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VOL. XIX.

HALIFAX, NOVA SCOTIA, JUNE, 1907.

No. 6

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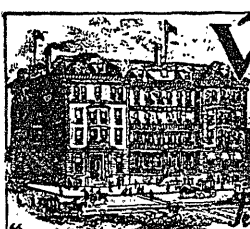
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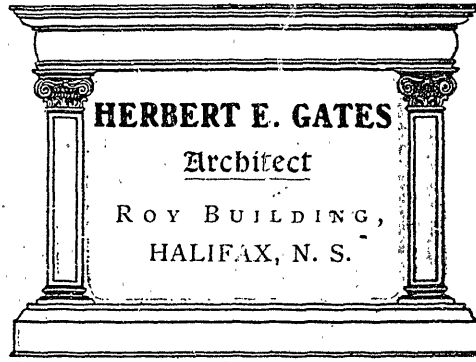
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THE MARITIME MEDICAL NEWS

VOL. XIX, JUNE, 1907, No. 6.

Diagnosis of Renal Disease. A valuable paper on this subject appears in the *British Medical Journal* of March 30, 1907, from the pen of J. R. Bradford. He dwells upon the need of caution in interpretation of results of a single examination of the urine. Nothing else is of as much importance in determining albuminuria as posture; diet exercises a relatively small influence. In many cases no albumin appears in the urine so long as the patient maintains a recumbent position, but soon after the erect posture is assumed, albumin may be found in the urine and persists until the patient again lies down. Consequently the urine passed first in the morning may yield a negative result on examination, although that passed during the day may show the presence of albumin. Two forms of albumin are to be recognized, according to whether dropsy is present or not, the prognosis being graver when it is present than when it is absent. The dropsy is very generally distributed, involving especially the looser subcutaneous tissue, is persistent, is often very marked, and is more resistant to treatment than the dropsy of heart disease. When it is marked in the subcutaneous tissues, it is certain to involve the serous cavities and the various organs also. The lungs are especially apt to suffer, pulmonary œdema being a frequent and dangerous concomitant.

The association between syphilis and nephritis is referred to. The specific disease is often running a

mild course when the nephritis first manifests itself, and may quite escape detection. The albuminuria is usually intense and persistent.

The Pre-appendicitis State. John G. Sheldon believes that his experience with cases of appendicitis shows that there is a state of ill health preceding every attack of appendicitis characterized by intermittent, diffuse, slight abdominal pain, constipation in three-fourths of the cases, noticeable abdominal distention in a few, and slight tenderness on deep pressure of the appendix. Eighteen patients having these symptoms developed an attack of appendicitis within three months to a year after their appearance. Appendicitis is, then, always a chronic disease with acute exacerbations of the symptoms.—*Medical Record*, May 4, 1907.

Mental Disorders of Pregnancy. Nathan Raw (*Edinburgh Medical Journal*) bases a paper on the records of 102 cases of puerperal insanity. Sixty-eight of these were transferred to asylums according to law at the end of three weeks, twenty-four were cured, eight died, and two are under treatment. In over 62 per cent. albuminuria was present; in several cases the albumin disappeared in a few days, in others it persisted for many weeks. In this series there were seventy-one cases of mania and thirty-one of melancholia. The cases of mania showed a tendency to

recover more rapidly than those of melancholia. Only six of these cases were pregnant. The insanity of pregnancy generally develops between the third and seventh months, and the symptoms are generally those of moral perversion, with melancholia and delusions of fear, suspicion and persecution. Insomnia is a persistent and troublesome symptom, and destructive tendencies are common. The treatment of this condition is largely expectant. In those cases where there is an hereditary tendency to insanity the prognosis is grave. In the six cases referred to above four recovered before delivery and two after. The treatment of this class of case is that of ordinary mania or melancholia; the prognosis in most cases is favourable.

✽

Treatment of Sciatica.

This subject is discussed by F. Fowler, in the *Practitioner* for March. Pain in the sciatic nerve results from primary localized interstitial neuritis, or it may be secondary to pressure, growth or inflammation in adjacent tissues. It may be simulated by various conditions. Predisposing causes include toxæmia, sepsis, gout, rheumatism; exciting causes are pressure, strain, cold, etc. Active inflammation in the nerve and its sheath has been observed, but there is seldom loss of movement or degeneration of muscle. Rest in bed is of the greatest importance in treatment. A supporting splint often affords much comfort. A liberal diet is allowable, but alcohol should be eliminated. Free action of the bowels should be secured by blue pill and salines. Should an anodyne be necessary, hyoscyne (hypodermically) is to be preferred. Counterirritation is frequently of great service, and should it fail nerve stretching may be tried.

Electricity, especially the galvanic current, often benefits. Massage should not be practiced early, but may prove useful in the later stages. Hot baths are highly recommended.

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Occupation of the Insane. A timely article appears in the *Journal of the American Medical Association*, of May 18, entitled "Occupation in the Treatment of the Insane." The writer is T. J. Moher, of Brockville, Ont., who calls attention to the need of a more systematic use of employment in the treatment of insanity. The percentage of patients who will not be benefited by occupation of some kind is very small, and if we exclude the physically disabled and the very advanced demented cases it is practically negligible. Acute maniacs in some stages and some exalted paretics are temporarily unable to work, but the duration of this condition can be very much shortened by careful and systematic effort. Some few patients absolutely refuse to work and can not be made to by any effort. Occupation should be simple at the outset and the patient's temperament and predispositions should be studied in every case. It is not wise to restrict a patient to any one class of work, and his previous occupation and social condition should not be the only determining factor in the choice, though some can not be induced to undertake anything to which they have not been accustomed. Another thing not to be forgotten is to avoid asking certain patients to perform some of the more menial work that has to be done. The objections of friends can usually be successfully met by patient explanations, and the patients themselves are generally easily influenced by surroundings, and the fact that they are

never asked to overwork, and that the occupation is made pleasant for them induces even the indolently inclined to fall into line and accept willingly the tasks asked of them. If the fact that occupation is an important remedy is impressed on intelligent attendants, and they are instructed how to apply this method of treatment in a skilful and systematic way, there will be little difficulty, Moher says, in keeping patients employed. His experience has taught him that it is unwise to offer any pecuniary reward for patient's work. They should not be allowed to get the idea that they are employed for the advantage of the institution rather than for their own good. In some cases it may be advisable to encourage patients to learn a trade, with a view to their self-support after discharge. It is not always easy to say how occupation effects a cure. Besides the exercising and calling into action of disused brain centers in some cases, it acts by improving the physical condition. As a result of suitable out-door employment, we find that patients are less restless, sleep better, improve in appetite and become more normal in their secretions. While employed in the wards also, they become less noisy, less quarrelsome or destructive, and better behaved generally. Mental improvement is often directly coincident with improvement in physical health. It is important that members of the medical staff regularly visit and observe the patients at their work, with a view of studying the effects in individual cases. But while admitting that the cure in many cases can be rightly credited to occupation, Moher believes that its greatest good is conferred on the incurable cases by delaying dementia and adding to the comfort, happiness and general well-being of

the chronic insane. Agricultural pursuits and caring for the grounds appear to be the ideal labour for the great majority of male patients, while female patients can be employed with advantage in the vegetable and fruit garden, weeding, picking berries, etc., in addition to the work performed in the day rooms, dormitories and dining rooms. They should also do fancy work, do all the mending, and assist in the industrial department in making mats, mattresses, etc.

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Pre-operative Radiation. In an article entitled "Preoperative Radiation and Surgical Treatment of Cancer," contributed to a recent number of the *Medical Record*, William James Morton contends that radiation should precede every operation for cancer. He declares that in epithelioma of the face, in carcinoma of the breast, or in sarcoma of the skin, the case may go on to a complete cure without any surgical interference. If after six weeks to two months operation is necessary, the writer believes that it may then be performed with a greatly diminished prospect of recurrence, or what is of equal importance, the area of operation may be reasonably limited. It has been demonstrated that recurrent cancer has been in a great number of cases benefited by x -radiation. The writer concludes that the x -ray should be as much of an adjunct to surgery as the knife, but the two agencies conjoined will offer the greatest present advantage to the patient.

**What is
Fever?**

Under this caption there appears a very useful paper by W. Hutchinson, in the *Practitioner* for April. His observations have led the author to

the following tentative conclusions:

- (1) It is not the rise of temperature which is harmful, but the toxins which accompany the fever.
- (2) The elevated temperature is not due to increased oxidation, as shown by normal or lowered output of carbon dioxide.
- (3) The febrile phenomena are due to a general disorganization and perversion of normal metabolism by toxins, with conversion of energy ordinarily expended in secretion, growth, motion, etc., into heat.
- (4) There is less metabolism in fever than in health, but it is mostly destructive.
- (5) If the dose of toxin is sufficiently large or virulent, the lessening of metabolism may even lower the temperature.
- (6) The temperature in fever is often sub-normal.
- (7) The standard of fever should be an increase in the daily range of temperature in excess of 1.5° F.
- (8). The rise of temperature may be protective, many pathogenic organisms being unfavorably influenced by fever temperatures.
- (9) Normal body heat may be a friction remainder, a waste product turned to use, rather than a vital necessity.
- (10) The intoxication and not the temperature calls for treatment.

The Use of Adrenalin.

"The Action of and Indications for the Use of Suprarena¹ Extract," is the title of a paper appearing in the *Journal of the American Medical Association*, in which J. L. Miller discusses the physiologic action and therapeutic use of the active principle of the suprarenal gland, using the name "adrenalin" as a general term, as all the trade preparations have the same effect. Its action in general simulates that of electrical excitation of the sympathetic, and it is at present generally conceded that this action is a peripheral one, affect-

ing the neuromuscular function. The most important action is on the cardiovascular system; a 3 minim injection of 1-1,000 solution into a vein causes a brief rise of blood pressure of from 40 to 80 mm. of mercury. This increase is due partly to vasoconstrictor effect, partly to the direct accelerative action on the heart. In the various vessels the constriction is proportional to their sympathetic innervation. The coronary vessels are said not to be affected, according to Shafer, and the therapeutically important question as to the effect on the lesser circulation of the lungs is yet somewhat in dispute. Very large doses given by the mouth have no demonstrable effect on the cardiovascular system, and local application to the mucous membrane has usually no constitutional effects. Miller has observed, both experimentally and clinically, a marked rise of blood pressure after subcutaneous injection, though the general opinion has been to the contrary. Intramuscular injection is always followed by a rise, less prompt, but more lasting than that after intravenous injection, and it is only with these two methods that the phenomenon is constant. In cardiovascular conditions its greatest therapeutic field is in cases in which there is marked vasodilatation with good heart muscle. The latter is important. Such conditions occur in chloral poisoning, shock and heart failure in chloroform and ether anesthesia. In chloral poisoning and in shock he advises continuous transfusion of 1-50,000 or 1-100,000 normal salt solution as preferable. In chloroform or ether heart failure a single injection of 10 minims of the 1-1,000 solution of adrenalin should suffice. In heart failure of acute infection the problem is different. Vaso-motor paresis probably plays an important

part here, and there is also a degenerated heart muscle and the necessity of keeping up the circulation, not for a few minutes merely, but for hours, and even days. If adrenalin is ever allowable in these cases it should be given subcutaneously, as the increase of pressure is then more gradual. Miller also condemns the use of this preparation in pulmonary œdema as unsafe, except in cases where it can be locally applied. Miller does not advise its use as a hæmostatic. He has seen it confer immediate and complete relief in the attacks of bronchial asthma, and from tests with other substances, he is convinced that this was due to the specific action of the drug. In none of the cases, however, did he see any curative effect as regards the recurrence or intensity of the attacks. As serious cardiac disturbance has been observed in some cases with the use of adrenalin, he advises that it be restricted to patients with good heart and blood vessels. Barr's results in the treatment of pleural and peritoneal effusions are noticed. The dangers of adrenalin are, besides those already mentioned, rupture of an artery from increase of pressure, glycosuria and arterial degeneration. It is a dangerous remedy in elderly persons, both on account of atheroma of the vessels and myocardial degeneration, and it should be used only with great care whenever there is any suspicion of disease of the vessels. The danger of glycosuria is slight, and the fact that atheroma can be produced in rabbits, who are especially prone to such changes, does not prove that man is equally liable. This danger, therefore, can be easily overestimated, and while the continuous intravenous use of the drug should be discouraged, it is not probable that a single injection would do harm in this way.

The real danger attending the use of adrenalin is immediate cardiac disturbance, especially acute dilatation.

