

Desiring to make a practical, useful journal for the General Practitioner, the Editors respectfully solicit Clinical Reports from subscribers and others.

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Original Articles

A SURGICAL PROCEDURE FOR THE RELIEF OF OVARIAN TENSION-PAIN.*

H. HOWITT, M.D., GUELPH, ONT.

Is not pain frequently, if not usually, caused by abnormal tension, either of the gross tissues of the affected part sufficient to irritate the sensitive nerve filaments, or in some portion of the nerve trunk which supplies it? In my opinion, the answer should be in the affirmative. Experience in regard to the relief of pain leads me to go so far as to make the statement that without increased tension in a nerve, or what comes to the same thing, of the tissues surrounding it or its delicate terminals, it is just as impossible to have pain as it is to have sight without vibration in the all-present ether. The condition is easily recognized in oschitis and many other painful affections, while in others it is difficult to demonstrate clearly. Viewing painful affections from this standpoint may not enlighten us in reference to the etiology, but not unfrequently it will be of considerable aid in regard to successful treatment.

The abnormality in tension, to which particular attention is desired to be directed, is that which occasionally arises in the ovary from a perverted condition of the oöphoron, that is, the

* Read before the Canadian Medical Association, Winnipeg, Aug. 30th 1901.

parenchymatous or cortical zone which contains the graafian follicles. Here, owing to some obscure cause which is probably at times congenital, but more frequently acquired, the surface of the oöphoron becomes too dense and unyielding to permit rupture of matured graafian vesicles in the normal way. Hence, ovulation is deranged or completely arrested, according to the resistance that exists. The result is that the ovary increases in size, loses its normal, flattened, ovoid contour and becomes rounded, while at the same time its weight and tension are increased. The increase in weight often leads to more or less prolapse of the organ. To the eye its surface presents less corrugations and a more fibrous appearance than the normal organ does, and frequently there are tense globular elevations on it, the summits of which have a glistening bluish tint indicating how nature is endeavoring to perform its work under difficulties. In gynecological works the disease is generally called cystic degeneration of the ovary. Ovules have been frequently found in the cysts, thus demonstrating clearly their origin. It is well to bear in mind that ovulation is not the only function of the ovary. It plays an important role in producing the influences which govern menstruation, and like other ductless glands probably supplies the lymphatic, blood, or nervous system with a secretion, excretion or stimulus, which is essential to perfect womanhood. Recent researches in this line have produced facts, which very forcibly indicate that arrest of ovulation during the fruitful period does not signify cessation of the other functions.

The etiology of the abnormal condition of the ovarian cortical zone is obscure. It is generally more common in women who have been reared in indolence and whose physical development and probably moral training have been, in a measure, neglected. The symptoms which pertain to the disease are too well known to require further enumeration than to state that ovarian pain, various reflex disturbances, a morbid craving for sympathy and concentration of mind on self are the main features of them. But there are physical signs. A careful bimanual examination will, in the majority of instances, reveal enlargement, change of contour, increased tension (hence pain) and often prolapse of one or both ovaries. The affection generally, though not invariably, commences at puberty. It is aggravated by marriage. Very frequently the medical attendant, after cursory inquiry, mentally designates the trouble by the comprehensive term "hysteria," and considers he has done everything that is necessary when a placebo or nauseous mixture is prescribed. Whatever the etiology may be, the resulting tension arising from the

accumulation of enlarged graafian follicles produces suffering and a train of perplexing nervous symptoms that demand some means of relief. Drugs have no influence in regard to permanent relief, and at best they only allay symptoms. Sedatives, especially opiates, far too frequently add a habit that is more grave than the disease.

Castration has too often been the surgical treatment in the past and certain articles contributed to medical publications by the late talented Lawson Tait are in a great measure to blame for what was once an actual craze. Fortunately in the treatment of it the tide of opinion has turned against the adoption of this mutilative procedure, which is founded on error, highly objectionable on moral grounds and exceedingly disappointing as regards ultimate results. As a Canadian, I will ever remember with pride the stand taken by an honored member of the Canadian Medical Association at the Ninth International Medical Congress, held at Washington, in 1887, when the craze was at its height. During the discussion of the subject, if my memory does not err, Sir William Hingston was the only person who spoke against it in no uncertain terms of condemnation.

