, are extirpated through the vagina. We are going still further. When deep and incurable lesions have rendered the extirpation of appendages necessary, why not remove at the same time the uterus? In fact, what is the use of that organ to a woman deprived of tubes and ovaries? Hereafter totally useless, this uterus is often diseased, it is even in the majority of cases the starting point of the disorders which led to the removal of the appendages. Badly cured, if at all, it will sooner or later surely produce further annoyance and necessitate perhaps a new operation. Therefore, why not perform a complete operation at once? The mutilation is hardly more considerable, and experience has already taught us that the results are infinitely more satisfactory.

But let us return to New York. I long to acquaint you with the German Hospital, situated on the corner of Park avenue and 77th street. This hospital has been in operation for twenty-five years, and still one would think that it was built yesterday, so modern is the disposition of its wards and the working of its operating room. Although opened to all nationalities, we can easily see that it is above all a refuge designed to relieve Germanic sufferings. Everything is German—the inscriptions at the entrance of the wards, the charts, the operators, the assistants and the nurses, for there also exists a training school for nurses founded in 1894. Here again they try to carry out the principles of strict antisepsis, and certainly they succeed in doing so in a most admirable manner. The operating room is large and well lighted from above. The floor is of cement and on a slightly inclined plane to allow the easy flowing of fluids; therefore they take it easy. No recipient is used at the foot of the operating table to receive, during irrigation, the fluids which run freely on the floor. The nurses and assistants wear rubbers and the operator old-fashioned wooden

shoes, and after the operation water, blood, etc., is swept away. It may be expeditious, but it reminds one too much of the slaughter-house, and therefore I consider it an offence against æsthetics.

The dressings, instruments, ligatures are prepared with greatest care in immense steam sterilizers. Everyone minds his own business during an operation, which is done with great regularity and in the midst of deep silence. The operator has on each side basins of water, where he puts the instrument he has just used. The assistant at once cleans it and places it amongst the others to hand it back to the operator when wanted.

I assisted at operations performed by Dr. Krug, gynæcologist, and Willie Meyer, general surgeon. Willie Meyer! Here is a man near whom physicians and students must derive the greatest benefits. He teaches while operating, and by clear explanations makes us follow the course of his scalpel. He was doing that day Bassini's operation for the radical cure of hernia, extirpation of the astragalus for an old dislocation of that bone, and removal of hæmorrhoids. After laparotomy he closes the abdominal walls with a continuous catgut suture, taking care to interlock each stitch by passing the needle under the superior loop. To remove hæmorrhoids he uses the clamp and cautery, like almost every other surgeon in New York. But instead of snipping the top of the pile on the clamp before applying the cautery, he sears the whole of it down to the clamp without using any scissors. It takes longer, but the process is safer and guards more surely against further hæmorrhage. Only the prolonged contact of the fire rapidly raises the temperature of the clamp, and if the latter is not supplied with ivory plates we must not forget to lay between it and the skin a piece of moist gauze. In spite of this precaution in the case operated on before us, the clamp, entirely metallic, deeply burnt the left buttock of the patient; they had neglected to keep the gauze sufficiently moist during the operation. Dr. Meyer recommends to apply the clamp in the direction of the radiating folds of the anus. For instance, diagonally on each side below, the point of the clamp directed upwards towards the centre of the anus, and diagonally on each side above, the clamp pointing downwards. Four applications of the clamp are sufficient. Should there be any prolapsus of the rectum, some of the skin at the margin of the anus is included in the instrument with the pile. Iodoform powder is dusted on the parts and the bowels kept confined for three days.

Before I introduce you to Dr. Krug, and while we are dwelling on that interesting part of our economy, let us repair, if you please, to the Post-Graduate; we shall come back bye and bye to the German Hospital.

(To be continued.)



# A CASE OF GENERAL INFECTION BY THE BACILLUS PYOCYANEUS.<sup>1</sup>

By KENNETH CAMERON, B.A., M.D.,

Assistant Surgeon, Montreal General Hospital; Assistant Demonstrator in Clinical Surgery, McGill University.

H. P., a male child, was born at the Montreal Maternity Hospital on August 4th, 1895, was nursed by his mother for twelve days, and left by her at the Montreal Foundling and Infants' Nursery. The infant weighed eight pounds and was well nourished; the stools were in good condition, yellow and free from curds. He was then fed upon a mixture consisting of milk, lime water and water, each one-third, with sugar of milk ʒi to ʒv. After the first week the stools became loose and watery, and contained more or less curd. This indigestion never improved, though the proportions of the mixture were frequently changed, and he gradually lost weight. The temperature, taken every four hours, ranged from 97° to 100½°. In no way did the case differ from one of atrophy with indigestion until September 16th (the fifth week) when a blue papule, 6 mm. in diameter, was noticed on the abdomen a little to the left of the umbilicus. A purulent discharge from the right ear was observed the same day. Two other small spots appeared on the abdomen. Later on, the whole surface of the body became slightly cyanotic. The muscles of the legs were rigid, but not markedly so, nor were the thighs flexed on the abdomen. The child died on September 23rd, or six weeks after birth. The temperature during the last week ranged from 94° to 99°.

A note was sent with the body to the pathologist asking him to especially look for the bacillus pyocyaneus, as some, but not all, of the symptoms of infection by that organism had been present. In the absence of Dr. Martin, the requisite observations were made by Mr. E. W. Hammond, of the McGill Pathological Laboratory, under the immediate supervision of Dr. Adams. From his notes it will be seen that the bacillus was found generally distributed throughout the organs.

This case is the third of a series of cases of general infection by the bacillus pyocyaneus, observed among the infants in the Montreal Foundling and Infants' Nursery during the past sixteen months.

The first two cases have been very fully reported elsewhere<sup>2</sup> by the late Dr. E. P. Williams and myself, but may be briefly repeated here for the sake of comparison.

CASE I.—A male child, nursed by his mother throughout his life.

<sup>1</sup> Read before the Montreal Medico-Chirurgical Society, November 29, 1895.

<sup>2</sup> *Journal of the American Health Association*, July, 1895.

He gained steadily in weight until the twenty-second week of age when he became restless and ill, and began to lose weight without assignable cause. Five weeks later diarrhoea set in, accompanied by abdominal pain and tenderness, and slight fever. After a week, a group of purple papules, 3 to 7 mm., appeared on the abdomen on each side, midway between the umbilicus and the flank; they then spread over the abdomen, chest and legs. The lower limbs became rigid, the legs were flexed on the thighs and thighs on the abdomen, and any attempt to straighten them out caused pain. Two days before death there was a profuse epistaxis and bleeding from papules between the toes, on the right thigh and on the back. A purulent discharge was also noticed from the left ear.

The autopsy was performed very shortly after death, and from the kidneys and spleen-pulp were obtained *pure* cultures of the bacillus pyocyaneus. Microscopical examination showed the capillaries everywhere to be crowded with bacilli, which here and there formed emboli, and in some instances the micro-organisms had passed through the walls of the vessels infiltrating the surrounding tissue.

CASE II.—A small poorly nourished female child was left in the Nursery, without her mother. She had a purulent discharge from both ears. There was a gain in weight for the first week, when she began to have diarrhoea and lose weight. She soon developed a general lividity of the whole body of a most pronounced type, and several pustules on the head, but no purpuric spots or cutaneous hæmorrhages were observed. Two days before death there was rigidity of the muscles. Cultures taken from the kidney, spleen and liver showed a *pure* growth of the bacillus pyocyaneus, and the microscopical appearances were identical with those seen in the first case.

Inoculations were made into rabbits from cultures taken from each child, and both the animals died within twenty-four hours with all the symptoms and lesions of acute pyocyaneus infection.

Very similar cases have been reported by Ehlers (*Hospitals Tidende de Copenhagen*, Mai, 1890,) and H. Neuman, (*Archiv. f. Kinderheilkunde*, Bd. XII., 1890). I am not, however, acquainted with original observations upon general infection with the bacillus pyocyaneus in children other than the cases by these two writers.

“The effects of the bacillus upon animals have been studied by several observers, notably Charrin, Ruffer and Babinsky. Charrin found that he could, by subcutaneous or intravenous injections of cultures, produce in rabbits a very characteristic disease, ending fatally, the symptoms and duration of the illness varying with the quantity and quality of the virus introduced. If a large dose, 0.50 to 1.00 cc., be injected into the vein of a rabbit's ear, the animal will

die in from twelve to twenty-four hours, the symptoms being loss of appetite, elevation of temperature, followed by a fall before death, diarrhoea, albuminuria, drowsiness increasing to coma, and sometimes convulsions. If, on the other hand, small repeated doses are given, a different train of symptoms appears. The disease becomes more chronic. Besides the albuminuria, diarrhoea, and fever, there occur rapid emaciation, cutaneous hæmorrhages and a peculiar form of spastic paralysis affecting usually the hind legs only; the thighs are flexed upon the pelvis and the legs upon the thighs, which condition relaxes under chloroform; handling the limbs gives the animal pain; the muscles do not waste nor do they lose their electrical reaction. A few hours before death the paralysis becomes general. The post-mortem examination shows hæmorrhagic infarcts in all the organs and the specific organism may be easily demonstrated."

The close resemblance between the symptoms of this more or less chronic disease, produced experimentally in rabbits, and those observed in the infants, is very striking, and suggest that the cases reported are examples of the very rare condition—true pyocyanic disease.

The cardinal symptoms of this disease appear to be:

1. *Wasting.* This is usually very marked and rapid, and for it sometimes no cause can be assigned. In the case reported by Ehlers there was also mental depression.

2. *Diarrhoea.* Symptoms of gastric and enteric catarrh are always present and appear early. The stools are usually green, watery, and, in babies fed on milk, full of curds. Treatment seems to produce but little effect.

3. *Fever.* This is not high—the range being usually only two or three degrees, with a decided fall, often much below normal, before death.

4. *Albuminuria.* This is always present in rabbits, but no record can be found of this symptom in the human subject. This is probably due to the great difficulty of obtaining samples of the urine of very young babies. In the three cases here reported, repeated attempts were made to obtain a specimen but were unsuccessful.

5. *Rash.* In all the recorded cases there has been an eruption of bluish or purplish papules, chiefly on the abdomen, but also on the chest, limbs, head and mucous surfaces. The spots vary in size from 2 to 7 mm. in diameter, and there may be only a single one or a very great number. Sometimes they become pustular or bullous, the contents being of a bluish or brownish colour, and from them the bacillus can be cultivated. Sometimes a lividity of the whole body may be observed. This rash is the most characteristic symptom of the disease. Of the 68 infants that have died in the Nursery and have

been examined, but three have had such an eruption, and these are the three cases, here reported, of generalized infection.

6. *Muscular disorders.* These take the form of spastic paralysis, and occur late, after the development of the rash. The lower limbs seem to be the only parts affected. The thighs are flexed on the pelvis and the legs upon the thighs, and if straightened will return to the same position. Handling will make the child cry as if in pain. Before death there is general muscular relaxation.

BACTERIOLOGICAL NOTES UPON DR. KENNETH CAMERON'S THIRD CASE OF GENERAL INFECTION BY THE BACILLUS PYOCYANEUS.

By E. W. HAMMOND.

[From the Molson Pathological Laboratory, McGill University.]

I am indebted to Dr. Adami for the opportunity of publishing the following notes:

The post-mortem in this case was made by Dr. Adami and myself. At the autopsy the infant was found to be small and greatly emaciated, the skin in general had an earthy, sallow appearance, and over the abdomen there was a small hæmorrhagic eruption, with, in addition, two larger, rather faded purplish spots. The abdomen was greatly distended and tympanitic, and upon opening it the bowels had a dark congested appearance. There was no fluid in the abdominal cavity, but the bowels were moist. There were no signs of any subserous hæmorrhages, and neither in the intestines nor in the other abdominal organs, save the stomach, were there any conditions noted differing from those seen in marantic infants. The abdominal organs in general had a dark congested appearance, the spleen was soft and relatively large, the lungs were also congested. In the stomach there were submucous hæmorrhages similar to those observed by Dr. Williams in the cases mentioned above, and similar to those seen also in the rabbit upon inoculation with *B. pyocyaneus*. I may state that I have seen several cases of such submucous hæmorrhages, both in animals inoculated in the pathological laboratory here and in animals inoculated by Dr. Ruffer at St. Thomas's Hospital in London.

I made cultures in beef broth from the subcutaneous tissue beneath one of the large purplish spots in the abdominal wall, from the heart blood and from the kidney, liver and spleen. Of these the culture from the abdominal wall resulted in a pure growth of the *B. pyocyaneus*, that from the kidney became turbid, but showed no characteristic greenish colouration; the heart blood and the liver developed slowly the characteristics of *pyocyaneus* cultures, but upon microscopical examination presented cocci along with the bacillus; the spleen showed admixture with cocci and putrefactive bacteria to an even greater extent. It may be added that the weather was distinctly

warm. The autopsy was not performed until at least twelve hours after death. As above stated, putrefactive bacteria were present in the cultures from the softened spleen. Whether the cocci found in the heart blood represented a post-mortem growth or the existence of a mixed infection I am not competent to determine. Their existence renders it impossible for me to state absolutely that this is to be classed as a case of pure pyocyaneus infection. It is, however, to be noticed that from the most characteristic lesion present, namely, from the purplish hæmorrhagic patch in the skin of the abdomen, the *B. pyocyaneus* was alone obtained. It was to be noted further that the greenish colour appeared more slowly in those tubes in which there was a mixed growth than in the culture from the subcutaneous tissue in which the pyocyaneus only was present. It would seem, therefore, that the presence of other micro-organisms had a retarding effect on the growth and colour production of the bacillus. I noted also that the character of the pigment production and the intensity of the peculiar odour developed by the cultures changed with further growth outside the body. Thus the first broth cultures direct from the organs had a more purely green coloration and slight odour. After making plate cultures on agar the cultures from the separate colonies made in beef broth assumed the more typical blue-green appearance, that usually seen. In fact the colour of the first growths was very similar to that of the non-pathogenic bacillus fluorescens when grown in broth. The odour also became very strong. That I was dealing with the *B. pyocyaneus* was, however, shown by the appearance of the micro-organism under the microscope and by the results of inoculation. Upon November the 25th I inoculated a three-months-old rabbit intravenously with 1 ccm. of a broth culture twelve days old, made from a colony upon an agar plate from the original culture from the heart blood. The animal died in fourteen hours. At the autopsy, with death in so short a time partaking of an intoxication rather than an infection, it was not to be expected that the animal would show many gross lesions. There were, however, hæmorrhages in the ear at some distance from the seat of inoculation, and hæmorrhages again in the mucous coat of the stomach, as also interstitial hæmorrhages in the lung. Sections of the spleen and liver showed the bacilli present. I should add that a microscopical examination of the organs of the child showed the characteristic small bacilli to be present in the spleen, liver and heart wall. From the heart, liver and spleen of the rabbit I obtained again pure cultures of the bacillus giving a rich pale blue colour.

## A CASE OF PRIMARY CANCER OF THE GALL-BLADDER.

By C. F. MARTIN, B.A., M.D.,

Assistant Physician, Royal Victoria Hospital.

The points of interest in the subjoined report are as follows :

1. A very incipient primary cancer of the gall-bladder.
2. Cholelithiasis and perforation of gall-bladder.
3. Presence of gall-stones free in the abdominal cavity.
4. The absence of any special localizing symptoms.
6. The right hydronephrosis induced secondarily to the cancer of the gall-bladder.

*Clinical Report.*—(Notes by Dr. A. A. Robertson.) The patient, Mrs. T., aged about 65, who was admitted to the medical wards of the Royal Victoria Hospital, manifested great weakness. Her only remarks were that she was "slowly sinking away," and no further history could be obtained from her or her few friends. She was apparently uncared for and would seem to have been ill for some weeks previously.

On admission she showed much emaciation. Pulse 120 ; respiration, 28 ; temperature, 101°.

Physical examination revealed almost total consolidation of the right lung with a few crepitations and prolonged expiration at the base of the left.

Pressure over the abdomen caused pain in all regions, though most marked in the right iliac fossa ; there was no palpable tumour. Fever continued for forty-eight hours ; some diarrhoea ensued and weakness progressed till on the third day after admission death supervened.

*The Autopsy* (made 18 hours after death).

*Anatomical diagnosis.*—Acute lobar pneumonia ; cholelithiasis ; perforation of gall-bladder ; primary cancer of gall-bladder and localized peritonitis inducing right hydronephrosis ; secondary cancer of liver and dilatation of the bile ducts ; general arterial sclerosis ; subacute parenchymatous nephritis.

Body was that of an emaciated elderly woman presenting the usual post-mortem changes. On opening the abdominal cavity, which was dry, the *duodenum* was seen to be markedly distended and irregularly bent upon itself in the first and second portions and matted together with surrounding tissues, moderately recent adhesions being formed to gall-bladder, liver and abdominal wall. There was further

a slight sloughing of tissue in the immediate neighbourhood of the gall-bladder. The hepatic flexure of the colon was collapsed and pushed downwards. Four black, mulberry-like *gall-stones*, each 6 mm. in diameter, lay free in the abdominal cavity amid the sloughed tissue below the gall-bladder and seemed here loosely held amid the mass.

The *spleen* was small, soft and atrophied.

The *left kidney* showed evidence of subacute parenchymatous inflammation.

The *right kidney*, as it lay *in situ*, presented a thickening of its capsule, chiefly in the upper and anterior portion, with infiltration of the adipose and other neighbouring tissue. There was, however, even lower down, considerable inflammatory adhesion of the parts. The organ itself was fluctuating to the feel, evidently hydronephrotic, while the ureter itself was normal from pelvis to bladder opening. On removing the kidney, adhesions were found binding down the pelvis to the adjacent parts, evidently inducing a damming back of urine and thereby dilating the calices and causing great thinning of the kidney tissue. Average diameter of dilated pelvis was 10 cm., its walls much thickened. The fluid was slightly turbid and bile-stained; the mucosa injected, no stone could be detected.