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**Prurigo
of the
Vulva.**

A pruriginous eruption is occasionally found upon the vulva, either transient (appearing with the menses) or more or less permanent, as when accompanying pregnancy; in rare instances appearing only at time of confinement; and a few cases have been recorded in which it persisted for years. Examination shows that it is not, usually, confined to the mucous membrane up to the cervix; and the most aggravating cases are those in which the disease affects not only the mucous membrane of the labia, but also extends backward over the perineum to and around the anus—the last-named variety being the most likely to become chronic. The irritation is so great as to interfere with sleep; and the sufferers nearly always say they are “nearly wild from the distress and annoyance.” If it continue long, the parts are apt to become much irritated by the constant scratching; the most seriously affected part of the mucous membrane turns white and thickened, and red fissures may form. The application of a hot solution of borax is very grateful, and if oft repeated may effect a cure. In persistent cases its use may be alternated with a solution of acetate of lead—the official “lead and opium lotion” being serviceable. In the worst cases severe astringents (nitrate of silver, 10 grains of the ounce, alum or tannic acid) must be resorted to.—*Journal of Clinical Medicine*, April, 1907.

Pubotomy and Artificial Delivery. Fehling (*Munchener medizinische Wochenschrift*) gives as indications for pubotomy: (1) All contractions of the pelvis in primiparæ. (2) In multiparæ who refuse to have Cæsarean section performed, or where difficulties arise during labor from the size of the child or position of the skull, which demand an enlargement of the pelvis in the interests of the life of the child.

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One-Child Sterility.

Dr. Frank S. Matthews, of New York, has an article in the May number of *Surgery, Gynaecology and Obstetrics*, in which he reports the inspection of a thousand consecutive gynaecological histories taken from dispensary practice to learn the frequency of this condition. There were seventy-five cases of sterility in women married over three years; eighty-two of one-child sterility.

The causes given by the doctor are gonorrhœa, sepsis, retroversion or flexion of the uterus, tumour, etc. He concludes that "one-child sterility" is as frequent as absolute sterility. It is usually due to a pathological condition of the female genital tract. It is not a congenital but an acquired sterility. Gonorrhœa is the commonest single cause.

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Remedies in Urinary Diseases.

In an article entitled "The Internal and External Remedies in Urinary Diseases and their Operative Value," which appeared in the *Medical Record* of May 18, C.R. O'Crowley brings to notice the comparative value of the drugs used in urology, contrasting the old and new. Diluents, pure and mineral waters are useful, because of their water solely. Sodium benzoate is the best agent

used to alkalize the urine. Potassium acetate, nitrate, citrate, and tartrate are most useful as diuretics and antacids. As antiseptics hexamethylenetetramine is most valuable in subacute and chronic urinary diseases. Opium and its alkaloids, and belladonna are both useful as sedatives and antispasmodics. Antihæmorrhagics are of little use. Digitalis is useful only by its action on heart pressure and should not be used in acute kidney troubles. It must be used with discrimination. Caffeine is especially useful in dropsy, but is a stimulant to the kidney and not applicable in acute nephritis. Among antibleorrhagics sandalwood is least irritating, and copaiba next. The irritation depends on the contained terpenes. The newer silver preparations do not depend for their value on their bactericidal power, which is small, but upon their greater penetration into the urethral submucosa and effect upon the gonococci, and their nonirritating character. For irrigation saturated solution of boracic acid and formalin are recommended. Astringents are useful after the germs are gone from the urine.

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Gastric Atony.

Writing in the *Medical Record* of May 11, under the caption "Insufficiency of the Gastric Muscle," M. Gross says that insufficiency, or atony of the stomach is a relatively frequent affection. It differs from ectasy only in principle, not degree. Atony is a manifestation of local or general disturbance of nutrition and circulation, such as leads to general muscular and nervous debility. A simple insufficiency may be changed into a mechanical one by reason of mechanical impediments and permanent hypersecretion. In simple atony the contents are always evacuated, while

in ecstasy they are never entirely driven out of the stomach. Insufficiency of the gastric muscle is curable, and not of a serious nature. In addition to the wave motion of the stomach in digestion there is a lifting factor due to contraction of the powerful longitudinal fibers radiating from the cardia to the pylorus. In atony this lifting force is absent. The muscle may overcome the obstacle presented completely, by means of reserve force, or by compensation, from muscular hypertrophy. This is dependent on the integrity of the regulating system of the stomach, and that on the circulation and enervation. Retardation of digestion is the first sign of insufficiency. The best method of diagnosis of insufficiency is by drawing out the stomach contents after a test meal. There should not be more than one hundred cubic centimetres of fluid. Inspection of the stomach shows stiffening of the stomach, and splashing sound, and percussion aid in the diagnosis. One to three glasses of water drunk on an empty stomach show its size, and the elasticity of the walls. Enlargement indicates diminished tone. After a test meal percussion and splashing sound show capacity. Auscultatory percussion is best. The prognosis is favorable when the condition is early recognized. The *vis medicatrix naturæ*, aided by irrigations, or douches, mechanical, electric, and hydropathic measures, is the best method of treatment.

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Combina-
tion of
Scopo-
lamine.

W. Busse (*Munchener medizinische Wochenschrift*) says that in using spinal anæsthesia by injection of some drug into the spinal canal it is desirable to make use of some means to prevent the patient seeing operation or hearing what is said.

The author makes use of injections of scopolamine-morphine for this purpose. He gives conclusions based on 150 cases operated on at the clinic in Jena. He uses from one to three injections of scopolamine-morphine, consisting of one-half centigramme of morphine to restrain peristalsis, and one-half milligramme of scopolamine. The injections are made two and one-half, one and one-half, and one-half hour before operation, and after the disinfection of the body has been done. After the first injection a towel is laid over the patient's face and she is left quiet. One-half hour after the last injection the patient goes to the operating-room. Stovaine was used in 19 cases, and novokain in the rest for the spinal injection. With stovaine, the quality of the pulse is better. All kinds of operations on the genital organs were done, including laparotomy for disease of the adnexa, fibroids, carcinoma, and many less severe operations. The action of the scopolamine takes place before the lumbar puncture is made. There may be unrest, even hallucinations, thirst and dilatation of the pupils, but none of them in a very marked degree, so that the author feels that he has seen no bad results of the use of these drugs. The patient is in better condition after operation than with ether anæsthesia. In very fat women the injections are contraindicated on account of the difficulty of making puncture.

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The Index
Medicus.

The announcement is made that the recent reduction of the subscription of this invaluable publication to \$5.00 per annum has not led to as large an increase in circulation as was anticipated. The *Index* is of very great value to medical writers, health officers, librarians and statistic-

ians, and it is somewhat disquieting to learn that if it does not receive more generous support it may become advisable to discontinue its publication. It is now being issued by the Carnegie Institution of Washington, D. C.

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Canadian Medical Association

The Canadian Medical Association will meet at Montreal, September 11, 12 and 13, 1907. The committee on papers and business desire intimation of papers or other matters to be presented at that meeting. Papers will be limited to fifteen minutes and are to be submitted to the Committee three weeks before the meeting. Those interested should communicate with Ridley MacKenzie, Secretary, 192 Pearl Street, Montreal.

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The Maritime Meeting in St. John in July.

The Maritime Medical Association presents about the only practical opportunity for the members of the profession of the lower provinces to come into touch, one with the other. That this coöperation is very necessary will not, surely, be denied by anyone. Not only in medicine, but in every department of life, the people of these provinces find it increasingly necessary to stand "shoulder to shoulder." Each year sees a decrease, not only proportionl but actual, in our influence as an integral part of Canada. For a generation after Confederation, the Maritime Provinces were the "Scotland" of the Dominion, furnishing a portion of the brains, energy and activity altogether beyond our proportion of the total population. While we are still so privileged, tho' not to the same extent as formerly, yet, in consequence of the material

growth of the West, and our own unfortunate inertia in the same direction, we can no hope to maintain our time-honored influence without additional effort to that end. Hence the importance of whatever makes more solid and cohesive any part or section of our people, and, among them, it is surely evident, the medical profession is not the least influential.

So far as can be estimated at this distance from the actual time of meeting, it bids fair to be the most successful of the series since the inception of the Association. Already, the executive have the assurance of the presence of three or four of the more eminent men in the upper provinces and the United States; while locally, every important section of the Association's territory is almost sure to be represented upon the programme.

By reason of the increased and improved railway and steamship service, St. John has become, in late years, the most central and easily accessible point in the lower provinces, and it will be the anxious aim of the Committee of Arrangements to secure the most liberal fare possible, not only to attending members, personally, but also, to those of their families whom they may choose to have accompany them. It is, perhaps, also worth while saying that while the scientific and practical aims of the meeting form the most zealous care of the Executive, they have not forgotten in arranging for the meeting, the lighter claims of entertainment and recreation. St. John's reputation in this regard may be safely taken as a guarantee that even to the most studious and retiring member, the two days of the Association will not be permitted to pass in mere dull routine or absorbing labour.

ASEPTIC OPERATIVE TECHNIQUE.

By *JOHH EGERTON CANNADY, M. D., Surgeon-in-Charge, Sheltering Arms Hospital,
Hansford, W. Va.*

(Read by title before the Mississippi Valley Medical Association, Hot Springs, Ark., Nov. 8, 1906.)

QUITE a number of hospitals have of course a varying amount of individuality in their methods of technique. Every surgeon who does much work will sooner or later evolve some methods of his own, selecting certain points from the experience of others that may seem good to him, and assembling them after his own fashion, so that in any event he at least owns the string which holds them together. A technique to be satisfactory must be simple, logical, and consistently adhered to. For a successful and harmonious technique in accordance with any plan the instinct of cleanliness should be well developed. Without it the would-be surgeon had best return to pursuits more in keeping with his natural tendencies.

Prior to major operative procedure of any sort I prefer to give the patient a few days at least of preliminary treatment, including a carefully regulated diet, purgatives, and rest in bed. The intestinal tract is in a measure freed of excretory products, intestinal indigestion with its putrefactive and gas-forming concomitants is temporarily held in abeyance, and the individual who may be accustomed to the most active habits becomes habitual to life abed. As the eliminative power of the skin when in a normal state of efficiency is great, considerable attention should be bestowed on that organ; skin friction, soap, and a hot tub or shower bath should be given daily for several days, a clean suit of underclothing being put on

after each bath. Eczematous conditions of the skin as a rule should be a bar to operative procedure in the affected region. I usually give the patient a quite light or liquid diet the day before operation, no food of any sort the day of the operation unless the patient's vitality is below par, when some form of liquid nourishment is administered to within two or three hours of the anæsthetic time. All other factors being equal, the smallest amount of food and fæces we have in the gastrointestinal tract at this time the better for the patient. As I usually begin operating about 2.30 p. m., the patient has by that time had ample opportunity to get results from the routine of fasting and the administration of purgatives.

The evening of the day before operation a soap poultice is applied to the operation site and vicinity; this remains for two or three hours when the part is carefully shaved, then washed with clear antiseptic soap and warm water, followed by alcohol to remove the residue of soap. During the cleansing process care is taken not to produce abrasions, a soft brush or preferably a gauze pad being used to scrub the skin. In this preliminary skin cleansing a careful aseptic technique should be maintained. A sterile gauze dressing is applied and retained in place by a bandage. As containers for the solutions used in cleansing the skin site, glass flasks of appropriate size having well fitting rubber stoppers with bent glass tubing are used. This insures a

small, steady stream that can be stopped or started at the right time and directed to the desired spot.

A purgative of some sort is given the evening of the preparation and a saline early the next morning. This is followed in two hours by a soap-suds enema if necessary, and later by saline enemas until they return clear. The bichloride compress is not used for the reason that it macerates the epithelium and diminishes the regenerative powers of the skin. The dry dressing is as a rule undisturbed until after the anæsthetic has been started, when the final cleansing of the skin is done. Precisely the same technique is observed as in the preliminary cleansing, with the addition of one-per-cent solution of iodine, which follows the alcohol and is allowed to dry on the skin. The patient is covered by a sterile fenestrated sheet; the operation area is outlined by sterile towels and loosely covered until the operation is begun. It is an easy matter to overdo in our attempts at asepsis. Over-zealous scrubbing, too much energy expended in this direction, will defeat the end aimed at. Naturally in emergency cases the preliminary cleansing will have to be omitted. The solution of iodine may be made up with dilute alcohol or in accordance with the appended formula: Sodium iodide, 5.5 Gm.; water, 250 la : Iodine, 2.5 Gm. ; potassium or Cc. This gives a 1 : 100 solution, which can readily be diluted to any desired strength by the addition of water.

Granted that the attainment of absolute asepsis of the skin is about as impossible as squaring the circle, it yet behoves us to try to reduce the bacteria to the smallest possible number to each square inch of sur-

face. In the preparation of the operation site one needs to have an intelligent appreciation of the possibilities of skin infection and the consequences of the same. As the complete sterilization of the skin with our present crudeness and limitations of science is a futile impossibility, we have to make the best use of the opportunities at hand. The value of the iodine solution as a germicidal agent for streptococci and staphylococci has been bacteriologically proven beyond a doubt; clinically this method has been productive of the happiest sort of results, and it is easy to conclude that as a chemical agent for at least the partial sterilization of the skin iodine is the most satisfactory substance we at present possess.