Medication being insufficient and castration condemned, how, then, is the patient to obtain relief? It is my belief, based on observation and considerable experience, that in this disease a comparatively simple operation is all that is required, not only to remove the aggravating symptoms, but probably to restore normal ovulation, and not unfrequently prevent the development of those ovarian tumors that originate in the oophoron.

Before a description of the surgical procedure is given, it is probably better to outline the conditions that should exist, in order to make it justifiable beyond a doubt : 1. The pain and general disturbance should be sufficiently severe to render the patient incapable of attending to her ordinary duties, of considerable duration, and not amenable to judicious medical treatment. 2. The surgeon, as a rule, should be able to satisfy himself by examination that the ovaries are somewhat enlarged, more or less rounded in shape, tense and abnormally sensitive. 3. There should be a history of aggravation of the symptoms before or during menstruation, and by anything that tends to excite ovulation.

The operation is quite simple, and requires only a short time for its performance. The ovary is exposed and guarded by a sterile sponge or gauze, then a number of cross-cuts are quickly made through the dense capsule in such a manner as to divide it into small islands not more than a square line in extent. The tension is manifested by the way the first incision gapes. All

cysts are opened; those larger than a grape are enucleated, while the cavities of the smaller are merely touched with pure carbolic acid.

Occasionally the capsule will be found to be as thick as ordinary paste-board, and when this is the case, permanent relief is more likely to result when a portion of it is removed. In my practice, one or two rows of the islands are shaved off first from end to end of organ, and then from side to side, thus exposing a cross of denuded tissue. Not a particle of normal ovarian tissue is removed. At the completion of the procedure, the organ is not only reduced in size and weight, but it regains its normal shape. Hemorrhage has never been troublesome, nor in a single instance have adhesions afterwards given rise to complications. The relief of pain and the worrying reflex manifestations have been highly gratifying.

In all, my cases number fourteen. In five of them the trouble was in a manner stumbled upon after making the abdominal incision with quite another object in view. I will briefly relate two of them :

Mrs. H. P., aged 32; married eight years; no children; severe pain in ovarian region; unable to attend to her duties. Uterus ante-flexed, not fixed; cervix very small, with pin-hole os. Owing to pain, ovaries not palpable; regular as regards periods; pain aggravated before and during flow. In 1896, under anesthesia, cervix dilated fully with Hegar's dilators; no relief, rather otherwise. A year and a half ago did operation described above, including removal of portion of capsule. Patient relieved, and is now in the seventh month of pregnancy. The result, though it does not prove, at least indicates that after the function of ovulation is arrested by the disease, restoration is possible.

The other case presents some very interesting features. Miss J. J., a farmer's child; good family history; quite healthy until her tenth year, when she had an attack of pain in cecal region, with considerable gastric disturbance which necessitated rest in bed for a few days. Until the commencement of her eleventh year, she had similar attacks at irregular times and of varying severity. In the intervals her general health was not as good as formerly, and besides, there was tenderness on pressure over the region.

In October, 1900, just before the completion of her eleventh year, an unusually severe attack occurred. A medical man was called, who had the child taken to the Guelph General Hospital. The symptoms in many details resembled very closely those of appendicitis; temperature 103, pulse quickened, marked

local tenderness over cecal region and immediately below it, with muscular rigidity; but no exudate was detected. The muscular rigidity and extreme tenderness of the part rendered a satisfactory examination without an anesthetic impracticable. The history of many former attacks, together with the gradually failing health, led us naturally to believe that we had a condition of the appendix often termed relapsing appendicitis, and appendectomy was considered advisable. When the child was placed on the operating table and anesthetised, no exudate nor other physical sign of appendix disease could be detected, and we postponed the operation. In a day or two the severe symptoms passed off, and her parents took her home. We heard no further word of the little girl until the 26th of July last, when her mother brought her again to the hospital, and requested that the operation should be performed, stating that since her daughter returned home last fall, the attacks had occurred regularly every three weeks with increasing severity, and that in the intervals she was too ill to attend school.