The *bladder* presented some signs of slight chronic cystitis. The orifices of the ureters normal.

The *liver* and *gall-bladder* weighed together 1425 gms. The common bile duct, as well as the pancreatic and cystic ducts, were pervious; the latter greatly thickened. The *liver* itself small, very soft and rather paler than normal.

The *gall-bladder* was much diminished in size. The wall of greyish-white colour and very much thickened, especially near the attached margin. Towards its lower and outer portion was a perforation 1 cm. in diameter with smooth rounded edges, and through this evidently the *gall-stones* had escaped. The tissues about it showed localized sloughing where the organ impinged upon the duodenum. Where the *gall-bladder* was thickest there was much new tissue formed, connecting together the *gall-bladder* and the liver substance. It extended irregularly into the adjacent liver substance, being apparently continuous with and arising from the similar conditions of the wall of the *gall-bladder* itself. The average diameter of this irregular area was about 4 cm., while the liver tissues in the immediate vicinity presented a few smaller nodules of the same character. Elsewhere the liver contained about nine or ten greyish-white rounded nodules of comparatively small size, all firm on section and not penetrating deeply into the tissue of the organ. On section the liver was soft, many of its

bile ducts were greatly distended in both lobes, though apart from any evidence of cancer or tuberculosis.

The periportal glands were enlarged, soft and somewhat pigmented. The portal vein and vena cava were free.

Throughout the *alimentary canal*, beyond moderate congestion, there was no evidence of disease.

*Thoracic cavity*—In the *lungs* bilateral adhesive pleurisy, with double lobar pneumonia.

The *heart* was both dilated and hypertrophied, showing evidence of fatty degeneration and interstitial myocarditis. The coronary arteries were atheromatous.

*Cultures* from the consolidated lung gave the diplococcus lanceolatus. From the kidney and spleen were obtained the staphylococcus pyogenes aureus. Cultures from the liver pulp remain sterile.

MICROSCOPIC EXAMINATION — *Gall-bladder* — The walls showed chronic fibroid thickening, the mucosa in some parts much necrosis, in others deep irregular proliferation of epithelial cells of a distinctly glandular type. The adipose tissue external to the gall-bladder was likewise infiltrated. There was, in addition, some hæmorrhage, with thickening of the vessels in the neighbourhood. Sections of the cystic duct show involvement similar to that of the gall-bladder.

Examinations of the nodules in the liver showed the ordinary condition of metastatic glandular carcinoma.

There was no evidence of tuberculosis anywhere in the liver substance. The periportal glands were distinctly cancerous, glandular epithelial cells lying amid a moderately abundant fibrous stroma. Large masses of dark green or orange pigment of a granular character were distributed throughout the sections. There was elsewhere no evidence of carcinoma and the microscopic examination confirmed, in the other organs, the macroscopic appearances.



## UPON TWO CASES OF PYOCYANIC WOUND INFECTION.

By H. S. SHAW, M.D., and D. P. ANDERSON, B.A., M.D.

Resident Surgeons of the Royal Victoria Hospital, Montreal.

The condition of blue pus in wounds is perhaps sufficiently uncommon now-a-days to make the following two cases deserving of being placed on record, the more so as, while the observations of Dr. Kenneth Cameron and the late Dr. E. P. Williams have shown that the bacillus pyocyaneus has been causing a general infectious disease in sundry infants in Montreal during the last two years, we have not during the same period encountered or heard of any examples of this more common wound infection in the general hospital practice of the city.

CASE I.—W. M., æt. 15, entered Dr. Bell's wards upon September 26th, with symptoms of acute appendicitis of about four days' duration. He had suffered from a previous attack lasting for four months during the spring of the year. Dr. Bell operated upon the following day, and the operation revealed a densely infiltrated abdominal wall with dense adhesions about the cæcum and a pin-point perforation of the bowel. The appendix was not sought for, on account of this perforation and the consequent danger of infecting the general peritoneal cavity. For a week subsequent to operation the condition of the patient remained good; there was, however, a small amount of yellow faecal discharge. The patient then began to complain of epigastric pain with some fever, and the amount of faecal discharge was increased. Upon October 12th, two weeks after the operation, the patient was suffering severely from abdominal cramps, and the temperature varied between 99° and 101°. There was a profuse discharge of greenish fluid from the wound, while the dressings were also noticed to have assumed a bright bluish-green colour. The cultures made from the fluid showed the presence of the bacillus pyocyaneus. We noticed that the colour did not show itself well in the bandages until the second day, that is to say, that bandages left on just over the wound for twenty-four hours assumed only a yellowish tinge; twenty-four hours later, however, the dressings were very characteristically blue, and what is more, they gave off the same strong and peculiar odour (said to be that of trimethylamine) which is so noticeable in connection with pure growths of the bacillus upon various media. The subsequent course of this case has been marked by the persistence of

the fistula and the intermittent appearance of the colouring matter on the dressings.

CASE II.—J. S., æt. 19. This patient entered the hospital under Dr. Bell in May last, with a very foul-smelling discharging wound in the right chest, which had been opened some weeks previously for the relief of empyema. In June the condition began to improve, a rib was resected for better drainage, but the pus continued to flow very freely, and on October 31st Esthlander's operation was undertaken, and cultures made from the pus on that occasion demonstrated the presence of bacillus pyocyaneus. The dressings since then have been noticeably of a bluish or greenish colour. From this case also one of us (A.) isolated also a non-pathogenic form which is not or has not been unfrequently isolated from water and other media, but concerning which we have been unable to come across any record as having been found in connection with wounds, or indeed with the surface of the body or mucous membrane. This is the *bacillus ramosus*. This is characterized by the peculiarity of the growth of stab cultures in gelatine media; from the central track of the needle there passed outwards and slightly upwards fine secondary lines of growth, most extensive towards the upper free surface of the gelatine, so that as one authority described it, the cultures have the appearance of little white fir trees that have been inverted. In both these cases there were several forms of micro-organisms present in the pus, and the *B. pyocyaneus* could not in any way be regarded as the primary cause of the suppuration; it is evident from the clinical history there was only secondary infection by this micro-organism.

It is of some little interest to inquire how this bacillus found entrance into the wound. In both cases there was always the possibility that it might have entered from the surface. The *B. pyocyaneus* has been isolated on the healthy skin, and especially would seem to be present not unfrequently in the region of the axilla.

In the second case it is difficult to explain any other mode of entrance or to put it in other words, such a mode of entrance affords the most satisfactory explanation. In our first case, where the bacillus appeared connected with the abdominal wound, there is another possibility which must not be left out of account, for the *B. pyocyaneus* has been isolated several times from the fæces; thus it is quite possible that in this case, in which there was a fæcal discharge and fæcal fistula of some considerable duration, the infection had originated from this discharge and not from any contamination from without.

## PAROTITIS IN PELVIC DISEASE.

By W. S. MORROW, M.D.

Lecturer in Physiology—McGill University.

There is a variety of parotitis which receives little notice in our medical text-books, but which is—to say the least—rather interesting.

It occurs in connection with disturbed functions of the male and female generative organs, and also in pathological conditions of the urinary and digestive systems and abdominal parietes. Most text-books which mention it at all refer back to a paper by Dr. Stephen Paget, in the *British Medical Journal*, for March 1887, which, as far as I know, contains the most complete account of this affection to be found anywhere.

In the paper referred to, to which I acknowledge my indebtedness for a number of facts mentioned below, Dr. Paget has collected 101 cases of parotitis in connection with derangements, more or less serious, of the abdominal and pelvic organs; and of these the generative organs were the seat of the original trouble in no less than 50. These cases are important, firstly, because their correct diagnosis saves our patients the inconvenience of isolation and the humiliation so inseparable from a verdict of mumps, and, secondly, because they open up the interesting question of connections between distant organs.

The following three cases observed by the writer were of pelvic origin. The first occurred in the course of pelvic peritonitis.

In March 1893, I was called to a case of pelvic peritonitis. It ran a moderately severe course, the temperature keeping up for about three weeks. A fortnight after the onset of the peritonitis one parotid gland became swollen, tense, and very tender. After a couple of days the inflammatory process extended beyond the capsule of the gland, and the face became puffy up to the middle of the forehead. A free incision into the gland was followed by somewhat alarming hæmorrhage, but no pus was seen. After this the inflammation rapidly subsided in both the gland and the pelvis, so that the patient was able to be up in a little over a week.

The second case was one of parotitis after suppression of the menses. In Sept. 1895, I was called to Miss C., aged about 25, and found her suffering with a painful swelling in the position of the right parotid. As far as known she had not been exposed to mumps, but a week before coming under observation, she went for an evening walk while menstruating and thought she had caught cold, as the flow stopped

and she was seized with pain in the pelvis. This was followed in a day or two by pain in the left parotid, and this again by pain and swelling in the gland on the right side. By the time I saw her, the one first affected was better, and under simple treatment the other became well in a few days and the pelvic pain disappeared.

The third case I have to relate was a very similar one. Miss E., went to midnight mass on Christmas Eve last while menstruating. She felt at the time that she was catching cold and the next day the flow stopped prematurely. The following day the left parotid became sore and swollen and that evening she came to see me. Her temperature was 100°, and there was a well marked tender swelling in the region of the left parotid gland. It was painted with iodine and she was given a dose of calomel, and thirty-six hours after this she felt quite well: the pain and swelling were gone and her menses had started again. She had not been exposed to mumps as far as known, and no one in the house with her had caught it. Moreover the whole duration of the parotitis was only 48 hours, so that it did not run the usual course of the specific disease.

The course has been found to vary very much in these cases and, according to Dr. Paget, the severity of the gland inflammation depends largely on the systemic condition at the time. Where it ends in suppuration it is because the powers of resistance have been diminished by some other disease, so that almost any inflammation would tend to run an unfavourable course. Considerable interest centres about the question of how parotitis is set up by morbid processes having their seat in the abdomen. A certain number of cases may be due to bacterial infection through the blood or secretory duct, such as occurs in many of the infectious and septic fevers and almost invariably goes on to suppuration. But there is a group of cases, often milder in type, and especially frequent in connection with pelvic disease, which do not admit of any such interpretation. For these we have to choose between the metabolic theory and the nervous. Against any metabolic theory we have the great number of tissues which may be the seat of the primary affection. Parotitis has been reported by Paget and others as accompanying or following pregnancy, delivery and abortion, menstruation which it sometimes replaces, pelvic cellulitis and hæmatocele, operations on the vagina and uterus, ovariectomy and oophorectomy, the use of the catheter and sound, blows on the testicle, operations and diseases of the bowel, gastritis and gastric ulcer, disease of the pancreas, and injuries and diseases of the abdominal wall. This varied origin excludes almost absolutely any metabolic theory and favours a nervous one. And there is not wanting considerable

circumstantial evidence that the nervous system is the medium through which the effect is produced.

Some cases, like the last one reported in the present paper, seem to be rather transitory hyperæmias than true inflammations and suggest a vasomotor change as the primary one.

We know too that both the pelvic and the other abdominal organs have a powerful influence on the vasomotor centre, as seen in the flushes of menstrual irregularity and of dyspepsia.

Moreover there are other facts which seem to indicate a nervous connection through unknown paths between the parotid glands and the generative and digestive systems.

Among these facts may be mentioned the salivation of pregnancy, the dry mouth from which some women suffer during menstruation (Goodell) and the changes in salivary secretion observed in so many affections of the stomach and bowel.

The nervous theory is supported by those who have given most attention to the subject, and while more facts are being obtained, it may be taken as the most probable hypothesis.

## Clinic.

### CLINICAL LECTURE ON TWO CASES OF MULTIPLE ARTHRITIS DEFORMANS.

DELIVERED AT THE ROYAL VICTORIA HOSPITAL.

JAMES STEWART, M.D.

Professor of Clinical Medicine, McGill University; Physician to the Royal Victoria Hospital.

The first case which we will consider to-day is that of S. G., aged 26. He was admitted into the Royal Victoria Hospital on the 26th of September, complaining of enlarged joints, difficulty in walking and weakness.

His present trouble began three years ago with stiffness and pain in the shoulder joints. A few months afterwards the joints of the fingers became swollen, stiff and painful. He has frequently complained of a sensation of burning and tingling in the extremities.

About six months later the knees became involved, and the trouble here progressed so rapidly that in a few weeks he was only able to get about with the aid of two canes. About the same time he lost rapidly in flesh and colour. The elbows soon afterwards were found to be stiff and painful.

As to his past history, there is nothing to note except that he had diphtheria when eight years of age, followed by abscesses in the neck, one of which was opened and discharged. His occupation is that of a clerk. He has used stimulants in small amounts occasionally.

*Present condition*—You will notice that he is pale, the general state of nutrition being poor. There is beginning general arterial sclerosis. The pulse is regular, 72 in the minute and of low tension. When admitted a soft systolic murmur was heard at the pulmonary area, but has since disappeared.

The tongue is flabby and slightly coated, appetite good, bowels regular. The abdomen, liver and spleen normal. Mental state normal. There is wasting of the thenar eminences, interossei, flexors and extensors of the forearms, and to a less extent of the muscles of the upper arm, the motor power is diminished in the upper extremities, there is slight wasting of the supra and infra spinati on both sides, fibrillary twitching of the muscles is observed; sensibility to touch and pain normal, muscular reflexes slightly increased.

There is wasting of the adductors of the thighs and flexors of the leg, the feet have apparently escaped, but there is slight hyperexten-

sion of the lesser toes on both feet, sensibility is normal. Knee jerks are considerably exaggerated, ankle clonus present. Motor power somewhat diminished. There is considerable fibrillary twitching; electrical reactions are normal in the muscles of both the upper and lower extremities. The spine is normal. There is limitation of abduction at the shoulder joints, the elbow joints cannot be completely extended, and there is also limitation of all movements of the wrist and finger joints. The fingers are deflected to the ulnar side. There is a pseudo-crepitus in many of the joints. The knee joints are uniformly enlarged, and complete extension is impossible without great pain, the ankles and toes are not deformed. All the muscles are soft and flabby. The patient is able to walk when supported, but does so with the knee semi-flexed. Blood examination, red cells 4,120,000, hæmoglobin 68 per cent., no leucocytosis. The urine is normal.

CASE II.—W. B., aged 46, admitted complaining of pain in the joints and inability to walk. Born in Canada. Had typhoid at 16 and gonorrhœa about nine years ago. Has used alcohol until about a year ago. Works as a last maker. Father alive, aged 86, subject to cough all his life. Mother alive and healthy. Has two brothers, one said to be phthisical; three sisters, none of whom are strong.

*Present illness*—First symptoms set in about twenty years ago. Patient was out driving and felt a severe pain in the left knee, had to be lifted out of the carriage, and was confined to bed for three months. The knees became red, swollen and hot, and the left hip appeared to be somewhat painful also. After this attack he was able to go about with the help of a stick. About two years later he had another attack and went to Caledonia Springs, but did not derive much benefit from them. About this time he noticed that his left knee was gradually becoming enlarged. There also gradually set in a stiffness in the fingers of the left hand, so that he had difficulty in closing them. He had a number of such attacks every few years, until about nine years ago, when he had a specially bad one, having pains in knees, feet and hips. After this attack he did not work for three years. Up to about a year ago he was able to walk with the aid of two sticks. A year and a half ago contraction of the fingers of the right hand set in and gradually increased. The right knee then began to enlarge and both knees became semi-flexed, so that he could not stand.

Patient is a man of medium height, dark complexion, somewhat anæmic. Is unable to walk, but can raise himself in bed and use his arms. Has been accustomed to use morphine for a year and a half,

taking as much as two grains a day on some occasions. Has very frequently to change his position in bed.

Pulse 66. Some arterial sclerosis. Cardiac dulness normal. First sound is a little weak at the apex, being short and sharp like the second sound. Aortic second is possibly a little accentuated.

There is marked wasting of certain muscular areas. In the right hand the interossei, thenar and hypothenar eminences are markedly atrophied and the muscles flabby. In the right forearm the muscles are also considerably atrophied. The fingers look thin on account of the muscular wasting. In the left hand and forearm the condition is similar, but to a much less extent. The fingers of the right hand are deflected greatly to the ulnar side. The metacarpophalangeal joints are flexed and the phalanges are extended. There is contraction of the muscles so that the distal joints cannot be flexed.

The second finger is also hyper-extended at the junction of the second phalanges. On the left hand the fingers are slightly deflected. There is inability to shut the fingers in the palm tightly. The second finger is hyper-extended at the junction of the second and third phalanges. Elbows and shoulders seem to be free.

In the feet the toes are extended at the metatarso-phalangeal joints, and flexed at the distal joints. On the dorsal surface of the first and second toes of both feet there can be seen and felt what appears to be small sharp spicules of bone, not movable with the skin.

Apparently no atrophy about the muscles of the feet. The muscles of the legs are extremely wasted in all groups. The thighs are also considerably wasted, more especially the quadriceps muscles and the adductors. There is some tenderness on pressure over inner side of the right humerus.

Patient has only perception of light. Marked arcus senilis. Cornea is steamy. Dr. Buller reports old plastic iritis with occluded pupil.

Marked enlargement of the ends of the tibia and femur forming the knee joints. Contour of joints is lost. Knees are kept semi-flexed and cannot be further extended. There is some enlargement of the metacarpophalangeal joints and slighter of the phalangeal joints. Movement of the hips is fairly free.

Tongue clean, appetite good, bowels constipated, liver and spleen normal.

Urine acid, sp. gr. 1013; no albumen, no sugar.