For purposes of mere mechanical cleansing of many of the mucous membranes of the body prior to operation I have the parts copiously flushed with physiologic saline solution. Urinary antiseptics are used to improve the sanitary condition of the urinary tract. A dilute solution (1 to 1000) of iodine is used to irrigate the vagina and uterus. The cleansing of the vagina is a subject often neglected; a careless sort of douche is given, and the part is said to be clean. Every part of the vaginal wall should be carefully cleansed with liquid antiseptic soap, hot water, and a thorough scrubbing with a gauze pad. Especial attention should be paid to the space just behind the cervix, where discharges are prone to accumulate and entirely escape the average douche. Alcohol causes too much burning for use on the mucous membrane even of the vagina. The soap should be removed by free use of warm water; thereafter the dilute iodine solution should follow.

The teeth and mouth of both operator and nurse as well as patient should be kept in the best possible condition in order to guard against such potent sources of infection. Regular visits to the dentist and the frequent use of a tooth-brush with or without some good mouth-wash are the requisites of common decency.

The presence in the operating room of an individual suffering from ozena, alveolar abscess, or other suppurative conditions, nasal catarrh, coryza, inflammatory conditions of the pharynx or tonsil, bronchitis, or pulmonary tuberculosis is a menace to the patient.

Upon the hand of the surgeon much depends. While the size of the hand cannot well be regulated, it can at least be well groomed. Great care of the hands should be taken; they should never become abraded or chapped. Gloves should be regularly worn out-of-doors for their protection. The fingers should never be contaminated with pus or soiled dressings. All hangnails should be removed with cuticle scissors; if the cuticle is well pushed back from the base of the nail every day or two these will seldom form. Keeping the nails short by the frequent use of the file is better than frequent cutting with knife or scissors, which tends to make the nails become brittle and split. The metal nail cleaner should not be used to remove the accumulations of dirt under the nails, but the orangewood stick, which produces no abrasions, should take its place. When the nails are to be cut they should first be softened by soaking in warm water. Cracks, fissures, or roughened places on nails or hands act as nidi for dirt and promote infection.

Just prior to operation the hands are washed thoroughly with green

soap and running hot water. All collections of dirt are removed from under the nails. After the washing is resumed the ends of the fingers and the palmar surfaces of the hands are scrubbed with a Tampico nail-brush; the forearms, the backs of the hands, and the spaces between the fingers are systematically scrubbed with a towel during the cleansing process, care being taken to miss no part. The stiff nail brush ordinarily used is apt to produce slight abrasions on the arms that may be a source of infection. The hands and arms are then washed thoroughly in 70-per-cent alcohol and rinsed in sterile water. Antiseptic solutions are not used for the reason that they irritate the skin and give a false sense of security.

Rubber gloves are worn as a part of the regular routine in all operative work, obstetric cases, vaginal and rectal examinations, etc. I have never been able to subscribe to the German custom of having the hands bare and wearing rubber boots or overshoes in the operating arena. Among the disadvantages of gloves as enumerated by those who oppose them I note expensiveness, short life, masking of tactus, and the slipperiness of gloves. Among the advantages I mention the protection of the surgeon and the patient from infection by the intervention of a germ-proof, easily sterilized cover for the hand. The contact of the glove with the intestinal peritoneum is less irritating than the bare fingers. The cost of gloves is of course considerable, but is small when compared with the benefits to be derived from their use. By taking good care of gloves and by mending those punctured or torn the cost can be somewhat lessened.

The sense of touch is practically unimpaired for those who are accustomed to their use. After wearing them several hundred times one arrives at such a degree of facility in their use that the fact that gloves are being worn during the operation is scarcely noticed or thought of. It has been proven by scientific tests that the interference of gloves with the delicacy of touch is most infinitesimal. By the interposition of gauze one layer in thickness between the gloved finger and the viscus being held all sense of slipperiness is done away with; or if one wishes, slightly roughened gloves can be worn.

Dry gloves are used in all of our cases; as a rule they are sterilized by steam; if by chance they have to be boiled they are protected from the sides of the vessel by being wrapped in a towel. When taken out they can be dried between sterile towels and dusted with sterile talcum. As a damp or wet glove is troublesome to put on, care should be taken to have the gloves well dried out. After the hands have been well scrubbed as previously described, they should be dried with a sterile towel and well dusted with sterile talcum shaken from a sterile container; the gloves are then drawn on. In putting on gloves the chief object to be attained is the getting on of the glove without touching its outside by the skin of the hand or the fingers, or any surface that might cause contamination. The right-hand glove is picked up by the thumb and the finger of the left hand at the point of turning of the backward fold (the gauntlet part of the glove has been turned backward prior to sterilization in order to facilitate the technique of putting on the glove) of the gauntlet, and the glove is drawn on, a gen-

tle pull being made to prevent tearing. Then the square of sterile gauze in which the right-hand glove has been wrapped is spread over the palmar surface of the right hand covering the tips of fingers and thumb; with the gauze-enveloped right hand the left-hand glove is picked up by the turned-down cuff and drawn on. Thus the outside of the right-hand glove is protected from contact with the skin of the left hand or wrist. Then the turned-down cuffs are pulled up over the tightly buttoned wristband of the long-sleeved gown. This method properly carried out insures a sterile pair of prehensile organs.

The gowns worn have long sleeves which may be buttoned closely about the wrists. If a glove is torn or becomes contaminated during operation (this should happen seldom) a clean glove should be substituted at once. If a finger is punctured a sterile finger-cot should be slipped on over it. Dry gloves are much easier to put on than wet ones. The sterile talcum next the skin absorbs a certain amount of perspiration. By the use of wet gloves the skin of the hand is not only macerated, but if a finger is punctured a solution of dead epithelium, water infected perspiration, etc., will at once be poured into the wound.

As previously stated, long-sleeved gowns are worn. If the arms are bare and gloves are worn it is clear that the purpose of the gloves will be defeated, for the arms must necessarily come in contact with the hands and instruments, or even the wound itself. Attached to each gown in front at the neckband is a piece of gown material four or five inches wide and long enough to come up over the mouth and nose to the

level of the eyes. This mask is secured by tapes passed above the ears and tied at the back of the head. This device not only acts as a guard to stop the outward passage of particles of saliva expelled by breathing and talking, as do the strips of gauze or the face mask ordinarily used, but being a continuance of the gown it prevents epithelial scales and perspiration from falling where they should not. A cap is worn that covers the hair entirely and can be tied with tape to fit snugly. As a possible precaution against falling particles, the cap is put on before the gloves are.

Green soap is used for the hands. This is sterilized by boiling, and is kept in a telescoping container which protects its contents from contamination by exposure to the atmosphere. Sterilized green soap made into a freely flowing fluid by dilution with alcohol and ether is used in the preparation of the skin of the patient.

Nail-brushes are boiled and kept in sterile containers. The usual custom of keeping brushes in bichloride solution is unsatisfactory, as the brushes rapidly become softened and unfit for use. The usual Tampico fiber brush is ordinarily used, as it is cheap and effective.

The number of instruments is limited to the smallest number with which the work can satisfactorily be done. A large number of appliances are a hindrance rather than a help to clear cut and direct methods. The operator who knows the uses of a few good instruments well, and is deft with his fingers can do rapid and easy work. Instrument trays are not used; the instruments are taken directly from the bicarbonate of soda solution in which they are boiled, and laid on the instrument table, which has been covered by

sterile towels. The instruments, being hot when laid out, are speedily dried by their own heat. An adjustable table which extends over the body of the patient is a great convenience.

Wounds are made as short as is consistent with good work. The general direction of muscular fibres is followed, and separation with displacement rather than division practiced wherever possible. In going through the abdominal wall, the scalp, or other soft tissues I frequently use sharp-pointed scissors to the exclusion of a scalpel. Easy and accurate division is insured, the bleeding is not so free as when a sharp knife is used, and the number of instruments is lessened. A small opening is made in the parietal peritoneum, and this is stretched rather than cut to the requisite size. Before making the opening the peritoneum is separated with the finger from the superimposed structures for a short distance on either side; this makes the peritoneal suturing much easier. The various points at which pathological changes are commonly found are inspected systematically as a regular routine. Blood or other fluid is removed by dry sponging, and irrigation is seldom resorted to. Bleeding is controlled by temporary pressure with hemostats, by torsion of the vessel end, or by individual ligation of the arterial branches. Ligatures are seldom applied to structures *en masse*. Catgut is used exclusively as a ligature material. Unnecessary conversation is avoided. As nearly as possible the same system is followed in each operation in order that nurses and assistants may become habituated to a certain routine, and thus be enabled to anticipate the various steps of the operation.

For all internal and buried sutures I use catgut; plain for all peritoneal work; 10-day chromicized, for closing a perforation or the inversion of an appendix stump; 20- or 30-day for fascia and hernia; and 30-day for bone. The catgut used is put up in sealed glass tubes by a house of undoubted reliability, or the iodized catgut in ordinary use. I invariably use silk for the skin; this is prepared by boiling in a 1:10,000 solution of bichloride to render it inimical to whatever germs it may have collected in its passage through the skin. For simple interrupted coaptation or tension sutures silkworm-gut is used; this is dyed red for negroes and blue or black for whites; the color contrasts make the stitches easy of removal and at times obviate the possible danger of a lost suture with its small suppurating sinus. For gastroenterostomy, intestinal anastomosis, and similar work the Pagenstecher linen thread is most valuable; it does not act as a wick to carry infection, it is of great tensile strength, and is easily handled. For the coaptation of external wounds silkworm gut or horsehair is generally used. Whenever possible I dispense with all sutures that puncture the skin and use a subcutaneous suture of plain catgut. The number of cases of wound infection will be lessened by the observance of this technique.

When the condition of the patient permits the necessary time to be taken the incision wound is sutured in layers. The parietal peritoneum is united with 10-day catgut. Next the fascial edges are approximated by a continuous suture of 20-day catgut, an interlocking stitch being taken at every third or fourth stitch to prevent a possible slipping in case either end should become loosened.

Sutures are necessary evils, and we must use them carefully in the approximation of tissues, avoiding as far as possible strangulation even of small masses of tissue with the possibilities of slight necrosis and stitch infection which may follow overtight tying of sutures. After peritoneal fascia and skin have been securely approximated, atmospheric pressure may be trusted to for the prevention and obliteration of dead tissue spaces.

Drainage is a crude, imperfect and barbaric procedure and a mechanical insult to the tissues. In a few clearly defined conditions I find it necessary and use it. In clean cases where free extravasation of blood or serum is expected, as after the closure of some scalp flaps, operations on the kidney, some amputations, removal of the breast, and retrenchment of the scrotum, a few strands of silkworm-gut left in twenty-four hours are effective and do no harm. In infected cases I drain abscess cavities or localities where a portion of an abscess wall may of necessity be left behind, and where there is danger of leakage from the urinary or gall-bladder. In this class of cases I use two varieties of drainage material—rubber tube or the gauze drain partially enveloped with rubber dam in cigarette fashion. In general peritonitis the methods of drainage often resorted to are worse than valueless. Any form of drain will be walled off and inert in six hours, availing nothing but the production of a multiplicity of adhesions. If there is any localized collection of semipurulent fluid; a simple incision allowing its escape without the intervention of gauze, glass, or rubber tube drainage will be effective. It has been said "when in doubt drain;" when in doubt

I do not drain, and feel that I have not gone far wrong in such matters. I have sutured gunshot wounds of the stomach and bowels as late as thirty-six hours after receipt of injury, and had perfect recoveries without the use of either irrigation or drainage.

Irrigation of the peritoneal cavity is one of the greatest misconceptions ever fathered on a profession. If I wished to shock a patient profoundly I would open the abdomen of a case of peritonitis, irrigate thoroughly with salt solution, and practice drainage through multiple incisions. I remove blood, serum, escaped fecal matter, etc., by sponging, then close the abdomen. The peritoneum can safely dispose of a considerable amount of toxic material if not hurried and left to handle in its own way. Irrigation even with salt solution irritates the peritoneal tissue, scatters widely all toxic material, promotes absorption, and puts the patient in immediate danger of being overwhelmed by an excessive amount of poison.

A dressing of absorbent gauze and cotton is placed over all wounds and held in place by adhesive strips. We formerly used a collodion dressing, but this may retain perspiration—especially in warm weather—and may in that way bring about wound infection. If the gauze remains dry and there is no reason for believing that the wound is not in good condition, the dressings are not disturbed until the tenth or fifteenth day. In drained cases the dressings are changed as often as saturated. In the dressing of wounds strong solutions of antiseptics are not used. The dressings if caked are softened with warm saline solution. Peroxide of hydrogen acts as an irritant to the tissues and is seldom used.

Wound secretions are removed by irrigation with saline solution. If suppuration is free or persistent, a weak solution of iodine, 1:1000, is used for irrigation. Raw surfaces are protected with strips of rubber dam sterilized by boiling. The granulations grow through the meshes of gauze and are torn off when it is removed. Wounds are not fingered when dressed, such proceeding being neither good for the fingers nor the wound; knife-and-fork dressings are done as far as possible.