We have here to do with two well marked cases of general arthritis deformans, the first case being one of the idiopathic variety; the second in all probability being secondary to an attack of acute rheumatism. It is important to inquire into the causes which induce



this disease. First as to the influence of sex—it is much more common in females than males. Sir A. Garrod, in a series of 500 cases, found that there were no less than 411 females and only 89 males affected. The liability to the disease is greatest between 40 and 55, but no age is wholly exempt. Cases have been recorded in children under 10, and a local form of the disease is more frequent in men over 60 years of age. It is much more common in women in the two or three years succeeding the menopause. Direct heredity, no doubt, plays an important role in the causation of the disease, indirect heredity of nervous diseases also being an important factor. The following may be mentioned as the more important exciting causes of arthritis deformans: 1st, overwork; 2nd, worry; 3rd, acute, severe illness; 4th, insufficient food and bad hygienic surroundings. Excessive work, especially when combined with worry, is the most prolific cause. It is not uncommon to meet with the disease after severe attacks of diphtheria, typhoid fever and influenza. In a general way it may be said that any disturbance that tends to lower the resisting power acts as an exciting cause of the disease. In this respect arthritis deformans differs markedly from gout. I will not detain you with a minute account of the morbid changes in the affected joints. It will be sufficient to say that the chief structures entering into their formation all suffer; the cartilage, the synovial membrane and the bones. The cartilage covering the joints becomes soft and finally disappears, leaving the ends of the bones bare and in consequence of friction the latter become smooth and hard. Along the margins osteophytes form.

The nature of the disease is still a problem. Some contend that it is simply a form of chronic rheumatism, hence the name rheumatoid arthritis; others consider it to be a mixture of gout and rheumatism, hence the name rheumatic gout. Some consider it to be owing to simple wear and tear of the joints, while again others think it simply a senile change. All these hypotheses completely fail to account for the morbid changes and symptoms. The causes leading to arthritis, the clinical features of the disease both articular and abarticular point very strongly to a nervous origin. The view most commonly held at the present time is that it is brought about by changes in the nervous mechanism which presides over the nutrition of the joints. Although this is yet a mere hypothesis, positive proof of such changes being wanting, there is much to be said in its favour. First we have very similar changes in certain diseases of the spinal cord which we know are attended by grave degenerative changes in this part of the central nervous system. In *tabes dorsalis*, a marked

feature in some cases is dystrophic joint changes. Anatomically and clinically there is a resemblance between such changes and those met with in arthritis deformans, the changes in the synovial membrane and articular cartilages being very similar in both diseases. In tabetic arthropathy the onset and course is more acute, and there is but little tendency for osteophytes to form. Further, the destructive process is more marked than the reparative process as exemplified in the formation of bone. In the disease known as syringomyelia a somewhat similar destructive arthritis is met with as in tabes. We also meet with arthritis in cases of progressive muscular atrophy of spinal origin. (A photograph illustrating such changes was passed around.) The peculiar symmetry of the joint affections in multiple arthritis deformans is another reason for ranking it among nervous affections; such symmetry is, however, not universally present, but it is met with in a great majority of cases. Symmetry is the rule in arthritis deformans, while it is the exception in gout and rheumatism. In arthritis deformans the most peripherally situated joints are first affected, this being characteristic of nervous affections. Another important feature of arthritis deformans, is that it does not tend to implicate the visceral organs as does rheumatism and gout. The almost invariable presence of muscular atrophy and of sensory nerve disturbance, point to a neurotic origin. There have been as yet, however, no changes demonstrated in the central system—changes have been found in the peripheral nerves, but such are so frequent in all severe and exhausting diseases that they cannot be considered as a cause of arthritis deformans.

*Clinical Features of Arthritis Deformans.*—The disease may be ushered in with all the features of an acute rheumatism,—this was the case with our second patient; such a mode of onset is more frequent in old than in young people. The usual mode of onset is of a subacute or chronic character; swelling and pain being present; but the latter is seldom so acute as to compel the patient to rest. In the course of a few months, however, the joints become seriously crippled; in the very chronic cases the course is very slow, years elapsing before profound alterations take place in the joints.

*Bone Lesions.*—The trouble usually begins in the small peripheral joints; in the great majority of cases it is symmetrical. In the general form of the disease the hip-joints are least often affected, while in the senile form, the morbid changes are generally mono-articular and often limited to the hip-joint. There is hardly a joint in the body that may not be involved in general arthritis deformans, the temporo-maxillary joints, as well as those of the spine, being not infrequently affected.

Muscular atrophy is a striking feature of nearly all well marked cases of arthritis deformans, this symptom being well marked in both cases before you; it is not due to disuse of the muscle, neither can its origin be explained on the ground of reflex disturbance. There is every reason to suppose that it is either due to central or peripheral changes. It is accompanied by fibrillary twitchings and increase of the tendon reflexes, not only in the neighbourhood of the affected joints, but in distant muscles. Tremors resembling the tremor of paralysis agitans are met with in cases of arthritis deformans. The reaction of degeneration is also met with in advanced cases of atrophy. In all stages of this disease minor sensory disturbances, as numbness and tingling are complained of. Subcutaneous nodules in various parts of the body, especially on the back and flexor surfaces of the forearms, are now and then met with in arthritis deformans. They are more frequently met with in young adults and resemble in every respect the subcutaneous nodules met with in acute and subacute rheumatism of childhood.

The general state of nutrition is lowered, especially when the disease comes on early in life, anæmia being a frequent accompaniment of the disease; although there is general pallor in both of our patients there is not much diminution in the number of red blood corpuscles or in the amount of hæmoglobin. Persistent rapid action of the heart is commonly present. It is often an early symptom, being present before any special joint changes are present, the pulse usually ranging between 80 and 100 a minute. It is independent of pyrexia, for as a rule there is no elevation of temperature except when there is an acute arthritic exacerbation. Pigment spots on the skin in the neighbourhood of the affected joints are considered by Kent Spender to be of diagnostic value. The skin is often glossy and atrophied; trophic changes in the nails and local sweatings are unusual manifestations. A negative symptom of importance in arthritis deformans is the absence of any organic changes in the visceral organs.

*Prognosis*—Arthritis deformans if uninfluenced by appropriate treatment tends to become worse and worse until the patient is left a helpless cripple. In the earliest stages of the disease there can be no question that the morbid process may be arrested by judicious treatment. If, however, the changes in the joints have gone on to the destruction of cartilage nothing can be done except to give relief to the distressing symptoms. Patients do not die directly from the disease, but from some intercurrent affection.

*Diagnosis*—It is important that an early diagnosis should be made. Frequently this is far from an easy matter. The following are the more important symptoms of the disease:

1. Pain and stiffness in the joints. These symptoms are especially suggestive if occurring in anæmic females, about the menopause, and who have been overworked and worried.
2. Numbness and tingling of the extremities.
3. Rapid pulse without pyrexia.
4. Pigmentation of the skin.

The above symptoms form a clinical grouping which may be taken as practically diagnostic of arthritis deformans. It is often impossible, at any rate during the acute stage, to diagnose correctly those cases beginning with sudden and severe arthritis. The resemblance to acute rheumatism is too close to admit of anything but a probable diagnosis. With ordinary care there is no difficulty in making a differential diagnosis between arthritis deformans and chronic articular gout.

*Treatment*—Until quite recently the treatment of arthritis deformans received no serious attention; it was too frequently placed in the list of chronic incurable maladies which might be relieved a little, but could neither be arrested nor cured. When any treatment was employed it was too frequently of a lowering character. At the present time there is not a general recognition of the danger attending such treatment. When the disease is in an early stage and the patient comparatively young much can be done to stay its progress or in favourable cases to entirely arrest it. The means to be used in order to obtain this end are:

1. The removal, if possible, of all existing causes, such as improper and insufficient food, overwork, worry, etc.

2. The employment of agents which help to increase the general state of nutrition. If the patient can afford to reside in a mild, dry climate in winter, he should do so. The food should be the best obtainable, and every possible means should be taken to promote the appetite and aid digestion. Iron, cod liver oil and arsenic are all agents of great value; they should be given for prolonged periods. Sir A. Garrod considers the iodide of iron especially valuable. Iron and arsenic may be given during the summer months and cod liver oil during the winter. It is not well to continue arsenic for too long a period in advanced cases, for, as pointed out by the late Palmer Howard, it tends to aggravate the arthritis. The thermal bath treatment of arthritis deformans is of undoubted value. At Bath a course of douching with massage has a deservedly high reputation. In Germany and France there are many resorts also where this mode of treatment is carried out with more or less success. At Banff, in our own country, every convenience is procurable for the proper treat-

ment of such cases. It is well, however, to make the patient understand before resorting to thermal baths that no measures should be employed that tend in any way to weaken his resisting powers. The patient during his stay at a bathing place should be under constant medical supervision.

The local treatment of the disease calls for the relief of the pain and spasms; the former may be combated by lotions of iodine and belladonna, the latter by fomentations; at the same time the patient should rest. Quiet should also be enforced during an acute exacerbation of the arthritis; salicylic compounds may be found of value also in such cases, and in those cases where the onset is that of the acute or subacute rheumatic type; at other periods of the disease salicylic acid should not be given, as its continuous employment tends to depress and therefore defeat the main object of treatment—increasing the resisting power.

# Ephemerides, 1895.

By WILLIAM OSLER, M.D.

## V. ACUTE GOUT IN THE UNITED STATES.

The comparative infrequency of acute gout in this country is a matter of every-day comment. In hospital statistics, and in bills of mortality the disease is mentioned but rarely; thus, it does not occur among the causes of death in the Report of the Medical Officer of Health of the City of Baltimore for 1894.

During the past year I asked all private patients most particularly about the occurrence of attacks of gout, and have examined in each instance the ears for tophi. There were only three cases in which gouty arthritis had occurred, and in only a single instance were tophi present about the joints or ears. During the session of 1894-95 I had in the wards four cases of gouty arthritis at one time, a unique event in my hospital experience.

Considering how careless Americans are about their diet, and the enormous amount of animal food which they consume *per capita*, and the widespread prevalence of the so-called acid dyspepsia, the absence of the severer manifestations of gout is very remarkable. The average American of the upper classes is a very much more temperate man than his trans-Atlantic cousin. The club man, too, who drinks to excess, prefers as a rule whiskey to the malted liquors or the stronger wines. I have sometimes thought that in the gout of this country the question of alcohol is of minor importance; the three patients referred to who had acute gouty arthritis were quite temperate. In considering the apparent infrequency of gout the failure to recognize the condition must be taken into account. I have known cases to be mistaken for rheumatism, even with well characterized chalk-stones on the knuckles and tophi on the ears.

The importance of asking very specially about the occurrence of gout is well illustrated by the following case:

A physician, aged 44, who had been for fifteen years a very hard-working man in one of the tenement districts of New York, consulted me May 21st, 1895, complaining of shortness of breath on exertion which had first developed in October, 1894. In his family and personal history there were apparently no etiological factors of any great importance. He had never had syphilis or rheumatism. He had

been an abstemious man, but had worked very hard. He presented all the features of advanced arterio-sclerosis, with hypertrophy of the heart, and the usual accompanying changes in the urine. There was no retinitis.

I had finished the examination, and, as he knew quite well the serious nature of the trouble, was discussing with him the possible cause of his kidney and arterial changes. I had forgotten for the moment to feel his ears, but on doing so found on one ear three small white nodules on the edge of the helix, towards the tip, most suggestive of commencing tophi. I then asked him particularly about attacks of arthritis, and he said that five years before he had had a furious attack of acute gout in the big toe, which had laid him up for a week. He had entirely forgotten about it, and did not regard it as of any moment in his history.

The tophi and the history of an acute attack of gout leave no room for doubt as to the cause of the renal and arterial changes.

One sees here occasionally families in which gout is hereditary, and even quite young members may have severe attacks which lay the foundation of serious renal and arterial changes. During the past two years I saw at intervals with Dr. Hollyday, Miss X, aged about thirty-five, unmarried, in whose family on the father's side gout was very pronounced. When I first saw her she had all the features of advanced gouty kidney; the urine was of large amount and low specific gravity; the arteries were sclerotic; the pulse of high tension, and the left ventricle greatly hypertrophied. She had been a very abstemious woman, in easy circumstances, who had done a great deal of church and charity work. She had had three attacks of acute gout, the first when she was about twenty-seven years of age, which began in the big toe of the right foot. In the second attack, three years later, the tarsus was involved as well as the big toe. The third attack, last year, was in the same situation. She never had involvement of any other joints. The big toe joints on both sides were somewhat thickened. There were no deformities of the hands; no tophi on the ears. She had very extensive albuminuric retinitis. She died in uraemic coma in June, 1895.

While gouty kidney, either as a sequence of acute attacks, or as an event in chronic, irregular gout, is certainly less common in this country than in England or Germany, cases such as the two I have just given occur more frequently, I think, than has been suspected, or than we might gather from the writings of authors in this country.

## VI. CALCIFICATION OF THE AURICLE.

Tophi along the margin of the helix, or in fact anywhere on the auricle, are distinctive of gout. Has calcification of the cartilage of the ear the same significance?

Within six months three patients were seen with calcification of part of the auricle of one ear; without the presence of tophi, without arthritis, and in each instance without any history of acute gout.

The first case was a vigorous, muscular man aged 64, who had angina pectoris. He had been accustomed to take stimulants in moderation, chiefly French wines. The heart apex was outside the nipple line; the arteries were stiff; the pulse tension was a little increased. The upper half of the right pinna was unusually stiff and firm, and the cartilage quite hard and calcified. The skin was not in any way affected, and there were no tophi along the margin of the helix. The patient had never had gout.

The second case was a man aged 55, strong and vigorous, who came, for the purpose, as he expressed it, of a 'general overhauling.' He had been a very healthy man, and for years had had large and important interests to control. He had not had syphilis. There was no special increase of tension, and the superficial arteries were not sclerotic. There were no tophi and no enlargement of the joints. The cartilage of the upper third of the left ear was completely calcified.

The third case was a man aged 63, who complained of dyspepsia. He had never had symptoms of gout or of rheumatism. He had been a vigorous healthy man, accustomed to take a good deal of exercise. The pulse tension was not increased. The apex beat of the heart was a little outside the nipple line, and he had a soft but well marked diastolic murmur at the second right costal cartilage, which was propagated down the sternum. There was one small Heberden's node on the ring finger of the left hand. The cartilage in the upper third of the pinna of the left ear was calcified. In the right ear the cartilage of the tip of the helix was calcified, and there were several small nodular bodies along its upper edge, which did not, however, look like ordinary tophi.

Whether calcification of the cartilage of the auricle is due to the deposit of urate of soda I cannot say. I can find but scant references in the literature, and my attention has not been previously called to the subject.



# RETROSPECT OF CURRENT LITERATURE.

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## Surgery.

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### **Serum Treatment of Sarcoma and Carcinoma.**

COLEY. "The treatment of inoperable malignant tumours with the toxin of erysipelas and bacillus prodigiosus."—*N. Y. Medical Record*, January 19 and May 18, 1895.

Since Koch attempted to cure tuberculosis by the subcutaneous injection of a culture of the tubercle bacilli, other members of our profession have been earnestly working, investigating, and testing the applicability of the principle to other diseases than tuberculosis, with more or less success. The serum treatment of diphtheria is an assured success and the serum treatment of cholera and anthrax is full of promise. The same, to a lesser degree so far, holds true in the serum treatment of syphilis.

Dr. Coley claims that by the hypodermic injection of the toxin of erysipelas and bacillus prodigiosus, cancerous and sarcomatous growths may be retarded in their growth, and in certain cases made to disappear altogether. A brief summary of his cases is as follows: Up to May 31, 1894, he had treated with mixed toxin twenty-five cases of inoperable sarcoma, eight of inoperable carcinoma, and three of sarcoma or carcinoma. In the cases of carcinoma he had marked improvement in a number of cases, but no cure. The cases were all very advanced recurrent tumours. There were six cases of carcinoma in which he considered that there was a reasonable hope of cure. Six months have elapsed since then, and none of the six cases have shown any recurrence. Since May 31, 1894, he has treated twenty-four cases of malignant tumours, all inoperable and mostly recurrent, with the mixed toxin. Of these cases thirteen were sarcoma and eleven carcinoma. In many of the cases of carcinoma, the injections had an undoubted retarding influence, and in some of the cases the improvement was extraordinary, but in no case did the tumour entirely disappear. In the sarcoma cases the effect was far more marked, and

although in a number of cases the disease was so far advanced that there could be no possible hope of recovery, still the powerful controlling influence of the toxins was demonstrated, and had the patient's general condition permitted a prolonged use of the injection, the result might have been otherwise.

In three of the thirteen cases the sarcomas have entirely disappeared, and although no great length of time has elapsed, the results in his older cases make it improbable that relapses will occur. Of his total of thirty-eight cases of inoperable sarcoma, therefore, nine cases promise to be permanently successful.

Emmerich and Scholl report several cases in which marked improvement followed the injection of erysipelas serum, but unfortunately the result in the hands of many surgeons has not been encouraging.

Czerny states that accidental erysipelas sometimes has no effect on cancer, or may even hasten its course, but reports two cases in which recurrent growths were accidentally inoculated with erysipelas, and in each case the cancer masses disappeared. The writer used a preparation of the toxin prepared by Dr. Coley in a case of recurrent sarcoma of the upper jaw without obtaining any improvement or retardation so far as could be observed. The case, however, was one of very rapid growth and far advanced before the treatment was begun.

Dr. Coley at first used cultures of the streptococcus of erysipelas and bacillus prodigiosus, rendered sterile by heat, so that there was no danger of lighting up a true erysipelas. He found that the combination was more effective than either alone. The bacillus prodigiosus seems to cause a softening and breaking down of the mass. The injections are followed by elevation of temperature, and in some cases by a condition of mild sepsis, apparently due to the breaking down and absorption of the growth.

Lately Dr. Coley uses a serum obtained from a horse immunized by the injection of a virulent culture of the streptococcus of erysipelas. Emmerich and Scholl obtained their serum from sheep, previously injected with erysipelas cocci. They think the serum derived from sheep is more effective than that obtained from any other animal, and seem to have a preference for certain races of sheep. The reaction following the injection of the serum is less than that following the use of the sterilized toxins.

Small doses produce no pain. After repeated injections there was a slight drawing pain, lasting only a few hours.

After the injection of small doses of an active serum, either at once or after a few hours, there appears a false erysipelas, an aseptic

erysipelas, consisting of more or less swelling of the skin with slight redness. The degree of redness is always less than that of true erysipelas. It does not spread, and disappears in twenty-four or forty-eight hours after the injections are discontinued.

It is difficult to harmonize the different results obtained by different observers. The results obtained by most surgeons have been far less promising than those claimed by Dr. Coley. However, this much can be said, that in inoperable and recurrent cases, the serum, as prepared by Dr. Coley, may be used without fear of doing any harm, if used at first in small and then gradually increasing doses, and with a chance of retarding the growth of the malignant mass and a possibility of causing its total disappearance.

### Glenard's Disease.

TREVES. "The treatment of Glenard's disease by abdominal section."  
—*British Medical Journal*, January 4, 1896.

The curious abdominal disorder known as abdominal ptosis, visceroptosis; or Glenard's disease, has only attracted attention during the last ten years. Glenard's monographs appeared in 1885 and 1886.

A very excellent account of the condition is given in the *Traité Pratique des Maladies du Système Nerveux* by Grasset and Rauzier. The disease in question depends, in the main, upon a relaxation of the abdominal wall and of the supporting ligaments of the viscera; as a result of which the more conspicuous organs are found to have dropped to a lower level in the abdomen. The affection is usually met with in women. No definite causes have been assigned to it, although some attach an etiological importance to repeated pregnancies, to undue exertion, and to injuries.

It is stated that the right bend of the transverse colon is the first to descend, the stomach is then drawn down, with the result that the pyloric opening is compressed, and the passage of food hindered. In due course the rest of the transverse colon descends, the jejuno-duodenal orifice is narrowed and a further obstruction is offered to the passage of alimentary matter. The whole mass of the small intestines becomes prolapsed, the lower part of the abdomen is prominent and possibly pendulous, while the upper part is flattened. The liver and kidney become loose and are described as "floating."

The results of this general ptosis are manifold and distressing. There are, in the first place, certain asthenic symptoms, general depression, and general ill-health. The patient becomes an invalid and is unfit for any exertion. She is only comfortable when recumbent. There is a sense of "weight" in the abdomen and of a sickening "dragging." There is pain in the back and a continued sense of

weariness. Gastric symptoms are prominent ; the most conspicuous are a sense of burning in the epigastric region, vomiting, pain, loss of appetite, distress after food, and more or less definite dyspepsia. The bowels are irregular ; there may be diarrhoea, but more usually there is constipation. The movements of the bowels are attended with pain ; aperients cause distress, and relief has to be sought by means of enemata. The stomach and intestines are very apt to be found dilated ; pressure upon the bladder may be complained of. The symptoms usually accredited to movable kidney may be present. Colic is common and may be now and then acute. In neurotic subjects these symptoms are exaggerated.

Another important symptom is that more or less relief is obtained by pressure upon the lower abdomen with the two hands or by the wearing of a supporting belt. Many patients are unable to move about until they have adjusted their supports or bands. The kidneys are found to be movable, the liver and stomach are prolapsed and return more or less to their normal position when the patient is recumbent.

Mr. Treves reports a case which throws some light upon this condition : A young lady, about 22 years old, had been ill for six years with distressing but somewhat indefinite abdominal troubles. There was a history of tuberculosis in the family. The patient was highly cultivated and intelligent, and had never exhibited any symptoms which could be considered "nervous," nor did she in any way conform to the conception of a neurotic subject.

Her troubles began six years ago with an acute abdominal disturbance, which had been ascribed to an ulcer of the stomach or to ulceration of the small intestines.

She was never well after the illness. The symptoms were in a general way in accord with those associated with Glenard's disease. Abdominal pain was almost constant. Vomiting was common, and the vomited matter was usually intensely acid. The patient became enfeebled. Her abdominal troubles were increased by movement and by the erect position ; indeed she was only comfortable when in the recumbent position. The right kidney was found to be floating and was fixed by suture by a well-known continental surgeon. The operation was performed three years ago, and was entirely successful. The kidney has ever since remained accurately in place, and the symptoms to which it gave rise have entirely vanished.

The patient was continuously under treatment. Every form of diet was tried, and a series of prescriptions was accumulated, which for number and variety could hardly be equalled. Many spas and health resorts in various parts of Europe were visited but with no

other than temporary or doubtful benefit. She had submitted for the prescribed time to the Weir-Mitchell treatment without deriving any benefit therefrom.

When Mr. Treves saw her she was wearing a very powerful belt, composed of a shield-shaped plate of metal, to which two steel levers were attached, and by means of which the plate was made to bear pressure upon the abdomen.

When examined in the recumbent position the area of hepatic dulness was normal, but when the examination was made in the erect position the liver was found to have descended about 2 inches. The stomach also, and the whole mass of intestines, appeared to fall downwards. The spleen shared in the general ptosis. The left kidney could not be felt.

As apparently every other available means of obtaining relief from this distressing condition had been resorted to, Mr. Treves advised an abdominal incision. He opened the abdomen in the median line below the xiphoid cartilage. The liver presented and could be dragged down to quite a remarkable degree. The stomach could not be brought forward to the external wound. Upon introducing his hand the great omentum was found rolled up into a round and rigid cord, and was fixed to a mass of stony hardness in the upper part of the right iliac region.

A second incision was made over this mass, which was found to be made up of a collection of tuberculous glands situated in the mesentery of the ileum. The glands were at once removed. Two of them were dry and caseous and presented calcareous foci; the third gland was wholly calcareous, and was, indeed practically a stone. It was to these glands that the end of the omentum was adherent.

On returning to the median wound, it was found that the stomach could now be drawn up.

Sutures were then passed between the fibrous structures at the side of the xiphoid cartilage and the falciform and round ligament. The patient made an excellent recovery, was entirely relieved of her symptoms, and left England for South Africa five months after her operation.

As any examination of abdominal viscera is usually made when the patient is recumbent, it is difficult to say if this ptosis of the viscera is common.

In the same paper, Mr. Treve reports two very interesting cases of intestinal neuroses, in which there seemed to be a consciousness on the part of the patient of the intestinal peristalsis. In one case the patient thought that she had swallowed a small plate with teeth, and in the other the movements gave the impression that a snake was in the intestines. In each instance the relief after abdominal incision was complete.

*G. E. Armstrong.*

## Pharmacology and Therapeutics.

### On the Treatment of Hæmorrhage.

WRIGHT, A. E., (Army Medical School, Netley). "On the treatment of the hæmorrhages and urticarias which are associated with deficient blood coagulability."—*The Lancet*, January 18, 1896.

ROGERS. "Some clinical aspects of the coagulability of the blood."—*Indian Lancet*, Dec. 16, 1894. *The Lancet*, Jan. 4, 1896.

In communications which have extended over the past four years, Dr. Wright has called attention to three important methods by which the coagulability of the blood can be increased, and hæmorrhage dependent upon this condition arrested.

These methods are: 1. The internal administration, and sometimes the local application of calcium salts.

2. The local administration of carbonic acid gas.

3. The local application of a solution of cell nucleo-albumins to bleeding surfaces.

Referring to the first method he records the results obtained in two hæmophiliac boys from the internal administration of calcium chloride.

Patient.	Date of 1st blood examination.	Time required for blood coagulation.	Amount administered of calcium chloride.	Date of 2nd blood examination.	Time required for blood coagulation.
Boy aged 9 yrs, case severe ... }	April 13, 1894.	5½ minutes¹.	Two 30 gr. doses.	April 14, 1894.	25 minutes.
	Sept. 28, 1894.	14 minutes...	Two 30 gr. doses.	April 15, 1894.	13½ minutes.
			Two 10 gr. doses.	Sept. 29, 1894.	6½ minutes.
Boy aged 7 yrs, less severe.... } brother of case 1.	April 13, 1894.	7 minutes...	Two 30 gr. doses.	April 14, 1894.	4 minutes.
	Sept. 28, 1894.	9½ minutes...	One 10 gr. dose.	Sept. 29, 1894.	5½ minutes.

¹ Normal blood coagulates under similar conditions in from two to four minutes.

This increase in coagulability produced by the lime salts is not, however, a permanent one. Their continued administration in large doses results in a diminution of coagulability below the original condition, but the augmentation is sufficiently prolonged to permit hæmorrhage to be arrested. In some cases the increase in the coagu-

lability produced by this means is insufficient. A blood coagulability of 6½ minutes is no bar to the occurrence of very severe capillary hæmorrhage, and in such a case we must have recourse to other measures. In some instances the internal administration may be supplemented by the application of one of the less soluble calcium salts to the bleeding surface. Dr. Wright recommends finely powdered chalk mixed into a paste with a half per cent. solution of calcium chloride. He quotes a case also where severe hæmophilic bleeding from the gums had been arrested by the application of calcium phosphate, after escharotic styptics had failed.

In this connection, he draws attention to Dr. Wickham Legg's statement that hæmophilic children are not infrequently addicted to eating plaster, mortar and similar substances, and says he has convinced himself of its truth.

In other cases we may supplement the internal administration of calcium chloride by the local use of carbonic acid gas. This method Dr. Wright has employed on two occasions and secured comparatively prompt arrest of hæmophilic hæmorrhage. He mentions, also, another case which occurred in the Netley Hospital, in which the blood coagulability had been impaired by prolonged tropical fever, and the patient had been brought into a precarious condition by continually recurring epistaxis. A stream of carbonic acid gas, obtained from an ordinary gasogene was conveyed into the nostril through a rubber tube passed well up. In this case, also, the administration was invariably followed by a prompt arrest of the hæmorrhage. In this method, an excess of carbonic acid should be avoided, as his experiments on animals would make it appear that its effect in augmenting the coagulability is only manifested in presence of a sufficiency of oxygen.

Dr. Wright suggests the inhalation of carbonic acid in the treatment of hæmoptysis. The stream of gas should be turned on very slowly at first so as to induce anæsthesia of the mucous membranes. As soon as this has been effected large quantities of the gas can be tolerated without discomfort. The patient should not, however, be in any degree asphyxiated, as this in itself would militate against the efficiency of the method.

By a somewhat extensive series of observations on the blood of hæmophilic patients and of their female ascendants, Dr. Wright has convinced himself that it is characterized by a notable paucity of the polynuclear white blood corpuscles. In other words hæmophilic blood is deficient in the cellular elements which contribute the nucleo-albuminous component in the formation of fibrin. An addition of the nucleo-albumins in such blood is therefore essential to the formation

of a sound clot. Dr. Wright proposes that, when practicable, a solution of cell nucleo-albumin should be employed locally, and in two cases of hæmorrhage from cuts in the hands of hæmophiliacs this local application led to the formation of an enormous mass of clot round the wound.

In closing he directs attention to the treatment of urticarias associated with defective coagulability of the blood. The urticarias resulting from the ingestion of ripe and acid fruit, of certain molluscs and crustaceans, and from the injection of anti-diphtheritic serum, are, he considers, all due to a diminished coagulability, and can be much modified, if not arrested, by the administration of calcium chloride. The urticarias sometimes occurring during the course of tuberculosis, should always be regarded as an important therapeutic indication, and a demand on the part of the system for the administration of the lime salts which, as Metchuikoff has shown, are employed by the system in the encapsulation of the intra cellular tubercle bacilli.

Dr. Rogers, who was a pupil of Dr. Wright's, states that he can reduce the coagulative time of his own blood from  $5\frac{1}{4}$  min. to  $3\frac{3}{4}$  min. by fifteen grain doses of the calcium chloride. As a result of his experiments with various drugs usually considered to have hæmostatic properties, he shows that several of these, such as gallic acid, ergotine and potassium iodide, have no effect in increasing coagulability. On the other hand, the administration of oxygen and of alcohol retard coagulation.

As regards the practical clinical application of the results of these researches, Dr. Rogers refers to the use of calcium chloride in hæmoptysis, in some cases of which he used it successfully in fifteen grain doses. Its use is also indicated in hæmatemesis and in vesical hæmorrhage. His experiments do not tend to support the asserted value of the present treatment of aneurism by iodide of potassium, except in so far as it reduces the force of the circulation. He thinks an increased coagulability in the blood can to a much greater extent be induced by the use of calcium chloride and the administration of carbonic acid.

#### **Addison's Disease.**

OSLER, WILLIAM. "On six cases of Addison's Disease with the report of a case greatly benefited by the use of the supra-renal extract."

MURRELL, WILLIAM. "A case of Addison's Disease treated unsuccessfully with supra-renal capsules."—*The Lancet*, February 1, 1896.

Speaking of the pathology of this disease, Dr. Osler states that recent studies render it very probable that the original view of



Addison is correct, namely, that the symptoms are produced by loss of function of the adrenals. On this view the disease is analogous in all respects to myxœdema. In both there are distinct histological changes in the tissues: in the one, an increase in mucin, in the other, an increase in pigment; in both marked nervous phenomena; mental dulness or a progressive dementia in myxœdema, a profound asthenia in Addison's disease. The analogy will be complete if it be found that in suitable cases the use of the supra-renal extract cures Addison's disease in the same remarkable way that the thyroid extract relieves myxœdema. Addison's disease is so rare that every opportunity should be seized to try this method of treatment. At the same time caution should be exercised, on the one hand to select only well characterized cases, and on the other hand to exclude cases in which the condition is a concomitant of wide spread tuberculosis.

After giving a *resumé* of the notes of five cases of the disease he details the history of a patient recently under treatment in the Johns Hopkins Hospital; for pulmonary tuberculosis, with well marked symptoms of Addison's disease. He entered the hospital May 3, 1895, and after a fortnight's rest, during which careful records were kept of his condition, the treatment with supra-renal extract was begun. Thirty-six pigs' supra-renals, obtained at the time of slaughtering, were cut up finely and thoroughly powdered with pestle and mortar; to this mass about six ounces of pure glycerine were added, and the whole allowed to macerate for thirty-six hours in a refrigerator. The mixture was then filtered several times through meshed gauze. The filtrate, amounting to thirty-eight drachms, consisted of a reddish-brown syrupy liquid of a rather disagreeable odour. The patient began with half a drachm of the extract (equivalent to about half a capsule) three times a day. Eight days after beginning the use of the extract the following note was made: The patient looks brighter and says he feels better. The pulse, which had ranged from 120 to 140, is now 100. He has gained three pounds in weight. In a fortnight the amount of the extract administered was increased to one drachm three times a day. In the following week the patient gained five pounds and a half. The pulse had now fallen and its range for the week was between 84 and 104. The amount of sputum was diminished to one-fifth of what it was at the commencement of the treatment. The patient felt better, and looked brighter, and the physical signs showed an improvement in the lung.

He left the hospital four months after the commencement of the treatment. The change in his condition had been very remarkable. When admitted he was profoundly asthenic and emaciated, and he

could scarcely walk to his bed. His general appearance had improved wonderfully. He was bright and active, and said he felt vigorous. During his stay in the hospital, although it was during the heat of summer, he had gained in weight as much as nineteen pounds.

Four months later he was seen by Dr. Osler, who describes his condition as follows :

"The colour is good. To me his face looks a little less pigmented, but Dr. Thayer, who had the patient in charge during the summer, while he was in the ward, does not think that there is any material change in the face, but thinks the discolouration is less intense on the trunk. It is still of a very advanced grade, such as is only seen in the most typical cases of the disease. The small patches of pigmentation on the palate have disappeared. The local condition in the lung has cleared and there are now only a few râles to be heard occasionally on coughing. The change in the patient's general vigour is remarkable. He walks briskly, is active, energetic, in very good spirits, and says that he is as well as he ever was in his life."

Dr. Murrell does not view this method of treatment so hopefully. In a summary of all recorded cases given by Dr. Ringer, where similar treatment had been employed, out of nine five had shown improvement, but sufficient time had not elapsed to determine whether the benefit was permanent or not. In two cases no improvement followed; in one only a limited trial of the treatment had been given, and in another death supervened. Cases of Addison's disease often improve, although no treatment is given, so that deductions should not be drawn from a few cases. In Dr. Murrell's case death occurred after he had been in the hospital fifty-three days; forty-two days of this period he had been under treatment by supra-renal extract. Tabloids were used at first, but on proving ineffective, fresh adrenals finely minced were given on bread and butter, one drachm three times a day. Severe vomiting followed their administration, there was rapid loss of weight and strength, the patient became gradually more listless and shortly afterwards died.

From the account given it would appear that the amount given per day of adrenal extract was much less in Dr. Murrell's case than in Dr. Osler's.

#### **Therapeutic Items.**

CAFFEINE IN DISEASES OF THE RESPIRATORY ORGANS, *The Practitioner*, April, 1895.—According to Dr. Skerritt this drug besides possessing therapeutic value as a cardiac tonic and diuretic, appears also to have considerable virtue in respiratory affections, especially in those where the element of spasm is prominent. It is in asthma

especially that Dr. Skerritt has obtained good results, and although failures do occur, they are fewer with caffeine than perhaps, with any other remedy. Its action as a heart tonic as well as a relaxer of bronchial spasm make it particularly useful, and it gains additional value by its influence as a general stimulant to the nerve centres in cerebrum, cord and medulla. The drug is to be given in five-grain doses repeated every four hours until relief is obtained.