After laparotomies a laxative of some sort is usually given about the third day. After operations on the rectum or prineum the patient is fed small amounts of albumin, which leaves but little residue, and the bowels are kept locked for ten to sixteen days with perfect impunity. The bowels in such cases are moved with the patient lying on the side to prevent the damaging effects of undue straining.

My conclusions in regard to the subject of operation technique are:

That bichloride of mercury as ordinarily employed is useless and engenders a false sense of security.

That the bugaboos of prolonged scrubbing of hands and arms with rough brushes and the reckless use of strong bichloride solutions favor rather than diminish the chances of infection in the long run.

That the iodine solution is comparatively non-toxic and highly antiseptic. Laboratory experiments have conclusively proved that as a germicide a 1:500 solution of iodine will do in five minutes what it takes a 1:1000 solution of bichloride half an hour to accomplish.

That persistent care of the hands and the wearing of gloves is of prime importance: to protect the patient from the operator and to protect the

operator from the patient. The objections are slight as compared to many advantages accruing from their use. Face masks are advantageous in the prevention of wound infection. Long-sleeved gowns are indicated for the sake of consistency in technique.

That irrigation and attempted drainage of the abdominal cavity are as a rule inadequate and harmful.

That whenever possible unabsorbable buried suture material should be avoided.

That the evils of drainage are many and the indications for its use are few. When in doubt do not drain.

That Kelley's method of starvation diet to prevent the formation of scybalous masses that might tear newly united perineal tissues, and of locking the bowels for from ten days to two weeks to allow ample time for healing after plastic operations on rectum and perineum, has many advantages.

—*The Therapeutic Gazette.*



THE WORK OF THE NEW YORK STATE CANCER LABORATORY: RETROSPECTIVE; PROSPECTIVE.

By ROSWELL PARK, M. D.,

Buffalo, N. Y.

(Read before the Medical Society of the State of New York, January 29, 1907.)

ALAPSE of some eight years since the inception of the Buffalo Cancer Laboratory quite justifies a resumé of what has been accomplished there during these years, as well as a reference to the advance which has been made in our general knowledge of the subject of cancer.

The motives which prompted its foundation were the inadequacy of the methods hitherto applied in the study of the disease and the entirely partisan views held by practically every investigator of repute. The histologist regarded cancer as a matter of peculiarity of cell structure, the embryologist held it due to peculiarity of cell activity when actuated by hereditary influences or embryonic perversion; the first looking to the cell itself, the latter to its environment and proclivities. The pathologist could advance numerous suggestions, all the outcome of a study of deadroom specimens through brass tubes, all ingenious, some extraordinary and incomprehensibly so; all displaying familiarity with minutiae which none could comprehend, and all evincing especially a lack of familiarity with the disease in the living body, a lack which has characterized most of the published work on the etiology of cancer. Tradition and adhesion to long-established methods had governed all modes of investigation, yet no one had had the originality to depart from them.

No theory advanced had proven satisfactory; those who furnished theories were laboratory students, while the clinicians, medical and surgical, *i. e.*, the men who saw the disease *in vivo*, had almost abandoned hope, either of learning the nature of the disease, or how successfully to treat it. Inoculation experiments had been up to that time completely disappointing and discouraging; none of the ordinary bacteriological methods proved reliable or available, and it was very evident that the cancer germ, if such there were, was not an ordinary bacterium nor amenable to the prevailing bacteriological methods of study. Interesting facts had here and there been gathered concerning the occurrence of cancer in animals, in man, in certain districts and houses, and even in vegetables, but no proper assemblage or correlation of these had been made.

A general spirit of pessimism prevailed in all quarters, the more so as a study of statistics made it appear that cancer mortality was on the increase, at least in those parts of the world which most interest us. This spirit of hopelessness had not exhausted concerted effort but had rather paralyzed endeavor. It was difficult to secure either men who would devote themselves to such blind and unpromising work, or money with which to support them in such efforts.

For several years the conviction had been growing upon me that only by deliberate, well-planned, combined attack from various directions, by men especially fitted for such work, could real advance be made. It appeared more and more strongly that the knowledge and skill of the vegetable pathologist, the biologist, the naturalist and the chemist, must be combined with the talents of those pathologists who had hitherto been attacking the problem alone, and that the clinicians, especially the operating surgeons, as men who were in constant contact with the disease before death, must join actively in the co-operative work.

But all this required money and organization. I will not attempt to give here a detailed history of all that was required to bring this about. Those only who have had experience with efforts to secure appropriations for legitimate scientific work can appreciate the difficulties and discouragements encountered, as well as the delays. The first legislature approached made the necessary appropriation, which was then vetoed by Governor Black, his recorded reason showing the same popular misconception of such work and its importance for the State and the public, with which we ever had to contend. Finally we succeeded, and the result was that there was established in Buffalo, in the State of New York, the first laboratory ever, or anywhere, created for the concerted and deliberate study of the most mysterious disease known to us, one which annually kills seven thousand of the inhabitants of this same State.

In parenthesis, one might, were he disposed to take time, descant on the fact that a number of farmers who, between them, had lost seven thousand cows or sheep or animals, would

have had far less difficulty in securing an appropriation to study the nature of the disease which caused such loss than we had in inducing the State to enter upon a scientific study of a disease which kills seven thousand of its citizens every year.

The establishment of this laboratory was hailed with acclaim by scientists and governments all over the world. In the few years that have elapsed since its organization, similar laboratories have been put into operation by government aid at Berlin, Frankfurt, Moscow, London, which the Pasteur Institute in Paris has now a large department devoted to it; in addition to which, by private or semi-private means, similar laboratories are established in Middlesex Hospital, at Harvard, in New York, and especially and most recently, in Heidelberg, where Czerny has just opened a magnificent hospital and laboratory combined.

Scarcely were we fairly done with our first year's work when our legislators began to ask, "Well you have worked so many months and have spent so much money. Now what have you found out? When will you be able to cure cancer?" And this has been a perhaps not unnatural spirit evinced ever since by those entirely unfamiliar with the problems involved, the exacting character of the work required, the delays and disappointments inevitable in experimental work, the complexities to be reconciled or eliminated, and the long time required by nature herself in revealing many of her hidden secrets. By reason of these difficulties and complications, such an institution is placed always and constantly in an attitude, as it were, of self defense, and is always exposed to attacks and re-attacks of those who will ignorantly demand delivery of scientific

truths or experimental results in accord with a definite time schedule.

We are often reminded that the money already employed in this work makes a considerable total. Let us compare it with what is being done abroad. Ehrlich, under the patronage of the Ministry of Education, began work in 1900 with a large sum. Since 1903 he has been working with transplantation experiments on small animals, mainly mice, but including a few dogs. He has a distinct advantage over us in that his support is assured and his means much less limited. While his earlier work was opposed to the parasitic theory, one may trace in his later publications a distinct change in sentiment and a gradual leaning toward the same position taken by our workers.

Perhaps the most pretentious undertaking has been that of the English Cancer Research Fund, whose great claim has been the breadth and scope of their work, though until now the only positive results which they have obtained have been their recent confirmation of work already done in Buffalo, and published in our reports.

Following directly upon the establishment of the Committee for Investigation of Cancer in Berlin, the purposes of which are the general encouragement and spread of research, and the collection of extensive statistics, there was established under the direction of von Leyden, in the Royal Charité Hospital, Berlin, a special department for the investigation of cancer.

Harvard University enjoys the income from the sum of \$100,000, which may be applied to investigations either in cancer or tuberculosis. They have been actively engaged since 1899, but their work up to the present has been practically negative. The

original director of the practical work resigned his position two years ago with the statement that the only hope for the cure of cancer was the knife, that serum treatment offered no hopeful outlook; his general attitude being most pessimistic. Since then our laboratory has supplied them with mice for purposes of transplantation experiments, and we understand that they are now engaged in this work, although as yet they have published nothing in this connection.

The Huntington Research Fund has been successfully employed in the investigation of cancer. Those enjoying its provision have been for the past year or more engaged in the transplantation of a lympho-sarcoma of the dog, and have in almost all particulars confirmed the work on immunity done in Buffalo.

Dr. Loeb, who was at one time employed with us, has in the last few years been otherwise engaged, but has published one or two papers on this subject; having received some funds for the purpose, he would seem to have re-entered the field. Borrel, who has for years been an active worker, being one of the directors of the Pasteur Institute, has ample facilities yet without special funds. Jensen, of Copenhagen, who is at the head of the department of pathology of the Veterinary School, and who has done so much, has not enjoyed the privileges of a special fund; nevertheless, most of the work that has been accomplished in the past eight years has been done with funds provided from some source and for the purpose.

It is very evident that the advances in our knowledge of cancer made during the past few years are mainly attributable to the discovery of the transplantability of tumors in small animals, a possibility until recently

generally denied. The accuracy of the work is almost entirely dependent upon the number of animals which can be employed; *i. e.*, it is a question of money necessary for their procurement and for the maintenance of a sufficient staff of assistants. In this particular, the English Commission, enjoying a much larger income, have the greater advantage. In the last two years they have studied no less than 100,000 mice, besides other animals, whereas the funds at the disposal of our laboratory have thus far enabled us to employ only about 8,000 mice and rats. In this respect also Ehrlich has the advantage—he probably having employed some 40,000. This will make it clear that, except in minor points, the opportunity of the individual scientist without special financial support is, in this field, very limited.

The establishment of the State Cancer Laboratory, the first institution for special research in this direction, has, in fact, pointed the way and shown the correctness of the view that the great problem of the origin and nature of cancer can only be solved by an elaborate and well-supported attack from all directions, a statement substantiated not only by our own results, but by every confirmation in the various other institutions which have followed us. The competition in this field has now become international, and the support accorded to foreign institutions is such that unless New York State can appreciate the necessity of liberally supporting its own laboratory we shall have difficulty in maintaining the lead which we have obtained by our having been first in the field, as well as first in the general tendency which the work is everywhere now evincing.

Early in our work we tried to study some of the associated problems, as the following statements will show: For instance, during the first year Dr. Wilson made a statistical study in which he demonstrated the steady increase in the mortality rate of New York State; later Dr. Lyon made a careful and painstaking study of the city of Buffalo, constructing a carefully and elaborately prepared map of the city, on which were indicated those houses where one or more deaths from cancer had occurred, thus bringing out some striking features regarding its prevalence. This map may well serve as a model for similar work, which should be done in every city which has a board of health or a registry of deaths.

Some studies were made of two well-marked cancer districts, one by Dr. Matzinger in western New York, the other by Dr. Lyon in the central part of the State. Carefully prepared maps also accompanied these reports, which as well may serve as models of their kind; but men competent to do his work command good salaries, and the means granted by the State were insufficient to justify its continuance.

Therefore the work has had to be confined to actual laboratory research. More and more it appeared that ordinary bacteriological methods were inadequate, and in time they were altered to include more comprehensive biological studies. Thus it happened that Dr. Pease shifted the scene of his activities to Albany, and that Dr. Matzinger withdrew, while Dr. Gary N. Calkins, perhaps the best American authority on the lowest forms of animal life, joined the force of laboratory workers. Dr. Gaylord has been with the laboratory from the outset, and Dr. Clowes joined it early in its history as its chemist and physicist.

What these gentlemen have accomplished will particularly appear in the matter which they will present to you, but only in part, since it is scattered through the annual reports of the laboratory and through the long list of papers and addresses published in various medical and scientific journals at home and abroad.

The ever-present question with us is one of self-existence. It may be perhaps thus put: Does the work accomplished justify our continuance until it has been in some measure accomplished? There can be no doubt that if any unprejudiced person will visit the institution and acquaint himself with what is doing and has been done, he will leave it feeling that it is one of which New York State may well be proud, and that it is deserving of the heartiest public support. Some of our legislators unacquainted with its purposes and the character of its work have come in hostile spirit ready to condemn. In every instance, however, they have gone away enthusiastic supporters and have ever since been our best friends. With an ever-varying legislature and the necessity for an annual struggle for existence, we labor constantly under adverse surroundings. When, for purely selfish purposes, a few men strongly banded together can, by personal influence, obtain such large appropriations or such valuable privileges from our State Government, as is often the case, it does seem as though the medical profession, realizing what the solution of this problem means, might organize themselves very strongly and in far greater numbers, and so impress upon their representatives in the legislature the

import as well as the importance and value of this work, that there should be no difficulty in securing its permanent and generous continuance. It is for some such purpose that I would make a personal appeal to you to-night, for such expression of your confidence in the work and your insistence upon its continuance, that our legislators may feel that the profession has spoken in no uncertain tones, but rather in such a way that their insistence is not to be disregarded.