THE TREATMENT OF RHUS POISONING. *N. Y. Medical Journal*, January 11, 1896.—Prof. Penhallow, writing to the *Garden and Forest*, remarks that the poisonous principle is more or less common to the entire family. After suffering several times, himself he could always tell at once whenever he came into an atmosphere charged with the poison by experiencing a well-defined acid taste in the mouth and a slight somewhat acute pain directly between the eyes. These invariably proved premonitory symptoms of what was about to follow. Mr. Penhallow recommends free application of the following solution: Sodium hyposulphite, half an ounce; glycerin, three ounces; carbolic acid, sixty drops; water, ten ounces.

Mr. Lodeman and Mr. George Beringer both state that the symptoms are apt to reappear at about the same time of the year for several consecutive years. The latter writer in speaking of the treatment recommends washing the face and hands with a solution of hydrogen dioxide as a preventive measure, and as a topical application the following solution: Sodium sulphite, one drachm; glycerin, half an ounce; camphor water, up to four fluid ounces.

STRYCHNINE AND CHLORIDE OF GOLD IN THE TREATMENT OF PHTHISIS.—*University Medical Magazine*, December, 1895. Dr. Pepper records the case of a woman with a strong taint of hereditary tuberculosis, who at the age of 21 rapidly developed phthisis of an acute type. The sputum, amounting to eight fluid ounces daily, contained numerous tubercle bacilli, and there were signs of consolidation at the right apex and left base. She was placed on a diet of egg albumen, which was forced, so that she was soon taking daily the albumen of two dozen eggs. The medicinal treatment consisted of  $\frac{1}{100}$  gr. of strychnine nitrate with  $\frac{1}{1000}$  gr. atropine sulphate hypodermically every two hours, and  $\frac{1}{80}$  gr. strychnine nitrate with  $\frac{1}{2}$  gr. double chloride of gold and sodium, and  $\frac{1}{2}$  gr. of a vegetable digestive every two hours by the mouth. She was given cod liver oil inunctions and general massage with passive movements once daily. She suffered at first from incipient strychnine poisoning, but after a while came to tolerate the drug, which was pushed to the border line of its toxic action. She rapidly gained weight and in two

months almost all the symptoms had disappeared. She remained in good health for two years, when all the symptoms of the previous illness followed an attack of pneumonia. She was placed on the same treatment as before, and in a month was sent to the mountains well.

Pepper calls particular attention to the sudden onset, quite like acute miliary tuberculosis, the immense number of bacilli found in the sputum, the rapid cure, with acute reappearance after two years as the result of a pneumonic attack, the speedy disappearance of bacilli and consolidation in this recrudescence, the absence from the treatment of all cough medication and antiseptics, and the large doses of strychnine nitrate, and double chloride of gold and sodium, with which the system was kept saturated.

*A. D. Blackader.*

## Pathology.

### On the Identity of Variola and Vaccinia.

JUHEL-RENOY AND DUPUY. "Recherches expérimentales sur l'identité de la vaccine et de la variole."—*Arch. de méd. exp. et d'anat. pathol.*, 1894, p. 425.

LAYET. *Bull. de l'Acad. de Médecine*, December 3, 1895. (Abstract *British Medical Journal*, January 11, 1896.)

HIME. "Successful transformation of small-pox into cow-pox."—*British Medical Journal*, II., 1892, p. 116.

COPEMAN. "Variola and vaccinia in the lower animals."—*Journal of Pathology*, Vol. II., 1894, p. 407.

COPEMAN. "Pathology of vaccinia and variola."—*British Medical Journal*, Vol. I., 1896, p. 7.

"They," wrote Dr. Edward Jenner, "who are not in the habit of conducting experiments, may not be aware of the coincidence of circumstances necessary for their being managed so as to prove perfectly decisive; nor how often men engaged in professional pursuits are liable to interruptions which disappoint them almost at the instant of their being accomplished."

This passage appears in the first edition of the famous "Inquiry into the Causes and Effects of the Variolæ Vaccinæ," and immediately follows a statement of Jenner's belief that the source of cow-pox is a peculiar morbid matter arising in the horse. Jenner owned that he had not been able to confirm this belief by actual experiment conducted immediately under his own eye. He had sought opportunities to this end, but they had failed him; the necessary "coincidence of circumstances" could not be attained; he was therefore compelled to register his belief unsupported by direct proof. He was led by circumstantial rather than by direct evidence to regard both small-pox and cow-pox as originating from a common source. In the absence of full investigation he confounded two morbid conditions of the horse's heel, namely, grease and horse-pox. Failing to determine any but a spontaneous or atmospheric origin for the grease (horse-pox) he regarded this as the primitive disease, which transmitted by milkers to the cow became cow-pox, transmitted to man, under some peculiar and unknown train of circumstances, developed into small-pox.

Now-a-days we attach little importance to this theory as a whole, weakened as it has been by Jenner's mistake. What is all-important to us is this assumption that small-pox and vaccinia (and horse-pox) are modifications of one and the same disease, for upon the correctness of that assumption must depend our conception of the nature and import of vaccination. If the assumption be correct then vaccination affords an example of what Pasteur and numerous other bacteriologists have repeatedly proved, namely, that the mild disease produced by the experimental inoculation of an attenuated virus is capable of protecting the organism against the inroads of the more intense virus. Vaccination is brought into line with the ancient experience that a mild attack of sundry infectious diseases is capable of protecting the organism against later infection by the same. If the assumption be incorrect then, appreciating, as we must, the benefits of vaccination, we are impelled to see in it an example of one disease (and its causative micro-organism) protecting the system against the ravages of another. The matter then becomes more complicated and less easily grasped. Nevertheless, a protection of this nature is not outside the bounds of possibility, and bacteriological study has afforded cognate examples. Woodhead, for instance, years ago obtained from the soil a perfectly harmless bacillus, which when inoculated into the small animals of the laboratory protected them against anthrax, and several of the slightly different microbes of hæmorrhagic septicæmia acting specifically upon sundry of the lower animals, when inoculated into other animals render them refractory to invasion by their own peculiar and specific microbes. Only within the last two years Klein has pointed out that such widely different organisms as the typhus bacillus, the micrococcus prodigiosus and the cholera spirillum, with their products, exert a temporary protective effect against each other.

While this is so, Jenner's belief in the causal relationship between small-pox and cow-pox, is that which has appealed to our profession, and investigator after investigator has endeavoured to establish the connection as something more than a mere assumption. Time after time it has been announced that small-pox communicated to cattle has resulted in the development of veritable vaccinia pustules. And yet that 'coincidence of circumstances necessary for (experiments) being managed so as to prove perfectly decisive,' has very, very rarely been gained. Ninety-eight years have passed since Jenner published his pamphlet with the lament which every pathological investigator must in essence oftentimes have repeated, and at the end of this time it cannot be announced that the medical world in general, which for those ninety-eight years has busied itself with vaccination, is assured as to the exact nature of the virus it employs.

Half a century ago there was a greater assurance than there is today: the experiments of Thiele in Kasan, of Ceely of Aylesbury, and of Badcock the Brighton chemist, appeared conclusive in favour of the identity of the two diseases. All these observers succeeded in inoculating cattle with small-pox and in obtaining from the variolated cattle a lymph which induced a typical vaccinal eruption in man. But when, in 1863, a French commission at Lyons, with Chauveau at its head investigated the subject results were reached strongly opposed to the earlier observations. The variolous and the vaccinal eruptions in cattle were declared to be distinct and to remain distinct when inoculated through a series of cattle.

It may truly be said that the influence of Chauveau has dominated our appreciation of the subject until the present time, and despite strong arguments and examples brought forward in other countries, Chauveau and the French pathologists following him, adhere to the opinion that the conditions are distinct.

Thus Juhel-Renoy and Dupuy (1894) still urge that where variolation of cattle is successful the papules have a specific appearance distinct from those of vaccinia, and that after two or three generations the disease dies out; and they make the further, somewhat bold declaration that the age of the animals, age and virulence of the variolous lymph and region of inoculation are without effect in influencing the transmission of the small-pox virus. Only last year Layet, as the result of inoculating heifers with the blood and lymph of small-pox patients gained, it is true, an eruption in each case, which, while vesicular and pustular, he held to be distinct from vaccinia. The lymph from this eruption reproduced the disease on other heifers. Notwithstanding this, and the further fact that subsequent vaccination was either abortive or wholly without result, he holds that we have to deal with distinct diseases. With regard to these two cases it may be stated in connection with the former that in the discussion which followed the reading of the paper at the Société Médicale des Hôpitaux, Chantemesse, a most capable observer, objected that the conclusions were based upon insufficient material and in connection with the latter, that the series of inoculations of heifers was not carried far enough to establish duality. In short, it appears that now, just as thirty-two years ago, the upholders of the dual theory are satisfied with incomplete results. At first employing aged cattle and obtaining no satisfactory eruptions they either denied that small-pox could be conveyed to ruminants, or inoculating children directly from the abortive papules upon the first animal of the series they induced

<sup>1</sup> In the published paper the authors are evidently uncertain as to the value of their results and write very cautiously concerning the duality of the two conditions.

small-pox on them. Next, when it was found that occasional well marked eruptions resulted, not taking sufficient care to collect the lymph at the right period, they concluded that the disease could not be conveyed through cattle in series, and now when other observers have pointed out that calves can under suitable conditions be easily inoculated with small-pox, they fall back upon the fact which all workers appear prepared to admit, namely, that the eruption produced during the first removes of variola from man to beast is somewhat aberrant in appearance and time of appearance and in effects, and upon this, without carrying the investigation further they are ready to state that variola and vaccinia are essentially distinct.

But if the opponents of the belief in the unity of the two conditions cannot be regarded as having proved their contention, the same has to be acknowledged in connection with almost every individual attempt to prove the unity. The number of these attempts is larger than is generally thought. From Gassner in 1801,<sup>1</sup> through sundry Egyptian physicians in or before 1828, we pass to Sonderland of Barmen (1830), Thiele of Kasan (1836), Ceely (1839), Badcock (1840), and in more recent times, since the Lyons commission in 1863-5, to Voigt of Hamburg (1881), Fischer of Carlsruhe (1886-90), King of Madras (1889), Eternod and Haccius of Geneva (1890-91), Simpson in India, Hime, Klein and Copeman in England (1892), and all these claim to have obtained positive and satisfactory results. Yet when we examine into their statements, with few and recent exceptions, there is the same want of the "perfectly decisive." What we know of Gassner's work is, for example, of the vaguest; of the Egyptian physicians we have only the second-hand report of Dr. McMichael to the Royal College of Physicians that several of them had succeeded in variolating cattle, and so had gained a good lymph for inoculation. Sonderland declared that he had gained vaccinia by covering cows with the bed-clothing of small-pox patients, but numerous observers failed to confirm his results. Ceely gave a full and admirable account of his inoculations of cows with small-pox lymph, but like not a few of his successors, as for instance Voigt, he vitiated his results (for present purposes) by simultaneous or almost simultaneous inoculation with ordinary vaccine lymph elsewhere on the cow's body. Badcock, although he succeeded in variolating 37 out of 200 cows experimented upon, and though he is said to have vaccinated personally no fewer than 20,000 individuals with his "variolo-vaccine," has given the most meagre description of his *modus operandi*, and has passed over his technique without statement of the precautions taken, and consequently his evidence is robbed of much of its value. And even among

<sup>1</sup> 1801 according to Crookshank; 1807 according to Ceely.



the most recent workers there is a lack of due precaution. Thus Dr. Hime, of Bradford, employed clear limpid variolous lymph from a small-pox patient of the fourth day of the eruption and inoculated it into the shaved and disinfected abdominal wall of a ten-weeks-old bull calf. For the incisions he employed a sterilised knife. The calf was only placed in its stall when the infected scarifications and incisions were dry, and then it was tied up with a short halter so that it could not lick itself. As a result there was slight constitutional disturbance and the development (as is most usual in these cases) of a not very perfect eruption, and on the eighth day Dr. Hime collected minute quantities of lymph from the pocks. In a second calf similarly treated every one of the 29 insertions of the lymph from calf I took, and on the fourth day there were beautiful and typical pocks. A third calf inoculated from the second also developed perfectly typical vaccinia. Children inoculated from the second and third calves of this series exhibited well developed vaccine pocks and were found later to be refractory to ordinary vaccine lymph. The example appears thus at first reading to be an absolutely decisive proof that variola passed through the calf assumes the characters of vaccinia. Only, unfortunately, reading between the lines it is found that Dr. Hime is the director of a calf-lymph supply establishment, and evidently the experiments had been undertaken in the place where the usual calf lymph inoculations were performed, the calves placed in the stalls usually dedicated to vaccine calves, and fed and groomed by the ordinary attendant or attendants. And while I myself have no doubt that Dr. Hime succeeded in the transmutation, I cannot regard the investigation as flawless; there was the chance of contamination with ordinary vaccine.

This weakness in Hime's case vitiates the observations of Eternod and Haccius at the Swiss Vaccine Institute at Geneva, who on eight separate occasions gained useful lymph by variolisation of cattle and successive passage through calves. At the conclusion of the series the only difference recognisable between this and ordinary lymph was its slightly greater activity.

Nevertheless similar results have been obtained by Copeman under conditions in which there was no possibility of contamination. He inoculated a calf at the Brown Institute in London, with variolous lymph from a girl suffering from discrete small-pox. The instruments and table were sterilised: the environment of the animal were such that there was no likelihood of vaccinia being communicated to it. Yet a shotty vesiculo-papular eruption appeared both along the scarifications and as in Hime's case in other regions, while by the

third remove the effects on the calf were undistinguishable from those of ordinary vaccine lymph. Copeman proved that the variolated animals were refractory to subsequent 'vaccination,' but unfortunately he never employed his 'variolo-vaccine' lymph to inoculate human beings. Here again then, is a step in the complete proof omitted. There are only two cases on record which appear to be thoroughly satisfactory and conclusive, namely, one of Fischer's experiments, and the recent studies by Klein conducted for the Board of Health of the Imperial Government. Unfortunately I cannot speak definitely concerning these for I have not been able to consult the original articles. With these two possible exceptions it would seem that we still are without the perfect individual experiment with every condition fulfilled, free from hiatus, or failing, decisive, *teres atque rotundus*. Nevertheless by a summation of the results gained by such investigators as Ceely, Voigt, Haccius, Hime, Simpson, Copeman and Klein, the failings in some being balanced by due precautions in the others, it is scarce possible to arrive at any other conclusions than the following:

1. Transparent lymph obtained from small-pox patients during the vesicular stage of the eruption is capable of infecting a large percentage of young calves. Older cattle are infected with less certainty.

2. Just as the inoculation of cattle with horse-pox or the retrovaccination of calves with ordinary vaccine lymph which has been carried on in series through human beings, leads frequently either to abortive or aberrant eruptions in the first animal inoculated, so the inoculation of calves with small-pox virus is usually either abortive or induces an atypical eruption in the first calf of the series, the papules tending to be small, vesiculation and lymph production scanty, the crusts irregularly developed.

3. With further removes the eruption in calves assumes more and more the characters of ordinary vaccinia, until it becomes undistinguishable from the latter.

4. While the lymph from the earlier removes tends occasionally to induce generalised eruptions in the 'vaccinated individuals,' from the later removes local pustules at the region of inoculation are alone developed, and these are not to be distinguished from the eruption induced by ordinary vaccine lymph, save by their regularity and peculiarly "typical" character.

5. Individuals inoculated with such 'variolo-vaccine' are rendered insusceptible to inoculation with ordinary vaccine-lymph.

6. Consequently it is not possible to distinguish between vaccinia and its results in the human being and variola which has been carried through a sufficiently long series of calves, and its results in the human economy.

7. *Vaccinia* would therefore appear definitely to be *variola* modified by transmission through the bovine species.

The last conclusion is perhaps inverted; the constancy of the characters of cow-pox, *i.e.*, of the results of vaccine lymph inoculated through a series of calves or of human beings would indicate a stable form of virus. We know from botanical observations that varieties tend to sport more frequently than does the original stock. It is rarely that vaccine sports and induces a general eruption comparable with ordinary small-pox. On the other hand, *variola* communicated by natural means is most pleomorphic in its results, varying from the mildest discrete vesicles—the old “pearl-pox”—to the confluent and hæmorrhagic forms, and the inoculation with small-pox, so common during the eighteenth century, demonstrated that passage of this virus through a series of healthy individuals tended to the assumption of a mild type of the disease, sometimes so mild that, as noticed by Dimsdale (1768, 1781), there was developed only a local pustule, with no general eruption, and nevertheless the individual was thereby protected. A little-known work by Adams (1807)<sup>1</sup> gives several examples of selective inoculation from mild cases of small-pox resulting in the development of such local pustules without sign of general eruption; so similar in fact was the eruption to that induced by cow-pox that the patients and their friends thought that they were being imposed upon, and Adams had to cease using this strain of lymph. There is not a little probability therefore that “*vaccinia*” from its stability represents the original or parent type of a disease common to man and several animals, and that *variola* represents a series of degrees of exalted virulence of the same, brought about by passage through a succession of human bodies under conditions favourable to the propagation and activity of the virus.

What these conditions are we shall not know until the micro-organism of *vaccinia* (or *variola*) has been isolated. Every few months we hear that this has been successfully accomplished; now it is a protozoan (Guarnieri), now a bacillus (Klein and Copeman), now a micrococcus (Maljean, etc.) But unfortunately after the discoverers have published their preliminary notes on the matter we hear little more. The time is not ripe to make any statement concerning the bacteriology of these conditions. At most it may be said that *vaccinia* and *variola* appear to range themselves with diseases of which we know the microbic origin, and appear to afford examples of variation in virulence and effects, brought about by cultures of a germ through a series of organisms of one or other species.

*J. G. Adams.*

<sup>1</sup> A popular view of Vaccine Inoculation, abstracted by Crookshank, *History and Pathology of Vaccination* Vol. 1, p. 287. 1889.

## Diseases of Children.

### Night-Terrors.

COUTTS, J. A. "Night-terrors."—*American Journal of the Medical Sciences*, February, 1896.

This writer, after reviewing the conflicting opinions expressed by previous writers on the causation of this complaint in children, sums them up under two groups. In the first are classed the opinions of those who hold that the trouble is either reflex in its origin, or due to partial asphyxia owing to abdominal disturbance, nasopharyngeal trouble, or ill ventilation of the sleeping apartment. In the second, he places the views of those who think night-terrors are central in origin, manifestations of present cerebral disturbance, and harbingers of possible further neuroses in the near or distant future.

These two widely differing views arise from a confusion, under a common name, of two classes of cases which have the occurrence of fright during the early hours of night as a prominent symptom common to both.

In the first class, come cases which are fairly frequent and of little import, where the terror is reflex and due to abdominal or nasal trouble. In the second class, come cases of comparative infrequency but of grave import where the malady arises from central cerebral disturbance.

Dr. Coutts suggests that different names should be applied to these widely differing conditions. For the first class he proposes the familiar name of nightmare, reserving that of night-terrors for the second.

As a cardinal point of distinction between the two complaints, Dr. Coutts insists that in night-terrors it is essential that the little patient should "see visions;" in nightmare, it is sufficient that he merely "dream dreams." Although there are many other points of distinction, this difference is, he thinks, a fundamental one.

In night-terrors, the vision is eminently real to the child, and is generally of a threatening or terrifying nature, in which not infrequently the color red plays a prominent part. Although seemingly wide awake in the attack, the child cannot be made sensible of its surroundings, and generally after being laid down, goes off into a deep sleep without recognizing those around him. In the morning, if carefully questioned, he will be found to have little or no recollection of

what occurred during the night. Whatever the nature of the vision, it is liable to be repeated with almost the same features in each attack.

Comparing with these the symptoms of nightmare, important differences may be observed. In nightmare the sleep is generally disturbed from the outset, and the attack is merely a culmination of the state of unrest. The child becomes wide awake, recognizes those around him, and his fears and fancies will be found to be merely the remnants of a troubled dream. Even after his fears are allayed, excitement prevents sleep coming on at once; and in the morning the child will be found to have a fair recollection of the occurrences of the previous night. Nightmare is of little moment, but is often associated with chronic ill-health in its subject.

Night-terrors will be found, according to Dr. Coutts, to have been not infrequently preceded by infantile convulsions. There is generally a distinct neurotic family history, and if the after history of the patient is followed up, it will be found that night-terrors are frequently the precursors of such grave neuroses as migraine, hysteria, epilepsy and insanity.

The treatment of night-terrors may, if the attacks are frequent and cause much distress, call for appropriate doses of potassium bromide given at bedtime. If the attacks are infrequent a prolonged course of the bromides would be inadvisable. In all cases any undue mental or nervous strain must be avoided. *A. D. Blackader.*

### Empyema in Children.

KOPLIK. "The bacteriology of empyema in children."

CAILLÉ. "The dangers and peculiarities of pyothorax in children."

WINTERS. "The treatment of empyema in children."—*Archives of Pediatrics*, February, 1896.

The three papers were read before the Section on Pediatrics of the New York Academy of Medicine.

Koplik, after enumerating the various sources from which micro-organisms can enter the pleura, divides all cases into four natural groups. These are: *First*. Metapneumonic—following or complicating simple pneumonia—in which the diplococcus pneumonia is the etiological factor. Exceptionally the pneumonia may be so slight that lung symptoms are absent and the chest is found full of pus on the third day after the initial chill. In a small percentage of cases the streptococcus is also present. The *second* group in which the staphylococcus pyogenes, or a streptococcus, or both, are present occa-

sionally follows lung infection, but more commonly tonsillitis, and even a slight infected wound. The *third* depends upon the bacillus of tuberculosis either pure or with streptococci, and the *fourth* comprises putrid or fetid empyemas, in which perforation of the lung gives access to saprophytic bacteria. A small number of cases due to the typhoid bacillus and the bacillus coli communis are not included in this classification. To the first group belong 60 per cent. of all cases, and probably over 75 per cent. are non-tubercular a much higher proportion than in adult life.

Caillé points out that cold and damp weather, is a strong predisposing factor in empyema, the great bulk of cases being severe in February, March and April. The differential diagnosis between a purulent and serous fluid, he thinks, can only be made by the aspirating needle, hence the physical signs of fluid in the chest in general must be considered. Ordinary subacute cases of pleurisy and cases following pneumonia are not difficult to recognize; the puzzling cases are those in which, after an acute onset, (1) "critical defervescence takes place with dulness on percussion continuing, or (2) a continued irregular temperature curve extends over the second and third week of illness with marked dulness persisting." Two cases are reported, in which, during a week and ten days respectively preceding the operation, entire absence of fever was noted, and yet one, a lad of seven, had two pints of pus in the thorax, and the other, a child of three, had one pint. After enumerating the "rational signs" obtained by inspection, palpation, auscultation and percussion, Caillé takes each up in detail, and shows that it may be absent in special cases; the most constant is perhaps the flatness and marked resistance to the finger on percussion. He insists that the only sure method of diagnosis is the aspirating needle, which has the added advantage of determining the character of the fluid as well as its presence. The puncture is made under strict antiseptic precautions with a rather large needle, and where all the signs point to fluid and none is found, it is repeated a second and even a third time. The exudate obtained is examined microscopically.

Winters sums up the indications for treatment to be removal of pressure from the lung and perfect drainage with antiseptic precautions. He advocates early operation once the active pleuritis has subsided, as the longer the delay the less complete will be the re-expansion of the lung owing to thickened pleura, adhesions, etc. He believes that in recent cases as the pus escapes the tension is relieved and the lung expands, and insists that careful auscultation before and after making the incision, will convince any one that he is correct. Caillé on the

other hand, states that "the reinflation of a collapsed lung exposed to the presence of the atmosphere through an opening in the pleural cavity is a paradox." Winters favours simple incision rather than resection of the ribs, especially in children under two years. He makes his incision two inches in length and at least two inches above the base of the cavity to allow of proper drainage, as the diaphragm rises, and prefers chloroform to ether; anæsthesia should not be complete so that the crying and coughing will forcibly expel the pus. After opening, careful irrigation of the cavity with hot water is carried out, and a drachm or so of whiskey given. The factors which lead to obliteration of the cavity are expansion of the lung, ascent of the diaphragm, and falling in of the chest wall, which latter in neglected cases can be brought about by resection of a rib. *G. Gordon Campbell.*

### Infantile Intussusception.

WIGGIN, F. H. "On infantile intussusception—A study of one hundred and three cases."—*New York Medical Record*, Jan. 18, 1896.

CLUBBE. "Laparotomy for intussusception in very young children."—*Australasian Medical Gazette*, No. 10, 1895; *British Medical Journal*, Feb. 1, 1896.

"Intussusception in Infants."—*The Lancet*, Feb. 1, 1895.

The treatment to be adopted in cases of intussusception occurring in infants has, for some years, been much debated. The papers before us are a strong plea for operation at the earliest possible moment. Dr. Wiggin expresses the hope that the general profession might be impressed with the facts that acute intussusception is in reality a form of strangulated hernia; that the subacute variety is an irreducible hernia; that enemata are far from being devoid of danger in their administration; that abdominal section performed under modern conditions, and during the first forty-eight hours of the disorder has a chance of success represented by 78 per cent., which, if the cases were operated on during the first twenty-four hours, would speedily rise to 90 per cent.

Dr. Clubbe, from his own experience, strongly urges laparotomy as in itself not a difficult operation, and one comparatively well borne by even very young children.

The *Lancet*, in commenting on these cases, writes as follows: If carefully carried out, and if employed within the first forty-eight hours after the commencement of symptoms, inflation and injection are harmless; if they fail, laparotomy may be at once performed without the likelihood of its success having been at all diminished.

That distension can effect a cure in many cases of intussusception no one will deny, but it is equally certain that distension, if employed for too long a time or too energetically or at too late a stage, when the intestinal wall has been weakened, may result in the rupture of the bowel and death of the patient. With inflation it is very difficult to estimate the pressure employed, but with injection, if a funnel be used, the pressure exerted by the liquid depends on the height to which the funnel is raised, and it is important to remember that each foot of height is equal to a pressure of half a pound per square inch of bowel wall; the funnel should never be higher than 2 feet., causing a pressure of one pound per square inch. If, also, this method be limited to cases seen within forty-eight hours of the onset of symptoms, and be not applied for more than, say, half an hour, the child will not be injured at all, and the chance of success of the laparotomy which should immediately follow if the injection be unsuccessful will not be in any way impaired. It can hardly be doubted that abdominal section in infants does cause a great amount of shock, sufficient in some cases to lead to death, therefore it is not advisable to have recourse to such a treatment until slighter and safer methods have been given a fair trial.

*A. D. Blackader.*



## Reviews and Notices of Books.

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**An American Text-Book of Obstetrics for Practitioners and Students.** By James C. Cameron, M.D., Edward P. Davis, M.D., Robert L. Dickinson, M.D., Charles W. Earle, M.D., James H. Etheridge, M.D., Henry J. Garrigues, M.D., Barton C. Hirst, M.D., Charles Jewett, M.D., Howard A. Kelly, M.D., Richard C. Norris, M.D., Chauncey D. Palmer, M.D., Theophilus Parvin, M.D., George A. Piersoi, M.D., Edward Reynolds, M.D., and Henry Schwarz, M.D. Richard C. Norris, M.D., Editor. Robert L. Dickinson, M.D., Art Editor. Published by W. B. Saunders, Philadelphia. 1895.

This is the latest of the series of American text-books published by Mr. Saunders, and it may be fairly said to eclipse all its predecessors. Its distinguishing as well as its most striking feature is its wealth of illustration, some 900 cuts in colours and half tones being scattered through the work. Most of them are original, and whenever old ones have been used they have been retouched or redrawn. As far as possible the cuts have been drawn to a uniform scale of one-sixth or one-third, and great attention has been paid to anatomical accuracy, as well as to artistic effect. In the older books students were often puzzled by the plates representing right sagittal sections in some places, and left sagittal sections in others; but in the American text-book, left sagittal sections have been shown whenever possible in order that one cut may be more easily compared with another. Instruments, too, have been drawn to a uniform scale, and it is possible here to compare one with another and obtain an intelligent idea of their actual and relative size. Dr. R. L. Dickinson deserves great credit for the manner in which he has carried out this important part of the work.

In a composite work, it is impossible to avoid more or less overlapping in the different sections, as well as occasional conflicts of opinion, but it is remarkable how well Dr. Norris has succeeded in harmonizing the various parts so that scarcely any important difference of opinion or treatment can be found in the whole work. In a text-book prepared for students as well as practitioners, it is hard to strike the happy mean so that it may be deep and comprehensive enough for the practitioner, and at the same time clear and concise enough for the student. Perhaps greater difference is noticeable in this respect than in any other in the work of the various contributors. Some enter more into detail for the benefit of the practitioner, while others condense and illustrate for the benefit of the student. The sections on the anatomy and physiology of the female generative organs, to which 143 pages are devoted, are clearer

and fuller than in any other English text-book. The description of the structures of the perineum, the lymphatics and the development of the embryo are especially good. The illustrations are numerous and add greatly to the value of the article. The diagnosis, hygiene and management of pregnancy are then treated concisely and practically. The next section of 133 pages is devoted to the pathology of pregnancy, including abortion and extra-uterine pregnancy. Dr. Howard Kelly's description of ectopic gestation, its symptoms, diagnosis and treatment, is scholarly and practical. The chapters on the physiology of labour and the conduct of natural labour are thoroughly up to date. Diagnosis by abdominal palpation and pelvimetry are well described and illustrated, and also practical rules are given for carrying out antiseptic treatment. Stress is laid upon the proper management of the third stage of labour, the author maintaining that this stage is not complete until uterine retraction is fully established. Lacerations of the pelvic floor are next considered, the proper and improper methods of repair being described and illustrated. In lacerations of the cervix, immediate suturing is recommended only when there is severe hæmorrhage. In the absence of troublesome bleeding, the advantage of the primary suture is considered doubtful. Episiotomy for the prevention of perineal laceration is highly extolled. In describing the method of operating, the author says that the cuts should be made parallel to the long axis of the mother's body and not to the vaginal axis, else the very tissues may be invaded which the operation aims to save. The chapter on the mechanism of labour is well written, taking account of recent contributions by continental authors. A number of excellent diagrams, some of them quite ingenious, illustrate the mechanical actions described. The writer of this section overlaps somewhat the work of other contributors by considering the management as well as the mechanism of labour. The section on dystocia takes up 156 pages; Hirst describes and illustrates the various deformities of the pelvis and the foetal malformations which obstruct labour in an exhaustive manner, while Parvin and Schwarz treat of dystocia due to accidents and diseases. The physiology, diagnosis and management of the puerperium are satisfactorily treated by Jewett, while the important section on the pathology of the puerperium is contributed by the editor, with the exception of the chapter on puerperal infection, which is written by Garrigues. This chapter, occupying 51 pages, is a masterly exposition of the modern views respecting fever in the puerperium and the modern antiseptic treatment. No stronger proof of the value of antiseptics can be brought than the statistics of the New York Maternity Hospital quoted in this article. From 1875 to 1883, the average maternal mortality was 4.17 per cent.; in 1883 it reached 6.71, per cent., being 20 per cent. in the last month, 15.69 per cent. from sepsis. Then the antiseptic treatment was introduced, and during the following three months there were 102 deliveries without a death. From 1884 to

1893, the average mortality has been 0.87 per cent., the percentage from sepsis being 0.18. The pathology, symptoms and treatment of the various forms of septic infection during the puerperium are treated exhaustively.

The physiology and pathology of the newborn infant occupy 60 pages, and the concluding section of 110 pages is devoted to obstetric surgery, divided into instrumental operations, manual operations and cœliotomy for sepsis in the child-bearing period.

Taken as a whole, the American text-book is the best work we have on obstetrics for the advanced student and general practitioner. It is up to date and practical, embodying the clinical experience of many of the best teachers on the continent.

J. C. C.

**A Text-Book on Nervous Diseases.** By American authors. Edited by FRANCIS X. DERCUM, A.M., M.D., Ph.D., Clinical Professor of Nervous Diseases in the Jefferson Medical College, of Philadelphia; President of the American Neurological Association. With 341 engravings and 7 coloured plates. Philadelphia: Lea Brothers & Co. 1895.

This volume, of upwards one of thousand pages, adds another to the already long list of works on nervous diseases. The contributors, twenty-two in number, include many of the leading physicians in the chief medical centres of the United States.

It is generally admitted that the multiplication of systematic works in different departments of medicine is already greatly over done. There can, however, we think, be no question that in the work under consideration the great majority of the authors have given much care and attention to the task allotted them, and have produced a work which, on the whole, will redound to the credit of American medicine.

Many of the contributors to this volume are well known for their work in neurology, and for the most part the articles are very complete, and represent fully the present knowledge on the subjects dealt with.

The first chapter, by Weir Mitchell, is devoted to certain general considerations relating to the examination of nervous cases. This is followed by an excellent account of the relation of changes in the eyes to nervous diseases by Oliver, of Philadelphia.

The articles on neurasthenia and hysteria, by Drs. Dercum and J. Hendrie Lloyd, are very exhaustive. Dr. Osler contributes the section devoted to the diseases induced as the direct or indirect result of infection. Under this heading are described cerebro spinal meningitis, tetanus tetany, hydrophobia and diphtheritic paralysis. The articles on cerebro spinal meningitis and tetanus are particularly good.

The seventh chapter, treating of the various choreiform affections, by Wharton Sinkler, is an excellent contribution.

The chapters on the general and focal diseases of the brain, by Dercum, C. K. Mills, C. L. Dana and Allan Starr, deal fully and clearly with these important groups of affections.

The chapter on the anatomy of the cerebral cortex and the localization of its functions, by C. K. Mills, is a good summary of our present knowledge of this subject.

The spinal cord affections are dealt with by J. H. Lloyd, Morton Prince and F. Peterson, and the peripheral nerve affections by Sinkler, De Schweintz and Herter. It is needless to say that all these articles show proof of careful study and intimate knowledge of the subject, coming as they do from men who are careful and conscientious observers.

Dr. G. W. Jacoby writes a short but valuable chapter on the myopathic affections.

One of the most valuable chapters in the work is that on the disorders of sleep, headache, vertigo, &c., by J. C. Wilson.

The Editor was fortunate in securing the services of W. W. Keen, of Philadelphia, for a description of the surgical measures called for so frequently at the present day in many nervous affections. Few surgeons have had more experience than Dr. Keen in this department. His article will be welcomed by all who are called upon to undertake cerebral surgery.

J. S.

### **Die Erkrankungen der Nase, des Rachens und des Kehlkopfes.**

Von Prof. Karl Stoerk in Wien. 1895. Alfred Hoelder. Diseases of the Nose, Throat and larynx. By Prof. Karl Stoerk, Vienna.

This work, from the pen of one of the ablest of European laryngologists, is the result of years of careful investigation. The chapters on the ordinary affections of the nose, throat and larynx are written so as to be of interest to the general practitioner especially.

The chapter on sclerosis of the larynx and trachea is a very exhaustive one on a subject the symptoms of which were first observed by the author himself. It is a matter of regret that this work is accessible only to the student of the German language.