For my own part, if I may close this report with a personal sentiment, I cannot help feeling that we are today much nearer the secret so long sought than we were eight years ago. In fact, I feel that the past eight years have taught us more than the previous eight decades, and that much of what has been thus revealed has come from the little institution in western New York, which has been supported by the State, urged there to by the importunity of a few friends of science and progress who have had sufficient influence to secure the amounts appropriated, though each year with difficulty and after long-winded explanations and personal solicitations. This should not be necessary were there a sufficiently and reasonably wide comprehension of the difficulties attaching to such scientific research. For myself, the most important question is settled, although it is not yet in such shape that it can be briefly stated or widely taught, nor perhaps can we expect it to receive the prompt and unanimous acceptance of a profession which is always slow to accept even revealed truth.



IMMUNITY AGAINST CANCER IN MICE.

By G. H. A. CLOWES, Ph.D.,

BUFFALO, N. Y.

IT is scarcely necessary to point out the numerous obstacles associated with the study of human cancer from an experimental standpoint. Great difficulty is invariably experienced in finding two or more cases that can be said to be in any sense comparable. It is almost impossible to obtain absolute control over such cases, once they are found, and in testing the action of chemicals and sera on cancer one must always bear in mind the risk incurred in making use of doses which might prove fatal to the individual employed.

The discovery of the ease with which mouse tumors may be transplanted has led, as might well be anticipated, to the development of experimental research in cancer on such a scale as could never have been contemplated five or six years ago.

After repeated unsuccessful attempts to study the numerous problems associated with the development of cancer in human beings, it was decided about three years ago to devote the main efforts of the New York State Cancer Laboratory to experimental work on animals. Our first effort was naturally directed towards obtaining primary tumors in mice and studying the conditions under which they might most readily be transplanted from one individual to another. In the course of the last three years about forty such primary tumors have come into the possession of the laboratory. A certain number have been used for transplantation purposes and we have now established four distinct strains of mouse tumors, exhibiting marked variations

in their degree of virulence, by which is meant the percentage of tumors obtained on transplantation and the speed with which such tumors develop and cause the death of the animal employed. These tumors have been transplanted through twenty-five to thirty generations of mice, and exhibit an increasing rather than a diminishing virulence, a fact which is remarkable when it is realized that certain tumor strains have already been maintained for a period of time exceeding the life of the average mouse.

For the successful continuance of this work it was found necessary to establish certain standards whereby uniformity of experiment might be assured. By weighing and measuring the tumors used for transplantation, and the chemicals and sera to be tested, it has been found possible to introduce such a degree of accuracy into the experiments in question as might be expected to be attained only in a physical or chemical laboratory.

It was found necessary at an early stage in the development of these researches to adopt an extremely elaborate system of keeping records. The mice were divided into experimental lots, and the individuals in such lots were lettered, and every few days charted diagrams were prepared for each individual, showing in graphic form the development of the tumor. As a result of the adoption of this system it was possible to note important facts which would otherwise have been overlooked. For example, that the greatest variation occurs in the speed of development of tumors

even in the same series; that a considerable number of mice recover spontaneously of their tumors, and that this tendency to recover spontaneously is inversely proportional to the virulence of the tumor material employed; also, that tumors which subsequently prove fatal occasionally exhibit a marked tendency to retrogression followed by renewed activity in development.

Mice which had recovered spontaneously, as described above, were found on reinoculation to possess a distinct immunity against tumor materials possessed of a virulence about equal to that of the tumor previously employed. The observation of this fact, and of the fact that the serum of such spontaneously recovered animals exerted a retarding effect upon the development of tumor materials when admixed with the latter previous to inoculation, may be said to have been the first positive demonstration of immunity against cancer.

Before passing on to more detailed consideration of the evidence, afforded by our researches, of the existence of immunity, it will be necessary to outline briefly some of the experiments directed toward the determination of the exact limiting points of the development of tumor material on transplantation. Cancer cells exhibit quite remarkable characteristics when incubated in salt solution at temperatures ranging from 39 to 42° C. for periods of half an hour or more previous to inoculation. Such a treatment exerts a distinctly stimulating effect upon weak attenuated tumors, resulting in certain cases in greatly increased yield in subsequent generations. Full details of this work have been published in a separate paper and cannot, therefore, be included at this stage.

It should simply be stated that the lower the virulence of the tumor, the higher the temperature it can withstand without damage to its proliferative energy, and the greater the virulence of the tumor, the greater will be the attenuation effected by incubation.

One extremely important line of investigation, which is still in progress, is the determination of the action of a large variety of chemicals upon the cancer cells. The concentration of mercuric chloride and other disinfectants of that nature required to inhibit the development of tumor cells has already been determined and is found to be extremely high, the cancer cells being still capable of proliferation when treated previous to injection with a dose of mercuric chloride or potassium cyanide capable of exerting a destructive effect on bacteria. In this way it has been found possible to purify tumors which, being infected, would otherwise have caused the death of the animals employed.

We are at the present time carrying out a long series of experiments in which the relationship between the chemical composition of a series of bodies and the destructive effect which they exert upon tumor cells, is being carefully determined. In this way it is hoped by a process of elimination to arrive at definite knowledge regarding those chemicals which may be expected to exert the maximum effect upon the animal employed for inoculation.

The chemical analysis of tumors presented certain interesting facts, notably the relationship existing between the proportions of potassium and calcium, and the relative speed of development and virulence of the tumor in question. The more rapidly the tumor development the larger was

the potassium content, and the smaller that of calcium, and vice versa.

Immunity.—From the time that the mouse tumors came into our possession to the present date, we have made innumerable attempts to immunize animals by means of inanimate materials, that is to say, tumor materials treated by heat or chemicals, or the extracts of tumors, but invariably without success. On the other hand, by adopting a process analogous to vaccination, it has been found possible to confer upon mice a very marked immunity against cancer. The possibility of employing such a process was first recognized when it was discovered, in the winter of 1904, that a large proportion of the mice inoculated with the Jensen tumor recovered spontaneously and were subsequently immune to further inoculation with a tumor possessed of an equal degree of virulence. In the course of the following year we accumulated a large amount of data bearing on this subject of spontaneous recovery, and were able to demonstrate that such recoveries occurred more frequently in those cases in which weak or attenuated tumor materials had been employed for inoculation, and that the more advanced was the tumor in its development, the smaller would be the chance of the animal recovering spontaneously. It was further demonstrated at that time that the serum of such recovered animals exerted a slight but definite effect upon tumors in other animals, and also upon tumor materials when treated therewith previous to inoculation.

Our system of keeping records enables us, as stated above, to identify individual mice with perfect ease, and in all those cases in which animals on inoculation have failed to develop tumors, second, and even

third inoculations were carried out at intervals of three or four months. The statistics obtained from such re-inoculation of several hundred mice, which had previously been inoculated with the Jensen tumor, or one of a corresponding grade of virulence, show a reduction from 31 per cent. of tumors on the first, to 12 per cent. on the second inoculation. This in itself affords evidence of the existence of a definite immunity against cancer in certain animals, since the figures are too extensive to permit of any error of experiment exerting such a marked effect.

A third inoculation of such mice as have recovered from the second inoculation has not, in our experience, resulted in the production of any tumors; and to judge from his publications, Ehrlich has apparently obtained similar results. It is even more remarkable than the first inoculation with weak or attenuated material, and subsequent recovery, confers to definite immunity against subsequent inoculation even with a more virulent material, a larger percentage of tumors being obtained in normal control groups, than in those that have previously been inoculated.

Figures recently published by Ehrlich afford even more remarkable evidence of the existence of this type of immunity than do those which we have obtained. This discrepancy, if such it can be called, is probably attributable to the fact that we employ larger doses of cancer, which, consequently, are more liable to develop, if immunity is in any sense dependent, as it appears to be, upon the quantitative factor; that is to say, a definite ratio existing between immune bodies in the sera and the number of cells which have to be attacked before a destructive effect

is exerted by the immune forces in question.

We have more recently succeeded in obtaining evidence of the existence of immunity of a different type. One of the tumors employed for transplantation purposes in the laboratory is possessed of enormous virulence, ninety-five per cent. of the mice treated having died of the tumor in an average period of twenty-five to thirty days. The following experiment was carried out making use of the tumor in question:

One hundred mice were inoculated at the head, and when the tumors were in full development, some ten or fifteen days after inoculation, a second batch of materials were injected at the tail, at the same time one hundred control animals, which had not previously been employed, receiving an equal dose also at the tail. Whilst the control animals developed ninety-five per cent. of fifteen days, less than six per cent. large tumors in the course of ten or of small tumors were obtained at the tail in those mice, which already had large growing tumors at the head, indicating that the presence of the large tumor already developing resulted in the formation of anti-bodies of the serum of the animal, sufficiently numerous to prevent the development of isolated tumor cells injected on the second occasion.

Unfortunately mice are too small to carry out extensive operations, removing one tumor and leaving another, or anything of that nature, but we have now at our disposal a rat-sarcoma, which is also possessed of a very high degree of virulence; and at the present time extensive experiments are being carried out, injecting tumor materials into rats, and at varying periods of time observing the effect exerted by the first inject-

ion upon the second and the second upon the third, and also the effect exerted upon one tumor by the complete removal of the others, etc. These experiments, while still incomplete afford further evidence of the existence of an immunity of the type suggested by the head and tail mouse experiments.

Those who have worked to any extent with cancer are aware that cases have occurred in which large breast tumors have been operated without recurrence, in spite of the fact that regional metastases had not in all probability been completely removed. In our mouse experiments one fact is particularly noticeable: metastases seldom occur until the late stages of the disease, indicating in all probability an immunity against isolated cells which are destroyed before effecting lodgment in organs other than those originally involved.

Our experiments regarding the minimum dose of tumor material required to produce a growth upon injection, as also the charted records of the development of tumors showing retardation at certain points, would indicate that a definite immunity exists or is induced in all individuals, and that recovery from cancer is simply a question of degree, being dependent upon the amount and virulence of the tumor material introduced and the proportion and resistance of the immune bodies present in the serum.

Our statistical records regarding spontaneous recovery, indicating a much larger proportion of recoveries amongst small than large tumors, makes it appear very probable that large numbers of human beings recover from small tumors, without their existence having been even suspected, in much the same way as recoveries from tuberculosis are effect-

ed. In fact, considering the dimensions, the tumor must have necessarily reached before it can be recognized and the number of cell divisions which must have taken place, it would appear probable that almost all tumors which come under observation in human beings have reached a stage at which the immune forces of the body have already been overcome, all of which would account for the very small number of so-called spontaneous recoveries recorded in the literature.

Work of the nature described above, whilst not in any sense applicable to human beings at the pres-

ent juncture, would indicate very clearly that immunity does exist against the proliferating cancer cell, and should afford the hope that some more active form of immunity may be induced in the future, which will be applicable to human beings, as well as mice. In any case it may be hoped that serum diagnostic methods will enable us to recognize the presence of tumors in individuals at a very much earlier stage than is now possible, thus affording a better chance for successful application of chemical or serum therapeutic methods of treatment.

—*N. Y. State Journal of Medicine.*



NON TRAUMATIC JOINT AFFECTIONS.

T. DYSON WALKER, M. B. (Edin.)

St. John, N. B.

(Read before Halifax and Nova Scotia Branch British Medical Association March 26th, 1907.)

IN the time at our disposal it will only be possible to discuss the joint lesions classed under the heading "The Rheumatoid Joint;" this term including those conditions which may be mistaken for rheumatism.

These affections are often slighted as occupying a position neither purely medical nor purely surgical. Many of them are attributed to the inevitable and therefore incurable changes associated with advancing years, and others, e. g. tubercular joints, are allowed to go on to an incurable state before a surgeon's advice is sought.

Reference will be made in this paper to

1. Classification.
2. Early recognition.
3. Treatment.

and case reports and diagrams will be made use of in describing the different groups.

Many joint conditions showing rheumatoid symptoms are difficult of exact recognition from want of a better classification and uncertainty as to their clinical pathology (Painter). We have the terms Chronic Articular Rheumatism, Arthritis Deformans, Gout, and joint lesions due to tuberculosis, gonorrhœa and other infections, nervous diseases, hæmophilia, etc. But until the work of Goldthwaite there has been no classification which attempted to group these diseases according to their ætiology.

He eliminates the term Chronic Rheumatic Arthritis and speaks of the Dry Villous group and the Hy-

perrophic group from the excessive bony deposits around the articular surface, and including as part of the infectious group some of the cases formerly under the same head; the cases of Arthritis Deformans being now termed Atrophic Arthritis or Infectious Arthritis, according to their clinical history.

1. *Chronic Villous Arthritis* (or Dry Joint) is a local process and not to be confused with the presence of villi in other joint affections which are merely local manifestations of a general disease, e. g., tuberculosis. This joint is dry and relaxed or hypæramic, showing crepitation or creaking on motion accompanied with a varying amount of pain and tenderness. This disease is usually confined to one joint, often the knee. The membranes at first being relaxed are thrown into folds, and later the villi are formed, and becoming drawn into the articulation during motion give rise to excessive pain. The irritation may cause an excess of fluid which is mechanical in origin, and must not be confused with a rheumatic synovial fluid. The effusion does not give the doughy feeling of the surrounding soft parts seen in tubercular joints.