H. S. B.

## Society Proceedings.

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### MONTREAL MEDICO-CHIRURGICAL SOCIETY.

*Stated Meeting, December 27th, 1895.*

A. D. BLACKADER, M.D., PRESIDENT, IN THE CHAIR.

Dr. E. N. Chevalier, of St. Johns, P.Q., and Dr. F. X. deMartigny were elected ordinary members.

#### **Removal of the Upper Extremity for Sarcoma.**

Dr. Geo. E. ARMSTRONG exhibited a woman from whom he had removed the whole upper extremity one year previously. (See page 666.)

Dr. BELL said he was glad that this case had been shown to-night, as it emphasized what he had urged at the previous meeting, that this was a suitable operation for the radical cure of some advanced cases of cancer of the breast. It removed all the glands and gland tissues, and as recently done by Mr. Arbuthnot Lane the operation could be so modified as to bring a large flap from behind to cover the area laid bare by the removal of the tissues in front. It was really in many cases the only operation which would radically remove all infiltrated axillary tissue. As Dr. Armstrong had pointed out, it was a very simple operation, although requiring, of course, organized effort and skilled assistants. Dr. Bell referred to a case in which he had done a similar operation in July last for sarcoma of the neck of the humerus encroaching upon the neighbouring tissues.

Dr. A. LAPHORN SMITH referred to a case on which he had operated two years before, removing the pectoralis major and minor muscles, as well as the glands in the axilla, most thoroughly, and yet within a few months the arm became cedematous, swollen and painful, doubtless due to recurrence of the disease, for the patient subsequently died in great pain. He felt that the procedure recommended by Dr. Bell would have held out a better chance of a radical cure.

#### **Ophthalmological Specimens.**

Dr. G. H. MATHEWSON presented the following preparations from material derived from Dr. Buller's clinic at the Royal Victoria Hospital:

1a. A preparation showing a complete bony cup in the fundus around the optic nerve in a case of phthisis bulb.

1b. Microscopical preparation from the same eye, showing the bone cells lying in lacunæ and sending out prolongations into the canaliculi.

The specimens were shown because, though it has long been known to specialists that true bone was found in the eye in such cases, it was thought that the fact might be new to some of the general practitioners.

Bone in the eye in cases of phthisis bulbi was first mentioned by Schoeder, of Prague, 1839, and since his time by Alt, Berthold, Boucheron, Furnari, Jeaffreason, Knapp, Stellwag, Ziegler and many other authors.

2a. Two microscopical specimens of melanotic sarcoma of the eye.

2b. A microscopical preparation from one of the above.

3. Eye with foreign body (fragment of iron) in the vitreous.

Dr. F. BULLER described the clinical histories of the cases.

#### *Discussion on Cancer—(Continued).*

DR. F. BULLER further stated that his experience of cancerous diseases was necessarily limited to those which occurred in the eye and about it. With regard to the eyelids he stated that cancerous growths here were not at all infrequent, and were usually of the epithelial type. Early diagnosis was usually easy, and a radical cure effected by operation when the growth had not reached the periosteum and bone: where however, this occurred, cases were apt to go from bad to worse, and terminate fatally. Dr. Buller stated that the wider his experience became the more firmly he was convinced that cancer was primarily a local condition and that metastases were as apt to occur from soft cancerous growths, as from the harder varieties. On the hypothesis that the cancer began necessarily as a single aberrant cellular element, it was easy to understand that with a growing tissue, some of these elements may enter the circulation and be carried in their germinating state into some other part of the body and there form new "foci." That growths occurring within the eye-ball itself, and not invading surrounding tissues were not apt to recur elsewhere after extirpation, if this be done at a very early period. Where however, sarcoma growing within the eyeball has come to occupy a considerable portion of this space, removal of the eye is nevertheless almost certainly followed by the occurrence of metastases in other organs within a few months.

When we come to enquire what constitutes a cancerous growth, whether it be of the carcinomatous or of the sarcomatous type, we naturally begin the enquiry by searching for common factors, or for phenomena which belong to and are never absent from any new

growth of a malignant nature. Of these there are, so far as I am aware, only two which are characteristic of, and inseparable from, the cancerous groups.

1. There is the incontinent and inordinate development of primitive cellular elements.

2. There is the irrepressible tendency to invasion of adjacent normal tissue. The second characteristic is, however, merely a corollary of the first. If in any given case we follow the process backwards to its very beginning we would necessarily arrive at a period where the original growth consisted of only a few, and finally of only two unphysiological cellular elements. It goes without saying that no pathologist could ever hope to meet with the very beginning of a cancerous growth, or to recognize it even though the two first cellular elements were actually brought within the visual field of his very best microscope, and yet every cancer must be that and nothing more, at the very beginning. I think that in view of this fact it is not difficult to understand that there must be one principle or one law which determines the nature and the beginning of every cancer. There must be a time when a single cellular element secedes from its environment and begins to develop a tissue on its own account. From the moment this cell produces another one like itself the cancer has a *de facto* existence as a separate autonomy. These two cells and all the others which spring from them have ceased to perform any physiological function; they are parasites to the rest of the animal economy, or if you like, so soon as the arterial vascular supply is developed the growth is, properly speaking, autositic.

It seems to me that whoever would find an explanation of any cancerous growth will have to seek for it rather in physiology than in pathology, as a modification of the vital process, or whatever it is we call life. I may be wrong in the assumption, but so far as I am aware, all the morbid growths, for which a known cause exists in the form of certain specific micro-organisms, possess certain characteristics which at once and absolutely separate them from cancerous growths; the tendency to inflammation, degeneration and disintegration characterizes all of them. The opposite is true of the cancerous process, excepting under certain special conditions. A single trachoma nodule in the conjunctiva is as much a new growth as the largest osteosarcoma. The life history of the one depends on the presence, or at least the active agency, of certain micro-organisms; that of the other is the life history of the individual, of the whole being with which it is associated. It does seem to me that the new growths so far recognized as associated with and probably dependent upon micro-organisms

for their development differ so obviously from cancerous growths, that this difference in itself becomes a strong evidence against the micro-organism theory of cancer development. The differences which exist between cancerous growths themselves undoubtedly depend upon the vital properties in other tissues from which the growth originates though they may be, and I may say undoubtedly are, all subject to one fundamental law for their origin and subsequent growth.

In the human eye we have perhaps a better field for the study of cancerous growths than in any other part of the body, for although only two forms of malignant growths are frequent enough in the eye to afford useful material for study, they both represent highly malignant forms of cancer, and in both we can sometimes watch the growth from a very early stage of its development. In both the observer who studies a specimen of sarcoma from the interior of the eyeball, whether from the retina or choroid, will be struck with the fact that the early cancer cells are to all appearances identical with the normal elements of the tissue from which the growth takes its origin. The sole difference that we can be certain of is the incontinent and the invasive nature of the cancer cells.

Dr. RODDICK agreed with the other surgeons that cancer was at first a local disease and could be cured by sufficiently early removal. He looked on local irritation and chronic irritation as the two great causes, and considered that any condition which tended to lower the vitality of the tissues was a strong predisposing cause. To illustrate this, he instanced the fact that hospital patients, who after operation were subjected to poor food, varying temperatures and in general bad hygienic conditions, were much more liable to recurrence than those of the better class living under more favourable conditions. He thought that age and heredity also could not be gainsaid as predisposing causes. The statistics of cases bore this out, and it was universally recognized in questioning patients with regard to their family history. He felt that if pathologists could show that cancer was a parasitic disease they would help the surgeon very much in the treatment and methods pursued in regard to it. His own belief inclined towards the parasitic theory, which was borne out by many clinical facts. The infectious nature of cancer had been pointed out by Mr. D'Arcy Power, who had reported three or four cases occurring very often in the same house, and Dr. Roddick himself had had one instance of this, in which an epithelioma of the hand had been followed by the same form of growth on the face of the nurse in charge. Though experiments in inoculating cancer had been unsuccessful, he thought the method used might be at fault. Plummer had succeeded



in giving cancer to animals by placing portions of cancerous tissue in the vagina. He agreed with Dr. Shepherd in condemning the use of caustics in the treatment of cancer, but considered escharotics as sometimes of service to complete the cure after operation. By the use of Bougard's paste he had often succeeded in removing small growths when the patient refused to submit to the knife. He thought that escharotics should be used only when it was the intention of the surgeon to complete the removal of the growth by that means. The mere application to the surface only irritated.

In excision of the tongue he preferred Whitehead's operation, as recommended by Dr. Shepherd, but differed from him in believing that in certain cases the removal of the lateral half of the tongue was followed by entirely satisfactory results, always provided, of course, the disease was limited to one side. He referred to a case of his own in which epithelioma, verified by histological examination, had been cured by an operation of this description, eight years having now elapsed without a recurrence. Nunnally's operation, which he had performed several times, was to be recommended when the growth was at the anterior portion of the tongue and when one was not well assisted. It consisted in introducing the ecraseur through an incision in the middle line of the neck into the floor of the mouth and passing through that opening the chain of the ecraseur and then around the tongue. He felt that septic pneumonia had not been so frequent during the days when Dr. Fenwick and he had used the ecraseur in preference to the knife and scissors, although they had not taken the precautions to prevent sepsis, now so well understood. The reason for this was, that the bruising of tissues effected by the ecraseur closed the lymphatics and blood vessels, and thus prevented the absorption which so readily takes place after the knife and scissors. Until granulations had formed and protected the parts it was now his practice to feed his patients entirely by the rectum and thus help to prevent septic infection.

Dr. Roddick agreed with Dr. Bell that the removal of all doubtful tumours of the breast was imperative. Recurrence in these cases was usually in the scar, not in the muscles, which he rarely considered necessary to remove; the glands of the axilla, however, should always be extirpated. He did not think that the removal of the whole upper extremity, as referred to by Dr. Bell, was at all practicable. Cases which seemed to require this should be left alone. He recommended operation at once in every case of local recurrence, and cited two instances in which the growth recurring locally had been removed four or five times without general infection having taken place.

Sir WILLIAM HINGSTON thought the gentlemen who introduced the discussion had gone over the ground fully. Speaking of the nature of cancer he felt disposed to agree with Dr. Adami, as clinical experience had led him to look on it as commonly the result of inflammatory action. He cited several cases to bear out this view of the nature of cancer; one especially, in which, after twenty years or more, a sinus at the back of the knee had developed malignant action. He also quoted Jonathan Hutchinson as holding the same opinion. With regard to the parasitic theory, he did not feel qualified to speak; but on general principles he thought it likely parasites would show themselves here, as they did elsewhere, during the course of the disease. He referred to the common experience of benign tumours, especially about the face, taking on malignant action; and said he made it a rule on this account to remove them after the patient had reached a certain age.

Predisposition, Sir William said, he could not understand, and in this disease he did not know what heredity meant, as, if a cancer subject inherited the tendency from his father, that father must have inherited from some one else, and so back from generation to generation. If the matter of heredity was admitted too fully it would paralyze all efforts.

With regard to the tongue, Sir William thought that partial removal was wrong in principle. While stating this as his general belief, he thought that there were cases where a less extensive operation might be practiced and advocated the occasional removal of half of the tongue when the disease was localized to a small area.

In cancer of the breast he operated early, and especially as pathologists were of the opinion that simple benign growths here might also become malignant. He did not, however, hurriedly resort to the knife in all cases, and related instances in which he had declined to operate twenty or thirty years ago and where the tumour still remained harmless. Sir William recollected the time when it was unusual to operate a second time, and contrasted with this his present method of operating early, as soon as he was satisfied that the growth was malignant, and of repeating the operation again and again if necessary: as many as five times in one case cited. The disease recurred, he thought, generally in the cicatrix and in the skin; less frequently in the muscles, and rarely in the glands of the axilla: for this reason it was not his practice to remove the glands of the axilla in the first instance, unless they were diseased. Another objection to removing the glands during the first operation was that it added very greatly to the sufferings of the patient and very largely to the mor-

tality, while not unfrequently pain and oedema of the arm followed. He did not feel warranted either in removing the pectoral muscles unless they were diseased. The operation of removing the whole upper extremity for cancer, as suggested by one of the speakers, it was not necessary to speak against, as the patient herself would never submit to it.

In conclusion, Sir William referred to the various operations for removal of cancer of the rectum and claimed that colotomy gave as much comfort in the end to the patient as any attempt at removing the disease, as unhappily cases were rarely seen while the disease was still confined to the bowel.

Dr. A. LAPHORN SMITH was firmly convinced that cancer was a contagious disease, and felt quite sure that pathologists would yet come to that decision. He had seen at least three cases of cancer occurring in people who were not related in any way to other cases of cancer, and yet who attended those cases as nurse or friend. Dr. Smith said that though most of the speakers had referred to the great importance of thoroughly removing all traces of the diseased tissue, none had laid enough stress upon the importance of disinfecting the field of operation after the diseased tissue had been removed. In a case of cancer of the breast, for instance, where every portion of the disease had been removed, if one smeared the edges of the wound with cancerous tissue and the disease was a bacillus disease, recurrence locally was to be expected. Dr. Smith referred also to the method of Dr. Byrne, of New York, for removing cancer of the uterus. He cut out small pieces at a time by means of the galvano-cautery until only the mere shell of the uterus was left. His statistics showed that his cases were free from return for a much longer period than usual, and he attributed his success to destruction of the bacilli by heat in the tissues beyond that portion which was removed. The fact that cancer usually, if not always, commenced in unhealthy or scar tissue, the speaker, thought showed that the bacillus of cancer, like that of tubercle, would not attack healthy people or healthy tissues.

Dr. A. PROUDFOOT advocated the use of caustics in the early stage of epithelioma of the lip and cited cases to show its efficacy. Of epithelioma of the ear, which was not as common as in the eye, he had seen several cases within the last few years, and found that early removal of the affected part was followed by good results.

Dr. SHEPHERD in reply said that he preferred removal of the whole tongue in cancer and that unless the disease was well forward partial excision was of little avail. Formerly it was his custom to feed for several days by the rectum, but now he never did it, preferring feed

ing by mouth with a tube and funnel and allowing the patient to go about on the second day. In reply to Sir Wm. Hingston's remarks regarding heredity, he wished to say that he did not believe in the heredity of cancer, but he did believe in an inherited vulnerability, and that this vulnerability increased with age. If all were vulnerable every one who smoked should get cancer of the lip. Dr. Bell advised amputation of the arm in certain cases where cancer involved the axillary vessels, but Dr. Shepherd said that if such heroic measures were necessary to remove the local disease, the case was past operating on at all. No account is taken in these very extensive operations of the involvement of the mediastinal glands. At present Dr. Shepherd had under his charge no less than three cases of recurrence or continuance of the disease in the retro-sternal glands, all other parts being free; in one of the cases the patient had been apparently free for four years. In very few of his cases has there been local recurrence; in two the cancer recurred in the bones, and in many in the liver, and some in the cervical glands. One case under care at present was free for six years, and then the cervical and other glands became involved. In another case, first operated on eight years ago, there was local recurrence four or five times, for which operation was performed early; now the patient is still alive and has been perfectly free for four years.

In reply to Dr. Roddick, Dr. Shepherd did not think that locality had anything to do with recurrence, and thought that people living in poor localities resorted to the surgeon later for the primary operation than the well to do, hence the greater frequency of recurrence. As to recurrence being due to the implantation of cancer cells, Dr. Shepherd did not place much credence in this, for in all the modern operations the knife goes so wide of the disease that the cancer cells are not disturbed. The statistics usually given are very fallacious, the results of old and new methods being contrasted when any one wants to emphasize the superiority of his own operation. He thought a great many cases were reported as malignant which were benign, and the speaker would not admit any case to be cancerous without a careful microscopic examination; hence the success of caustics, especially in the hands of quacks, for every case was said to be one of cancer. Caustics were strongly objected to, for their use often postponed operation by the knife until it was too late. The only cases in which the speaker used caustics were those of the cheeks and side of the nose; here thorough scraping and subsequent application of the actual cautery often proved beneficial.

Dr. BELL said, If we assume—and I have heard no dissenting

voice—that cancer is at first a local disease and spreads by infiltration of surrounding tissues, by extension along the lymphatics and only later by metastasis; then the treatment is clearly indicated; when we have metastatic cancer in other organs of the body, of course operation in the hope of effecting a cure is useless. If we accept these statements as facts, the logical inference is, early and wide and complete removal, quite regardless of the deformity resulting or the inability to close the wound over. If the cancer recurs in the scar it shows that it was not removed sufficiently widely at the outset. So far as my experience goes I am surprised at Sir Wm. Hingston's statement that recurrence is generally in the scar and rarely in the axilla,—my experience is, that it is generally in the tissues of the axilla!

It is, I think, utterly impossible to determine before operation for cancer of the breast that the axillary glands are not involved,—hence the rule that the axillary tissues, especially the lymphatic tissues, should always be removed. Of course I would not sacrifice the breast, nor dissect the axilla if I were sure that the tumour was a benign one, but in case of serious doubt, I think it is much better to sacrifice the breast and dissect the axillary space than to run the risk of early recurrence.

The explanation of recurrence in the scar is to be found in the fact that when the disease is advanced, infiltration takes place down to the bony chest wall and it may be impossible to remove the tissues deeply enough to remove the whole of the disease. I think therefore that all the tissues down to the chest wall,—below the lower border of the pectoralis major muscle, and the fascia covering the muscle should always be removed. I do not recommend the removal of the pectoral muscles unless they are actually infiltrated or for the purpose of effecting a more thorough removal of the diseased lymphatic tissues. Many of the cases which present themselves for operation are seen only when the disease is far advanced. In them we have no choice. If we operate it is to remove the whole of the disease,—not a part of it,—and in order to do so it may be necessary to remove portions, if not all, of one or both muscles. And going still further,—when we dissect out the axilla,—often dissecting infiltrated glands from the very walls of the vein and artery, I am sure no surgeon can feel that in such cases he has removed the whole disease, and it is in those cases that I say I believe the upper extremity should be removed, in the hope,—or rather with the certainty of removing all diseased tissue as far along the vessels as the border of the first rib. From a purely anatomical standpoint I am sure that in many cases the operation will remove every particle of diseased tissue and that there are very many cases in which no lesser sacrifice will do so.