Treatment of these cases includes toning the joint structures by massage and stimulating sprays, sweating the joint with rubber dam, electricity, hot air, etc. If the villi act as a continual irritation they may be removed by operation, incising the joint and scraping the villi away; or in very obstinate cases an excision or even amputation may be found necessary.

CASES.—E. A., aged 50 years, consulted me some twelve years ago complaining of swelling and long-continued pain and limitation of movement of knee. There was no history of injury or infection to account for the condition. He improved for a time with rest, Scott's dressing, aspiration, etc., but at last the pain got so severe that, at the patient's request, amputation was performed. Three or four years ago the same condition occurred in the other knee, and we intend to try on him now the more conservative method of scraping away the villi through free lateral incisions into the joint.

A similar case involving the elbow was under the care of Dr. W. A. Christie. In his case an incision was done with marked improvement.

2. *Atrophic Arthritis*.—This type was formerly included in the Rheumatoid Arthritis group. It shows an atrophy of the membrane of the joints, the cartilages and the bones, resulting in marked dislocation and great distortion and crippling. The joint at first looks swollen from an increase in the synovial fluid and periarticular infiltration, giving the appearance of the spindle shaped joint. On X-ray examination, however, the atrophic changes can be made out in the cartilages, and later in the bones themselves till the bones appear to telescope into one another. As Painter points out, a constriction is often shewn at the centre of the joint (from the commencing atrophy), while in the hypertrophic variety the greatest swelling is seen at that point.

The disease is slowly progressive, the fingers being generally affected early, though occasionally the large joints are affected first.

Some authorities think that this group is due to some central nervous lesion, and this is borne out by a case

reported by Lavenson, of Philadelphia, where the joint changes were too great to be accounted for in any other way.

The systematic treatment consists in building up. The diet should be liberal, plenty of meat being taken, and at the same time the elimination being attended to by giving alkalies or small doses of salicylates.

Locally, massage or other methods having the idea of local hyperæmia. This, according to Bier, may be active or arterial and passive or venous; the former being produced from the local application of heat or counter-irritation, the latter from the interference with the venous return.

The arterial method appears to be the best in chronic joint cases, as shewn by Bier, and confirmed by Locke and Osgood. The process of baking is employed and it is found that it is best to gradually raise the temperature to near the point of tolerance, maintain it for 15 to 25 minutes, and then allow it to gradually fall.

(X-ray, showing Atrophic and Gout combined. Here great improvement from elimination and proper dieting.)

Bier claims from the hot-air treatment:

1. Diminished pain.
2. Bactericidal action.
3. Increased absorption.
4. Resolving of proliferated tissue.
5. Regeneration of tissue.

In advanced cases much good can be done by correcting the deformities.

These (atrophic) are generally milder than the next group.

3. *Hypertrophic Arthritis*.—This was formerly called Osteo-arthritis. It may be either a local or a general disease, commencing with slight pain

and impaired movement of the joint. There is some swelling and effusion with thickening at the edges of the articular cartilages or at the attachment of the ligaments. These form ridges or nodes which become ossified and interfere with the joint motion.

The swelling of the joint is greatest at the line of junction of the bones, or just to one or other side of it, and if there is any other deformity it is generally a lateral one. (Painter)

The Heberden's nodes in the fingers are the type of this condition.

Any joint is liable to become involved, and Goldthwaite has shewn that the sacro-iliac articulation is a true joint with definite motion, and may be effected with this disease. The same author described the condition in the spine, (and has been kind enough to lend me photos of his cases.) The disease in the spine usually begins in the cartilage and follows the anterior lateral ligament up one side, at first only limiting motion, but later causing ankylosis of adjacent vertebræ. Besides the thickening in front of the vertebræ it extends around to the sides as well, and causes pressure on the nerve roots. Many cases of lumbago, sciatica and intercostal neuralgia can be explained in this way.

Little is known of the causation of this condition beyond the influence of exposure or injuries.

Treatment.—Internal is of little value: iodine, arsenic, iron and salicylates are used. Relief is afforded in the active stage by fixation with splints, hot bathing, hot air is often of benefit and sweating with rubber dam is also a favorite method of treatment. Plaster of Paris and leather supports are used for spinal and hip cases. For the upper vertebræ, movement may be limited by

the use of a deep padded cardboard collar.

Von Bergmann advocates lavage with a two or three per cent. solution of carbolic acid, or by injecting iodoform glycerin.

If villous formation is extensive the same treatment is indicated as that for the Atrophic form.

4. *Infectious Arthritis.*—This is the most common variety and the initial symptoms are the most severe. They are those of an infection, the symptoms being due to the presence of bacteria or their toxins.

There is an increase in pulse rate and temperature, and also enlargement of the glands and leucocytosis in the acute stage.

The organisms may be the typhoid bacillus, pneumococcus, staphylococcus, streptococcus, gonococcus, tubercle bacillus or influenza bacillus.

The group also includes most cases of acute and so-called chronic rheumatism, and some of arthritis deformans and may also spread from an osteomyelitis situated near the joint. It is found that a joint lesion caused by the presence of the microbe is more severe than are caused by the toxins.

There is swelling and thickening of the capsule, but there is practically no change in the bone or cartilage except an occasional growth of new bone at the point of infection. (This is only in the destructive variety.)

Treatment.—Salicylates, etc., and remove sources of infection. In milder cases fixation and local applications. In more severe, if improvement is not marked at the end of three or four weeks, the joints should be opened and washed out. Von Bergmann uses sterile salt solution to get out the debris without coagulation, and then 1-500 corrosive sublimate or 3 per cent. carbolic solution.

Many cases are slow in their onset; but the pneumococcus or streptococcus varieties are so rapid in the development of symptoms, that they demand opening and drainage practically from the first. In a case of my own, the knee became involved on the fourth day of a pneumonia. The onset was abrupt, the joint becoming greatly swollen in a few hours.

In two or three days the presence of pus being evident, the joint was incised, washed out with weak corrosive sublimate lotion and drained with good result.

5. *Chronic Gout*.—This is characterized by the deposit of urate of soda in the soft structures about the joint, with some bone absorption adjacent to the deposits. The onset is usually slow, and the condition is not confined to the great toe as in the acute variety. Pain is often very severe. The deposits about the joints resemble those of hypertrophic arthritis, but they may be distinguished by the fact that they are soft and can be moved about. The involvement of the bone, as shewn in the X-ray, is a complete destruction of the part adjacent to the deposits of urate of soda, by pressure absorption. The shaft as well as the extremity of the bone may be involved, and the urate deposits along with the affected bone, are discharged through sinuses in the soft parts.

These cases are probably due to faulty elimination, and in their treatment special attention must be given to the action of the skin, liver and kidneys. The acute attack requires rest, liquid diet, hot applications or a rubber tissue sweat.

The salicylates have little effect, but a brisk calomel purge with saline laxatives seem to act best.

In a case of my own, phosphate of soda and alkalis with the local use of betul-ol oil gave a very good result.

CONCLUSIONS:

1. Acute rheumatism is regarded as one of the infectious group, and the term chronic rheumatism is confined to cases of long continued or recurring cases of the acute variety.

2. Other "rheumatoid" joints are classed according to their physical signs and clinical history, making their treatment more effective.

3. Joint injuries showing persisting pain and impairment of motion would make one suspect arthritic changes.

4. Obscure neuralgias of the trunk and extremities may be due to pressure from the bony out-growths of hypertrophic arthritis.

5. Recognizing an atrophic case we strive to build the patient up rather than to deplete his system.

6. Infectious cases may be due not only to some acute condition, such as pneumonia, typhoid, etc., but may be caused by a pus focus, e. g., in the middle ear, the tonsil, or the alveolar process of the jaw.

7. Gout is not confined to the rich, but may be met with in all classes of patients.

8. More than one of these types may exist in the same case.

In conclusion I wish to express my thanks to Drs. Goldthwaite and Painter for the use of articles and diagrams in connection with this paper.

THE AFTER TREATMENT OF ABDOMINAL SECTIONS.

By A. LAPHORN SMITH, M. D., Montreal.

Fellow of the American, British and Italian Gynecological Societies ; Surgeon-in-Chief of the Samaritan Hospital for Women ; Gynecologist to the Western General Hospital, Montreal, and to the Montreal Dispensary ; Consulting Gynecologist to the Women's Hospital.

(Abstract of paper read before the American Gynecological Society at Washington.)

THE after-treatment of laparotomies has been rendered much easier during the last few years for the following reasons: First on account of the much better preparation of the patients by the nurses before the operation. There is less trouble with the bowels afterwards, because there is less handling of the bowels, and consequently less distention. Distention used to be our greatest bugbear, and caused the death of many patients by ptomaine poisoning and pressure on the heart. It was due to temporary paralysis of the bowels, resulting from prolonged exposure and handling during the operation. Now the patients, except in cases of grave emergency, come into the hospital at least two or better still three days or a week before operation, during which time, by careful diet and rhubarb and soda mixture, the coated tongue is cleaned up, and the distended bowels are gently and gradually emptied of their decomposing contents. So that when the patient is placed in the Trendelenberg posture, instead of the intestines bursting out at the first incision, there is on the contrary an influx of air, and at once the intestines disappear up under the diaphragm and are seen no more during the rest of the operation in ordinary cases of ovarian cyst and fibroid tumour. In fact the author has formulated the axiom: It is unlucky to see the in-

testines and still more so to touch them. Formerly, on the contrary, they were not only being seen and handled during the whole course of a long operation, but they were being chilled by the application of towels wrung out of hot water, which soon became an evaporating lotion, so that the patient went off the table with a temperature of 96°, and often in a state of shock.

For the second reason why the after treatment gives us so little anxiety, we have to thank the general practitioner who sends us the patients much earlier, before the intestines have become adherent to the tumour. Consequently we can do quicker operations with less anaesthesia and less hæmorrhage. For the third reason we owe a debt of gratitude to Professor Trendelenburg, of Leipsic, who by inventing his posture has enabled us not only to avoid the intestine, but also to prevent hæmorrhage and arrest it by seeing and tying every bleeding point in the uterus or broad ligaments.

Fourthly we have to thank Fowler, of Brooklyn, who by advocating the semi-erect posture after bad cases, has converted many of the latter into mild ones. Many cases of pus tubes and appendicitis which would have given the writer great anxiety because of the extensive infection of the peritoneum, gave very little trouble, owing to Fowler's position, which per-

mitted large quantities of infected pus to escape through a large perforated tube extending from the abdominal incision down through Douglas' cul-de-sac and out through the vagina. As much as forty ounces of foul smelling fluid has drained away instead of being carried widely over the peritoneum.

A fifth reason why we have less trouble with the after-treatment, is that by the use of a thirtieth-grain of strychnine three times a day for a few days before, and a week after the operation, the paralysis of the bowels is prevented. When there is a temperature, however, the strychnine may be replaced by five grains of quinine three times a day. They are both splendid intestinal tonics.

THE DIET.—By gradually restricting the diet before the operation to things which leave little residue, and especially by the avoidance of milk, which not only leaves large masses of cheese, but also is one of the worst things for fermenting and making gas, the need for severe purging has been done away with. Indeed, the writer believes that he has seen several deaths from severe purging with salts in the old days. During the first twenty-four hours, nothing is dry retching, in which case a few given by the mouth unless there is tumblers of hot water with five soda mint tablets in each, are allowed as an alkaline wash, to remove the acid secretions of the stomach. During the second day, large quantities of hot weak tea, or beef tea, or weak lemonade may be taken. If the patient cannot retain it, and the urine is concentrated, then water must be given by the rectum, as she will suffer from uric acid pains all over her as long as her urine remains very red. The third day she is given large quantities of water gruel; it must be nicely

made and flavoured with salt, sugar and nutmeg, vanilla or lemon. The fourth day all kinds of farinaceous food, such as many kinds of porridge, rice, sago, tapioca with cream, not milk. The fifth day toast and tea, and preserves are added to the above, and at the end of the week she is put on full diet, with the exception of meat. With this diet the bowels give little trouble, a small soap suds enema every morning being all that is necessary. It brings away a little gas and makes the patient feel a little more comfortable. As the tongue is generally coated from the anæsthetic, and from the morphine, we give rhubarb and soda mixture, which relieves the heart-burn and acidity, as well as acting as a gentle laxative. Morphine is looked upon as a causer of pain, as well as a reliever, so that only one-quarter grain is given when the patient wakes up from the anæsthetic, and another late that night; only rarely does she need a third quarter the second night. The distension pain of morphine is often worse than the pain of the operation. Five grains of assafœtida three times a day relieves this pain, while of course, morphine increases it.

Thirst gives very little trouble now; first, because the patients are no longer violently purged with salts before the operation; second, because they are urged to drink large quantities of fluids the day before the operation; third, because all arteries are tied before they are cut, and hæmorrhage during most operations is a thing of the past; fourth, because operations that used to take an hour, now take twenty minutes, and as the bowels are no longer exposed, there is no need for keeping the operating room at a temperature of 80° to 90°, which caused profuse sweating and thirst; fifth, in the rare cases in which the

operation has lasted more than an hour, or much blood has been lost, we replace it by putting a gallon of normal salt solution into the abdomen, or a pint every four hours per rectum very slowly. If rectum is irritable and will not retain it, five or ten drops of laudanum in starch will quiet it.

GETTING UP.—Although the patients often feel able to get up a few days after their operation, and could do so with impunity, their wound being closed in most cases with through and through silkworm gut sutures, yet there is little to be gained by their doing so. They were sick women when they came for operation, most of them anæmic, and a few weeks in bed near sunny window would do them good anyway. Added to the illness which brings them to us, there is to be added the anæsthetic, the operation, the pain and the morphia; all things which make them more ill.

The author has tried getting them up early, and has found that at the end of four weeks they were not so well as those who remained in bed three or four weeks. He found it advantageous, however, to allow them to sit up in bed frequently during the third week, and to allow them to walk about the hospital, and even to go up and down stairs the fourth week. They are also encouraged to move their legs frequently while lying in bed.

ROUTINE.—Some maintain that each case requires a different treatment, but the author claims that it is a great saving of wear and tear on everybody connected with the case to formulate definite rules for the after-treatment of laparotomies, and to abide by them, allowing the house surgeon or head nurse to vary them a little at their discretion, but also at their peril.



SOCIETY MEETINGS

NOVA SCOTIA MEDICAL SOCIETY.

THE arrangements for the approaching meeting of the Nova Scotia Medical Society at Windsor, July 3rd and 4th, are now nearing completion.

Dr. Alexander MacPhedran, of Toronto, will give an address in Medicine, taking as his subject "The Early Diagnosis and Treatment of Cancer of the Stomach."

The address in Surgery will be delivered by Dr. Edward Archibald, of Montreal.

The President, Dr. J. B. Black, M. P., and his Committee of Arrangements at Windsor, have prepared an attractive programme of entertainment, and a pleasant and profitable meeting in the classic old town is assured.

Railway arrangements have been made, whereby the D. A. R. will honour standard certificates originating on other Nova Scotia lines.

LUNENBURG-QUEENS MEDICAL SOCIETY.

The annual meeting of the Lunenburg-Queens Medical Society was held at Bridgewater, Tuesday afternoon, June 11th.

There was a good attendance of members from all parts of the county.

The newly-elected officers are:

President—Dr. R. H. Burrell, Lunenburg.

Vice-President—Dr. S. S. Slauenwhite, Rose Bay.

Secy.-Treas—Dr. W. H. Macdonald, Rose Bay.

Executive—Dr. N. P. Freeman, Bridgewater, Dr. Dugald Stewart, Bridgewater.

Several interesting case reports were given, and general discussions followed.

This society has been a great success, and has proven itself very helpful to the members individually, and the profession generally. The present friendly relations and the general spirit existing, are largely a result of these meetings.

There is no doubt concerning the great value of County Societies.

The next meeting of the Lunenburg-Queens Society will be held at Rose Bay in August.

CAPE BRETON COUNTY MEDICAL ASSOCIATION.

A special meeting of the physicians of C. B. county took place in Sydney recently, for the purpose of organizing a Cape Breton County Medical Association.

Dr. J. K. McLeod was appointed chairman, and Dr. Egan, secretary, pro tem.

Dr. Sparrow moved that a County Medical Association be now formed.

Dr. Morrison, Dominion, remarked the absence of so many Sydney and

North Sydney doctors, and raised the question of the advisability of re-organizing in the face of the lack of interest shown by the doctors from these places.

Dr. Murphy spoke for the colliery doctors, and stated that these men were anxious to resurrect the society. He reasoned out the many ways in which every doctor in the county would be benefitted by frequent

meetings of a good, active society. The motion carried.

Dr. Kendall suggested the appointment of a county president and two vice-presidents, one at Glace Bay and one at North Sydney, and the holding of the regular annual meeting at Sydney, as well as the half-yearly meeting, the quarterly meetings to be held in Glace Bay and North Sydney; a vice-president also to be appointed at either place, which officer shall act as chairman of the respective quarterly meetings and be held responsible for the success of the meetings in their respective sections. This suggestion was later acted upon.

The presidency for the next year was tendered to Dr. E. Kendal. On motion of Dr. Egan, Dr. Bruce was appointed secretary-treasurer. Vice-

presidents, Dr. Morrison and Dr. R. C. McLeod: Four general committees were then appointed on the subjects of Medicine, Surgery, Obstetrics and Eye and Ear.

Medicine.—Dr. W. J. Egan, Dr. J. K. McLeod and Dr. T. H. Smith.

Surgery.—Dr. McKeen, Dr. Roy and Dr. Louis Johnstone.

Obstetrics.—Dr. E. O. McDonald, Dr. J. W. McLean and Dr. F. O'Neil.

Eye and Ear.—Dr. McLellan, Dr. Wm. McLeod and Dr. J. J. McLennan.

The president, secretary and Dr. E. J. Johnstone were appointed a committee to arrange by-laws.

It was then decided to hold a meeting on July 5th to consider by-laws and arrange fully for the regular annual meeting.—*Cape Breton Paper.*

THE ANNAPOLIS-KINGS MEDICAL SOCIETY.

All who are interested in medical progress and in the welfare of the profession will be pleased to learn that on June 21st at Middleton a new county Medical Society was organized.

"The Annapolis-Kings Medical Society" came into existence under the most promising circumstances, and with every promise of a bright and useful career.

Fifteen practitioners, representing every part of Kings and Annapolis Counties, were present and elected the following as the first officers.

Dr. G. E. De Witt	—Wolfville	Presid. nt.
Dr. J. A. Sponagle	—Middleton	} Vice Pres.
Dr. P. N. Balcom	—Aylesford	
Dr. W. E. Read	—Middleton	Secy. Treas.
Dr. J. B. March	—Berwick	} Additional members of Executive.
Dr. L. P. Morse	—Lawrencetown	

Messages and letters were received from several of the medical men who were not able to attend the meeting, all of whom were enthusiastic.

Drs. F. S. L. Ford and W. H. McDonald of the "Lunenburg-Queens Medical Society" had been invited to be present and were in attendance assisting with many helpful suggestions.

They were elected honorary members of the new society.

The next meeting will be held at Berwick on August 2nd to take action on the report of the committee on By Laws, and to complete the work of organization.

Knowing something of the calibre and professional standing of the Annapolis-Kings medical men we look for great things from the new society.

This organization took definite proportions largely as a result of the circular letter sent out by the Lunenburg-Queens Society.

It is to be hoped that other counties not already possessing local societies will follow the example of the above.

NOTES ABOUT EXCHANGES.

DR. Edward L. Keyes, of New York city, reports in the June number (special one dollar issue) *Annals of Surgery*, observations upon a hundred patients suffering from Tuberculosis of Testicle. Fifty-three of these patients were observed after involvement of the second testicle had occurred. The paper is excellent and well deserves a place in this edition de luxe of the *Annals*.

The "merrie month of May" is dear to the fisherman, for it marks the opening of the season when he can engage in his favorite recreation. In accord with its policy of catering to the requirements of sportsmen, the May issue of *Rod and Gun and Motor Sports in Canada*, published by W. J. Taylor, at Woodstock, Ont., which appears in a fine appropriate cover, contains stories dealing with fishing in five of the provinces of Canada—New Brunswick, Nova Scotia, Quebec, Ontario and British Columbia. In addition there are papers of general interest to fishermen, chief amongst them being one on "A Few Hints on Flies for Lakes and Streams," by Walter Graves—hints which the amateur fisherman will welcome, and from which even the experienced may learn. Fishing, however, is not all, for the lovers of

out-door life in any of its forms can always find something to interest and delight them in this magazine. A capital descriptive account of the Automobile, Motor Boat, and Sportsmen's Show at Montreal is given, and hunting, mountaineering, boating, trap shooting and kindred subjects are all covered in a manner which testifies to the increasing interest in these matters throughout Canada.

Wellcome's Photographic Exposure Record and Dairy.—This handy, tastily-gotten-up little publication not only gives a clear explanation of the principles which underlie correct exposure, but puts its precepts into practice in a delightfully simple way by providing a mechanical calculator which enables one to determine the proper time of exposure under any circumstances with the utmost ease. The book is a compact compendium of photographic information and is the constant companion of many of the most distinguished and successful photographers of to-day. In addition, it provides a pocket note-book, a diary, and ruled pages for systematically recording exposures in the field or at home. It is published by Burroughs, Wellcome & Co., Montreal.

PERSONAL PARAGRAPHS.

Mr. W. W. Kenney, superintendent of the Victoria General Hospital, Halifax, was elected Vice-President for the Maritime Provinces, at the organization meeting of the Canadian Hospital Association held at Toronto, in April. Dr. J. N. E.

Brown, Toronto, is secretary of the new society.

Drs. B. A. LeBlanc, H. D. Chisholm and J. Macdonald, recent graduates of Dalhousie, have been appointed house surgeons to the Victoria General Hospital.

The NEWS extends its deep sympathy to Dr. H. H. Read, in the death of his daughter, Carolyn McColl, and to Dr. E. A. Kirkpatrick, in the sad drowning of his father, George Kirkpatrick.

Dr. J. S. Carruthers has removed from Pleasant Street to 133 Spring Garden Road.

Dr. A. A. Schaffner has removed from 243 Brunswick Street to 24 Brunswick Street.

Dr. M. A. O'Brien, of Noel, was married on the 12th inst. to Miss Clara Alice Putnam, of Maitland. The NEWS extends its congratulations.

Dr. E. R. Faulkner, formerly of Mahone, recently passed in London the final examination for the Fellowship of the Royal College of Surgeons. His many friends will heartily congratulate Dr. Faulkner in now possessing a qualification which very few in Canada possess.

Lieut. Colonel Murray MacLaren has been appointed to the position of Principal Medical Officer of the 8th military district in place of the late Dr. J. E. March.

Major T. D. Walker has been appointed Officer Commanding No. 8 Field Ambulance to succeed Lieut. Colonel Murray MacLaren.

Dr. D. A. and Mrs. Campbell have recently returned from their trip to Baltimore and other cities.

Lieut. Colonel J. A. Sponagle has been appointed Medical Inspector of the approaching military camps at Sussex and Charlottetown.

Dr. L. W. Johnstone, of Sydney Mines, while inspecting the sanitary condition of the shacks occupied by Italians back of the steel plant recently, was attacked by some of them, who made it so hot for him that he was compelled to telephone for police convoy. Dr. Johnstone reports that the sanitary condition of that locality is in a very bad state.

The Evans Vacuum Cap advertised in this issue has proven of considerable merit, as seen in cases known to the writer. It is a rational apparatus for promoting massage and increased blood supply to the scalp.

CURRENT MEDICAL LITERATURE.

Reprints Received.

TRYPsin in Cancer"—a preliminary statement, by William Seaman Bainbridge, M. S., M. D., New York.

"The Examination of the Heart," by Sir William H. Broadbent, Bart., K. C. V. D., F. R. S., London.

"The Treatment of Coryza," by E. S. McKee, M. D., Cincinnati, Ohio.

"The True Ground for State Regulation of the Healing Art," an edi-

torial article on the New (Missouri) Medical Bill and its Critic, reprinted from the *St. Louis Medical Journal*.

"Achlorhydria," by Charles D. Aaron, M. D., Detroit, Michigan.

international Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. Volume I, Seventeenth series, 1907. Price \$2.25 per volume. Published by J. B. LIPPINCOTT COMPANY, Philadelphia; Canadian Representative, Charles Roberts, Montreal.

Dr. L. F. Barker, of Johns Hopkins University, is the writer of the first

article "On the Psychic Treatment of Some of the Functional Neuroses". An admirable elucidation on the above subject might well be expected from the pen of Osler's successor, and herein is found sound and practical advice which will well repay every general practitioner to peruse.

"The Treatment of Functional Heart Disease," by J. J. Ward, M. D., Ph. D., of the New York Polyclinic, and "The Functional Capacity of the Heart," by G. W. Norris, A. B., M. D., of the Philadelphia General Hospital, are likewise instructive articles. "The

Progress of Medicine during 1906," comprising over 100 pages, is divided into three sections: "Treatment," by A. A. Stevens, M. D., of Philadelphia, "Medicine," by David L. Esdall, M. D. and Verner Nisbet, M. D., of Philadelphia, and "Surgery," by Joseph C. Bloodgood, Johns Hopkins University. Herein will be found a resume of the advances in medicine during the past year. Many other valuable articles by well known observers are written in this volume, while the usual number of excellent plates and figures further enhance its pages.

OBITUARY.

Dr. A. D. McGillivray.

AFTER a tedious illness lasting over two years, Dr. A. D. McGillivray died at his residence, King's Road, Sydney, in his 66th year. The cause of death was paralysis. The late Dr. McGillivray was the oldest physician in the county of Cape Breton, having undertaken the practice of his profession in the year of his graduation from Bellevue in 1863, at Sherbrooke, N. S. He came to Sydney in 1865, and for forty years was the chief practitioner in Sydney and the surrounding country. He leaves two sons, Gordon and Stanley, and two daughters, Mrs. Brown and Mrs. Parker.