I cannot agree with Sir Wm. Hingston that the swelling and œdema of the arm is due to the dissection of the axilla. It does not follow immediately upon the operation but it follows later on, in such cases as I have been describing, and is due to a cancerous mass forming about the vessels and pressing upon the axillary vein.

When we come to the still further advanced extensions along the lymphatics such as those described by Dr. Shepherd, in which the mediastinal glands were involved,—I believe them to be infinitely rare among cases presenting themselves for primary operation and of course under any circumstances such cases could not be cured by removal of the upper extremity or any other operation.

Dr. Proudfoot has spoken of "keeping cancer in check by escharotics!" Now I do not see why we should aim at keeping cancer in check. It is bound to extend and endanger the patient's life and should therefore be removed. With regard to the use of escharotics I do not think they have any place in the treatment of carcinoma, except for palliative purposes or when it is impossible to remove the whole of the disease with the knife, as about the eyelid, extending to the base of the skull, or when it would be injudicious on account of the great deformity produced by the operation.

Dr. ARMSTRONG said:—One point has not been mentioned which was worked out in Germany, that is, that the lymphatics from the breast pass to the pectoral fascia and the lymphatics of the pectoral muscle run forward to the same fascia and therefore it is necessary only to remove the pectoral fascia unless there is some special reason for removing the muscle.

But I think these methods of operating have been pretty well worked out and understood for some time; any one can find information upon them in the standard text-books and journals. My idea was to specially establish the fact that cancer is a local disease and, consequently I thought to bring out evidence or new symptoms which would enable us to recognize cancer in an earlier stage than we have been in the habit of doing. We can operate all right when the diagnosis is made, but we want to be able to recognize malignancy in a mammary tumour at the very beginning, and the same with stomach cancer; to get good results, we should interfere as soon as the disease is initiated, to secure a permanent cure; and that is why I feel that the discussion has gone in a different direction from what I intended it to take. However, we have established the fact that cancer is primarily a local disease, and the early symptoms will be gradually worked out.

When cancer of the breast is diagnosed according to the standard text-books of to-day it is too late to obtain perfect results. When

you get a hard lump with retracted nipple and enlarged lymphatic glands the day is gone by for getting good results.

I think Sir Wm. Hingston takes a very serious responsibility when he advises the leaving alone of tumours of the breast in women approaching the climacteric. They are easily enucleated, and if left alone, may receive an injury, change their character and become malignant. I recently operated upon a malignant tumour of the breast that existed as a simple tumour for thirteen years and then changed its character and became malignant. It is good practice to enucleate these growths while small and simple in character.

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*Stated Meeting, January 7th, 1896.*

A. D. BLACKADER, M.D., PRESIDENT, IN THE CHAIR.

**Removal of a Cyst from the Brain for the Relief of Jacksonian Epilepsy.**

Dr. G. E. ARMSTRONG showed the patient, the report of which will be published later.

Dr. F. G. FINLEY stated that the boy had been in his ward and had had several seizures during the first few days he was under observation. After that there had been none for a month. Dr. Finley had witnessed one of the attacks, which affected the head and eyes only. There had been no loss of consciousness. There was lateral deviation of the eyes and of the head to the opposite side, rapid motions of the eyelids, more marked on the right side, the right eyelid opening and closing more forcibly than the left. In other attacks witnessed by Dr. Byers the movements had spread to the right arm and right leg. The attacks were distinctly Jacksonian in character; they had a local commencement and were not accompanied by loss of consciousness. The question of localization had not come up, as the depression settled the point at which to trephine. The lesion found raised the question as to localization of this area. Dr. Finley had mapped out the position of the cerebral fissures and found that the depression corresponded to the supra-marginal convolutions and angular gyrus. Lesions here were known, by experiments in animals, to produce certain movements of the eyes. In a case reported by Ross, of Manchester, the skull had been driven in over this area, and several weeks later the head was drawn to the opposite side and the eyes turned up and to one side. An operation had been successful in relieving the symptoms. During Dr. Armstrong's operation they had been unable to produce the same effects by electrical stimulation of the cortex, and so had not any confirmatory evidence of localization.

Replying to Dr. Wesley Mills, Dr. Finley said the electrodes had

been placed about an eighth of an inch apart and that the current was too strong to be borne upon the lips.

### Primary Cancer of the Liver.

Dr W. F. HAMILTON read the clinical notes and Dr. C. F. MARTIN the pathological report, which will be published next month.

### The Treatment of Inebriety as a Disease.

Dr. O. C. EDWARDS of Ottawa, read a paper on this subject in which he endeavoured to show that the hypodermic administration of gold was a specific. He gave the results of two years' experience, during which he had treated over fifty cases, and always with benefit at first. The treatment he considered, presented four principal indications as follows:

(1.) To subdue the overmastering appetite for liquor, whether constant or periodic. This was done by giving hypodermic injections of the chloride of gold and sodium three or four times a day, using Wyeth's tablets of  $\frac{1}{20}$  of a grain for the first two days and then diminishing the dose to  $\frac{1}{40}$  of a grain for the rest of the time the treatment was kept up. The injections were continued for a period of over three, but usually under four weeks, and in some cases it was thought advisable to substitute  $\frac{1}{40}$  of a grain of nitrate of strychnia for one of the daily hypodermics. The solution of gold used, could be made by dissolving three grains in an ounce of boiled water; ten minims constitute a dose, but the tablets had been found less irritating and more reliable.

(2.) To give a hearty appetite for nourishing food: This was accomplished in the usual manner with vegetable bitters, any preparations of which were suitable, provided they contained no alcohol. For this purpose Dr. Edwards had had prepared by Wyeth non-alcoholic tinctures of cinchona, calumba, gentian, etc., which he used in conjunction with some preparation of kola.

(3.) To procure healthy refreshing sleep: Bromide of soda and chloral hydrate were mainly relied upon; where these failed he had recourse to the hydrobromate of hyosine hypodermically; but hypnotics were never needed except for the first two or three nights. Sleep after that was calm and refreshing, and Dr. Edwards considered that the gold was mainly responsible for it.

(4.) Nervine tonics:—The following formula was recommended:

Quininae sulph.	gr. 1½
Strychninae nitrat.	gr. $\frac{1}{20}$
Olei resini Capsici	gr. 1
Zinci oxidi	gr. 2
Acidi arseniosi.	gr. $\frac{1}{6}$
Ferri reducti.	gr. 1½



Sig: one three times a day after meals. In some cases it was thought advisable to leave out the iron.

At the outset of the treatment a purge of calomel was given, and where liquid foods were necessary, as was often the case, beef juice or beef jelly. The administration of the gold, the bitters, and the nervine pills was continued throughout the whole time, and often the nervine pill was given alone for a couple of weeks, after the hypodermics were stopped. The usual precautions in regard to sterilizing the hypodermic syringe were carried out, and on account of the corrosive nature of the salt, a platinum needle was found necessary to prevent clogging. The administration of alcohol was regulated according to the wishes of the patient at the outset. If a man was drinking when treatment began, he was allowed to have a limited quantity as long as he had any desire for it. As a rule, the taste was gone after a few days. After the habit was once broken off the patient was warned against even taking the smallest quantity, either socially, in medicine, or in any other way, as one taste of alcohol could at any time awaken the appetite again.

Dr. T. J. W. BURGESS said he agreed with Dr. Edwards that inebriety was a disease, but he went even further in that he considered it a disease long before the stage at which he (Dr. Edwards) set it down as such. It was a disease of which the most prominent symptom was lack of will power, and the majority of its victims were inheritors of an unstable nervous organization. Such men knew what the inevitable result of their conduct must be but they had not the will power to resist.

As regarded the gold treatment, he knew that similar results were got by cutting off the patients' liquor supply and building up their system generally. Such patients would tell you, like Dr. Edwards' that they had lost all craving for drink. In some cases the effect produced was permanent, but in the majority it was only temporary, the patient yielding when again placed within the reach of temptation.

Dr. JAS. STEWART said he had no practical experience of any of these forms of treatment, and he had no faith in this more than another. A certain percentage of cases were followed by a cure in anything making a powerful impression on the nerve centres. He did not think that Dr. Edwards had proved his point. Hypnotism had been found equally good. The disease was due to paralysed control.

Dr. J. B. MCCONNELL agreed with Dr. Burgess in looking on the inebriate as a neurotic. He himself, in a paper read before the Society a couple of years before, had reported identical results from the use of strychnia.

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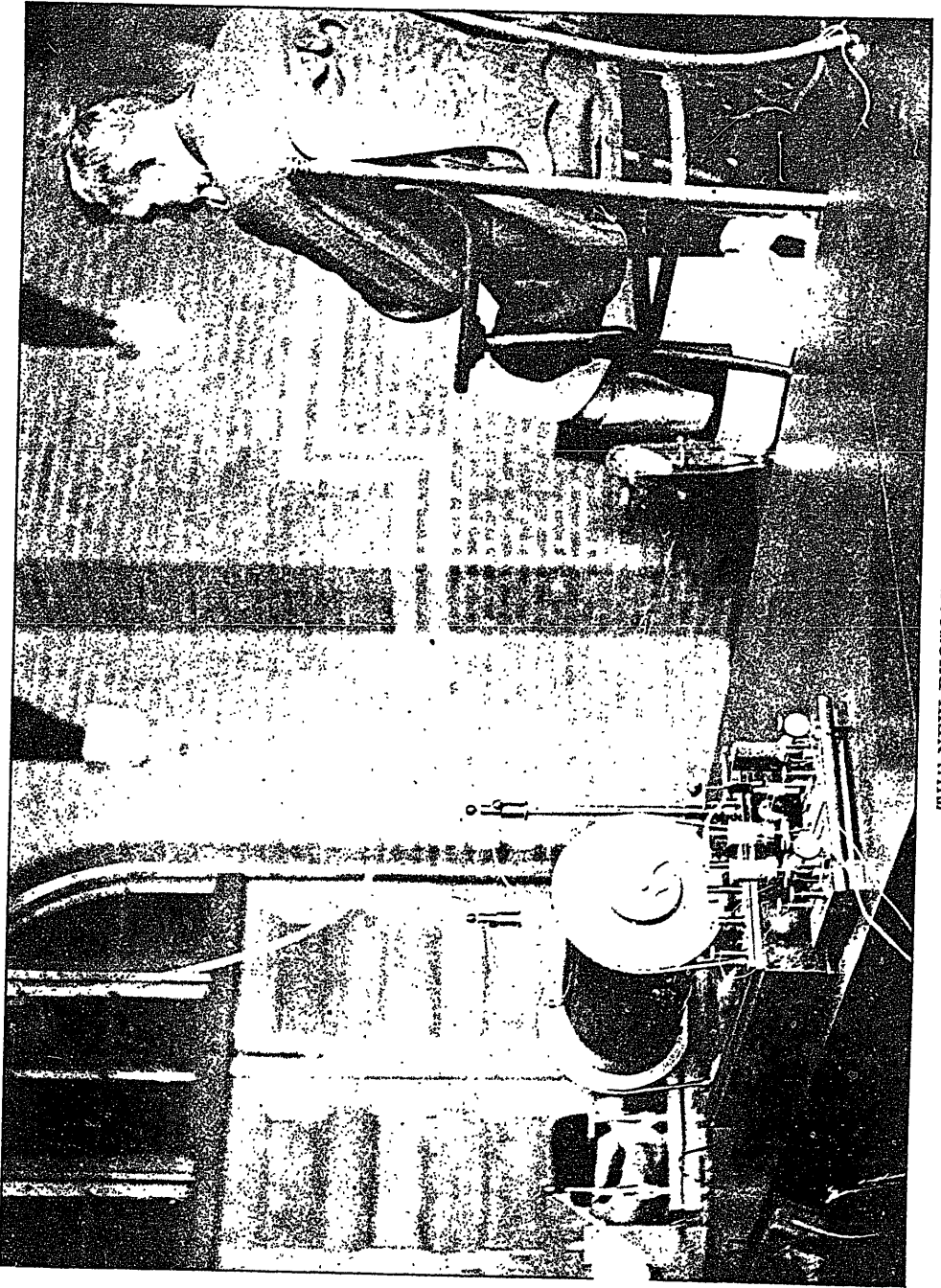
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ROENTGEN'S DISCOVERY.

It is with no little pleasure that we call attention to the article in this number by Professor Cox, describing as it does and illustrating the first application, to diagnostic purposes, on this continent, of Roentgen's remarkable discovery. Appealing for the moment to local interests, it is to us most gratifying to be afforded this example of the benefit to be reaped by a University in possessing well-directed and well-equipped laboratories, most gratifying to read these early fruits of Mr. W. C. McDonald's princely munificence.

Professor Roentgen, in his original paper, gave so full an account of the character and properties of the new rays, that the researches made all over the world during the last two months have added little to our knowledge, have accomplished scarce anything beyond amply confirming the original and most modest statements. At most Professor Salvioni, of Perugia, by an instrument which he terms the iristoscope would seem to have been able to render the "shadow effects" recognizable directly to the naked eye, and at Toronto it has been observed that the rays may be concentrated to a certain extent by reflection from surfaces relatively opaque to the rays. We congratulate our sister city very heartily upon this advance. But as to the exact nature of the rays—whether they are the longitudinal vibrations foretold years ago by Lord Rayleigh, or whether they consist of peculiarly small and frequent transverse vibrations of the ether, as Professor Schuster, of Manchester, and others have suggested—we as yet do not know, nor does it appear likely that we shall gain further information until researches of another order throw light upon the matter. Mere photography, or "radiography" as Professor Goodspeed, of Philadelphia, would term it, is incapable of solving the problem.

In the meantime this new "radiography" has already proved



THE NEW PHOTOGRAPHY.

itself of surgical use. The number of cases in which it can be applied may be few, nevertheless they certainly exist, and it is for us to hail with cordial welcome each advance towards more perfect diagnosis, however limited be its application.

### THE POST-GRADUATE COURSE AT MCGILL.

We would again draw attention to the announcement in our advertisement columns of the forthcoming Post-Graduate course at McGill University. A study of that announcement will show that while the evening lectures are intended to illustrate the recent advances that have been made in medical and surgical sciences, such advanced lectures form but a small portion of the course which, in the main, is arranged so as to be essentially of a practical nature, clinical instruction and instruction in modern medical and surgical methods (wherein are included the methods of the more specialized branches of our profession), occupying the foremost place. The aim of the Medical Faculty has throughout been to inaugurate a thoroughly useful course, and with the admirable hospitals of Montreal, the abundance of clinical material, and the excellent laboratory accommodation at McGill University, the aim ought to be fully accomplished.

*The Canada Medical Record* is now owned and edited by the Medical Faculty of the University of Bishops College. Dr. J. B. McConnell is editor-in-chief.

In Paris it is proposed to issue to medical men, upon payment of a small fee, a card called a *coupe-fil*. This will give them the right of way across processions or other obstructions. We believe that in some American cities a similar system is in vogue.

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#### NEW BOOKS, ETC., RECEIVED AND NOTED.

Cholera in Calcutta in 1894 and Anti-choleraic inoculation. Reprint from the Health Officer's Annual Report.

Annual of the Universal Medical Sciences, Sajous. Philadelphia: The F. A. Davis Co. 1895.

Transactions of the College of Physicians of Philadelphia. 1895.

Report on the Scientific Study of the Mental and Physical Conditions of Childhood. London: Committee of Parkes Museum. 1895.

Nephritis of the Newly Born. By A. Jacobi, M.D. Reprint from the New York Medical Journal, Jan. 18, 1896.

The Journal of Experimental Medicine. Volume I. No. I. New York: D. Appleton & Co., January, 1896.

Anti-Cholera Inoculation. Report to the Government of India. By Wm. Haffkine. Calcutta: Thacker, Spink & Co., 1895.

Transactions of the Medical Society of the State of North Carolina. 1895.

The Natural Arsenical Waters of La Bourboule. London : The Sanitary Publishing Co.

Changes in Lepra and Eczema. By J. L. Milton, M.R.C.S. Reprint from the Edinburgh Medical Journal, July, 1895.

Hypertrophic Rhinitis. Reprint from the New York Medical Times, February, 1896. Rhinological Don'ts. Reprint from the Texas Medical Journal, May, 1895. By Edward J. Birmingham, A.M., M.D.

Surgical Treatment of Laryngeal Tuberculosis. By J. W. Gleitsmann, M.D. Reprint from the New York Medical Journal, October 19, 1895.

The Prophylactic Clothing of the Body chiefly in Relation to Cold. By W. F. Cleveland, M.D. London : H. K. Lewis. 1895.

Sleep in its Relation to Diseases of the Skin. By L. Duncan Bulkley, A.M., M.D. Reprint from the Medical Record, Nov. 20, 1895.

Lewis's Nursing Chart. London : H. K. Lewis.

The Nature of Family History and Personal Condition in Estimating a Liability to Consumption. The Mutual Life Insurance Co., of New York. 1895.

An American Text-Book of Surgery. Philadelphia : W. B. Saunders. 2nd edition.

The American Year-Book of Medicine and Surgery. Philadelphia : W. B. Saunders.

The Treatment of Pulmonary Consumption. By Vincent Dormer Harris and Edwin Clifford Beale. London : H. K. Lewis.