The death of Dr. McGillivray will be regretted by the large body of citizens of Sydney, but more especially by those of the older generation, who remember him as a gentleman of generous disposition and great public spirit. He was always active in the promulgation of progressive movements and took a broad interest in the welfare of the city, both morally, socially and materially. The late Dr.

McGillivray was a member of Falmouth Street Presbyterian church since its establishment, and was prominent in all forward movements of that body. In politics he was a staunch and consistent liberal. He was also a prominent member and past master of St. Andrew's Lodge of Masons, a member of Prince of Wales Chapter R. A. Masons, a member of the Nova Scotia preceptory No. 5, and charter member of Cape Breton Templars, and a P. D. G. M. He was also surgeon of the 29th Highlanders for many years.

*

Dr. H. P. Clay.

The sudden death of Dr. H. Pineo Clay was a shock to the community of Pugwash and to his many confreres in this province. The doctor was apparently in good health on the evening of the 14th inst., and attended a social in the Methodist church, afterwards visiting some of his patients, reaching his home about 12 o'clock. He then complained of feeling very ill. Dr. McIntosh was summoned, but before he reached the

bedside, Dr. Clay had become unconscious and never after rallied. Death took place about 7.30 on the morning of the 15th inst. He leaves a widow and four children, the oldest Madeline, who is at present teaching at Springhill.

Dr. Clay was a son of Rev. Dr. Clay, who was pastor of the Baptist church at Pugwash for many years, afterwards immigration agent at Halifax. His mother, who resides with her son Frederick, was the daughter of the late Hon. H. G. Pineo, who for years represented this county. The doctor was 49 years of age. His renown as a physician will live after him, and there are subjects of miraculous recovery due to the skill and untiring nursing and attention of the doctor.

In the death of Dr. Clay, the medical profession loses one of its brightest practitioners, Pugwash one of her brilliant and honored sons, and the family, a loving father. The doctor was an earnest worker in public af-

fairs, and his energetic and successful efforts in stamping out that dread disease, small-pox, which recently appeared in nearly every section of the county of Cumberland, will long be remembered and appreciated.

He took a deep interest in public health matters, and was a strong advocate of the recently formed Provincial Health Association. He also was a regular attendant at the meetings of the Medical Society of Nova Scotia, and a contributor of many valuable papers. He was a conservative in politics, and a faithful worker in his party's interests. The doctor was a generous-hearted man, who valued lightly the treasures of this life, and while perhaps not seeing in some instances eye to eye with all, still he will long be remembered for his brilliant abilities and his many and charitable acts. The family has the sincere sympathy of the medical profession of this province in their sad affliction.



HALIFAX MEDICAL COLLEGE.

The teaching staff of the Halifax Medical College has been completely reorganized. The personnel of the Faculty as it now stands is given below. Further particulars will be found in the College Calendar, which is now being issued.

ALEXANDER P. REID, M. D. C. M., McGill; L. R. C. S., Edin., L. C. P. & S., Can., Emeritus Professor of Medicine.

H. McD. HENRY, Justice Supreme Court; Emeritus Professor of Medical Jurisprudence.

JOHN F. BLACK, B. A., M. D., Coll. Phys. and Surg., N. Y.; Emeritus Professor of Surgery and of Clinical Surgery.

GEORGE L. SINCLAIR, M. D., Coll. Phys. and Surg., N. Y.; M. D., Univer. Hal.; Emeritus Professor of Medicine.

JOHN STEWART, M. B., C. M., Edin., Emeritus Professor of Surgery.

G. CARLETON JONES, M. D., C. M., Vind., M. R. C. S., Eng.; Emeritus Professor of Public Health.

DONALD A. CAMPBELL, M. D., C. M., Dal.; Professor of Medicine and Clinical Medicine.

A. W. H. LINDSAY, B. A., M. D., C. M., Dal.; M. B., C. M., Edin.; Professor of Anatomy.

F. W. GOODWIN, M. D., C. M., Hal. Med. Coll.; L. R. C. P., London; M. R. C. S., Eng.; Professor of Pharmacology and Therapeutics, and Assistant Professor of Medicine.

M. A. CURRY, B. A., Vind., M. D., Univ. N. Y.; L. M., Dub., Professor of Gynaecology.

MURDOCH CHISHOLM, M. D., C. M., McGill; L. R. C. P., Lond., Professor of Surgery and of Clinical Surgery.

NORMAN F. CUNNINGHAM, M. D., Bell. Hosp. Med. Coll.; Professor of Medicine.

LOUIS M. SILVER, B. A., Vind. M. B., C. M., Edin., Professor of Physiology and of Clinical Medicine.

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W. H. HATTIE, M. D., C. M., McGill; Professor of Nervous and Mental Diseases.

MONTAGUE A. B. SMITH, M. D., Univ. N. Y., M. D., C. M., Vind.; Professor of Clinical Medicine and Medical Diagnosis.

E. A. KIRKPATRICK, M. D., C. M., McGill, Professor of Ophthalmology, Otolaryngology, etc.

F. U. ANDERSON, L. R. C. S., and L. R. C. P., Edin.; M. R. C. S., England; Professor of Obstetrics.

A. I. MADER, M. D., C. M., McGill; Professor of Clinical Surgery.

C. E. PUTTNER, Pharm. D., Hal. Med. Coll.; Professor of Practical Materia Medica.

E. V. HOGAN, M. D., C. M., McGill; M. R. C. S., Eng.; L. R. C. P., Lond.; Professor of Clinical Surgery and of Operative Surgery.

F. J. F. MURPHY, Bell. Hosp. Med. School, Professor of Clinical Surgery.

L. M. MURRAY, M. D., C. M., McGill; Professor of Pathology and Bacteriology.

W. F. O'CONNOR, LL. B., and B. C. L., Legal Lecturer on Medical Jurisprudence.

THOMAS TRENAMAN, M. D., Col. P. and S., N. Y.; Lecturer on Practical Obstetrics.

W. B. ALMON, M. D., C. M., Dal.; Senior Demonstrator of Anatomy.

J. R. CORSTON, M. D., C. M., Dal.; Demonstrator of Histology.

J. J. DOYLE, M. D., C. M., McGill; Lecturer on Hygiene.

A. R. CUNNINGHAM, M. D., Lecturer on Pathology and Bacteriology.

JAS. ROSS, M. D., C. M., McGill; Clinical Lecturer on Skin and Genito-Urinary Diseases.

K. A. MACKENZIE, M. D., C. M., Dal.; Lecturer on Medical Jurisprudence, and Assistant in Materia Medica.

M. A. MACAULAY, M. D., C. M., Dal.; Junior Demonstrator of Anatomy.

Extra-Mural Lecturers.

E. McKAY, B. A. Dal.; Ph. D. J. H. U., Professor of Chemistry at Dalhousie College.

—, Lecturer on Botany at Dalhousie College.

—, Lecturer on Zoology at Dalhousie College.

A. S. MACKENZIE, Ph. D., Professor of Physics at Dalhousie College.

E. D. FARRELL, M. D., C. M., Dal., Lecturer on Clinical Surgery.

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*

SPINAL CORD COMPLICATIONS OF ANÆMIA.

With increased knowledge of the anatomy and physiology of the brain and spinal cord, there is a growing opinion among careful clinical observers that many of the nervous phenomena accompanying general anæmia can be directly attributed to resulting changes in the nervous system. The spinal cord complications of pernicious anæmia have been recognized for some time, and it is no uncommon thing in these cases to find pronounced degenerative areas throughout the cord. The posterior columns and occasionally the lateral are most often involved, the nerve fibres being chiefly affected, without however, the extreme shrinking usually observed in locomotor ataxia. While there can be no doubt that these conditions depend to a certain extent on the blood changes incident to the anæmic process, it is more than probable that the toxins resulting from the attending hæmolysis exert direct injury on the nerve cells.

Fortunately the ordinary anæmias are not attended by such extreme

changes, and the resulting symptoms, with their speedy control under appropriate treatment, point to a functional, rather than an organic origin. These symptoms, while extremely variable, usually consist of constant and pronounced backaches, especially in the cervical and dorsal regions, sensitive areas along the spinal column, variations in the spinal reflexes, parasthesias generally, and often times irritability of the anal or vesical sphincters. Headache is frequently complained of, although the patient is usually able to sleep. The symptoms referable to the sexual function are also extremely variable, especially in the female, and range all the way from absolute frigidity to positive nymphomania.

Frequent reference is made to the heart by these anæmic patients, and while there symptoms may be somewhat due to the changes in the blood current, there can be no question that the sympathetic nerves suffer in the general involvement of the nervous system, and may therefore be directly responsible for the arrhythmia, tachycardia, etc., so often complained of.

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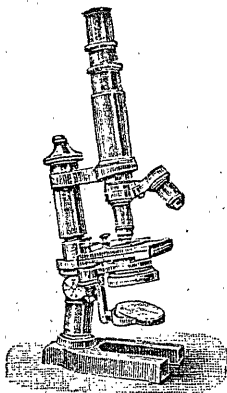
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when thus treated, will be exceedingly gratifying to the zealous practitioner. He, more than anyone else, realizes the danger of letting young females thus afflicted drag along indefinitely, for he knows that the psychic influence of long continued sensory disturbance is extremely prone to develop and magnify any hysterical tendencies however latent. Early and efficient treatment is therefore not only desirable, but urgently necessary, and Pepto-Mangan (Gude) will never prove disappointing.

EVERY PHYSICIAN KNOWS.

Every physician knows full well the advantages to be derived from the use of antikamnia in very many diseases, but a number of them are still lacking a knowledge of the fact that antikamnia in combination with various remedies, has a peculiarly happy effect; particularly is this the case when combined with salol. Salol is a most valuable remedy in many affections; and its usefulness seems to be enhanced by combining it with antikamnia. The rheumatic conditions so often seen in various manifestations are wonderfully relieved by the use of this combination. After fevers, inflammations, etc., there frequently remain various painful and annoying conditions which may continue, namely: the severe headaches which occur after meningitis, a "stitch in the side" following pleurisy, the precordial pain of pericarditis, and the painful stiffness of the joints which remain after a rheumatic attack—all these conditions are relieved by this combination called "Antikamnia and Salol Tablets," containing $2\frac{1}{2}$ grs. each of antikamnia and of salol, and the dose of which is one or two every two or three hours. They are also recommended highly in the treatment of cases of both acute and

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DERANGED UTERINE FUNCTION.

By JAMES A. BLACK, M.D., Morgantown, Pa.

It is safe to say that the average physician, who is confronted almost daily with the ordinary cases of suppressed and deranged uterine function, no other class of cases is so uniformly disappointing in results and yields so sparing a return for the care and time devoted to their conduct.

Patients suffering from disorders of this nature are usually drawn from the middle walk of life, and, by reason of the pressure of household duties or the performance of the daily tasks incidental to their vocation, are entirely unable, in the slightest degree, to assist, by proper rest or procedure, the action of the administered remedy.

Many of these patients, too, suffer in silence for months, and even when forced by the extremity of their sufferings to the physician, shrink from relating a complete history of their condition, and absolutely refuse to submit to an examination. Authoritative medical teaching and experience unite in forcing upon the attendant a most pessimistic view of his efforts in behalf of these sufferers under such conditions.

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The eminent Dr. I. N. LOVE, in his address to the Medical Board on the subject of Alopecia (loss of Hair) stated that if a means could be devised to bring nutrition to the hair follicles (hair roots) without resorting to any irritating process, the problem of hair growth would be solved. Later on, when the EVANS VACUUM CAP was submitted to him for inspection, he remarked that the Cap would fulfill and confirm in practice, the observations he had previously made before the medical board.

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gravating condition of affairs exists. A very limited list of remedies of demonstrated value is presented for selection, and I believe I am not wide of the mark in saying that, in the hands of most practitioners, no remedy or combination of remedies hitherto in general use has been productive of anything but disappointment.

Some time ago, my attention was drawn to Ergoapiol (Smith) as a combination of value in the treatment of a great variety of uterine disorders. Its exhibition in several cases in my hands yielded such happy results that I have used it repeatedly in a considerable variety of conditions, and with such uniformly good results that I am confirmed in the opinion that its introduction to the profession marks an era in modern therapeutics. In the treatment of irregular menstruation and attendant conditions I have found it superior to any other emmenagogue with which I am familiar, in the following particulars:

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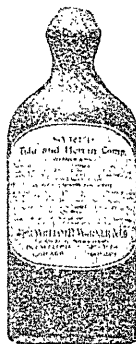
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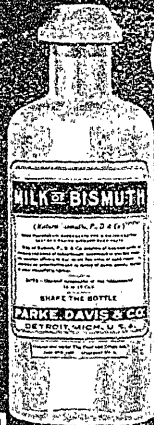
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