An examination under ether gave negative results. After making the usual incision for appendectomy, I brought the cecum into wound, and, on following the band of longitudinal fibres downward with index finger, a smooth, rounded, and tense body was reached. Believing the hardened mass to be distention of the distal portion of appendix, it was carefully brought into view; it proved to be the right ovary distended by numerous small cysts. The thickened capsule and the enlarged graafian vesicles were treated as mentioned in the other case, except that none of the capsule was removed. The appendix was hardly more than an inch in length and perfectly healthy. The left ovary was reached with finger, and to touch appeared in every respect normal. Up to the present time there has been complete relief of all the distressing symptoms, and although the time that has elapsed is too short for me to speak definitely, it is my opinion, based on results in other cases, that the cure will prove to be permanent.*

The girl has never been unwell, hence the inference is that ovulation occurs at a considerably earlier period of life than menstruation. In my experience, I can recall several instances in past years of the trouble occurring in girlhood before the establishment of menstruation. At the present moment two of these are vividly impressed on my memory; both puzzled me at the time. In one the pain was on the right side, while in the other the pain was on the left. In the intervals between the

* May 1, 1902. Patient enjoys perfect health, no attack since operation.

severe attacks, one of them was unusually the picture of health, but the other could never be said to be well. In each, the severity of the attacks varied; sometimes the temperature would rise to 103, accompanied with considerable disturbance of pulse, severe pain and rigidity of abdominal muscles. On these occasions, it took fully a week before patients could leave bed. Occasionally the interval between attacks would be six to eight weeks instead of three or four.

One of them afterwards had her appendix removed with disappointing results; the other consulted a celebrated American surgeon, who dilated the cervix uteri, but her attacks of suffering have not been arrested. The object of the operation may be said to include not only relief of suffering, but also the restoration of a very important function, and when the procedure is confined within its limited field the results leave little room for improvement.

In conclusion, let it be understood distinctly that nothing original is claimed by me in regard to the procedure, for it is more than probable that others have long ago adopted a similar method of dealing with the disease.

ON THE NATURE OF THE DISEASE KNOWN AS ERYTHEMA INDURATUM
SCROFULOSORUM.

A. Whitfield: From observation of two cases (*Amer. Jour. of the Medical Sciences*) one in a girl of fourteen years and one in a woman of thirty-seven, the author concludes that there are at least two forms of this disease. One of these is essentially indolent, chiefly affects adolescent girls, and is in some cases undoubtedly caused by the living tubercle bacillus. In the author's case the ulcers were situated on the back of the legs and on the dorsa of both feet. Two were excised, and examined microscopically as well as inoculated into guinea-pigs. While the structure was that of tubercle (epithelioid cells and some giant cells) lying deep in the subcutaneous tissue, the inoculated animals did not develop tuberculosis. This may be due to the fact that, as the lesions are non-progressive, dead tubercle bacilli may cause them. The girl was completely cured in forty-five days under treatment with thyroid colloid in half-grain doses, and the applications of yellow oxide of mercury ointment to the ulcers.

The second variety affects women of middle age, usually those who suffer from some form of cardiac weakness; it is more acute, more amenable to treatment by rest in bed, and has nothing to do with the tuberculous process.—*Archives of Pediatrics*.

Clinical Reports

CLINICAL NOTES ON THE USE OF UROTROPIN IN PYURIA.*

BY FREDERICK FENTON, M.D., C.M.
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I have here the notes of three cases which I have selected, owing to their diversity, which illustrate very markedly the influence of urotropin, as a genito-urinary antiseptic.

Case 1. Mrs. A. H., aged 39. The subject of chronic interstitial nephritis of several years' standing. In September last she suffered from an acute pain in the right lumbar region, which radiated round the right flank and down into the pelvis. The temperature and pulse were both elevated. There was a marked pyuria, especially in the morning, the pus lessening very much toward night. There were no red blood corpuscles in urine, but some epithelial cells, and a few hyaline and granular casts. Three attempts were made to secure an X-Ray picture of the region, with the hope of demonstrating calculus, but without result. The bladder was explored, both with sound and cystoscope, without finding anything to account for symptoms. Patient would not hear of exploratory operation. Urotropin was given in ten-grain capsules, four times a day, and was followed in the course of five or six days by the disappearance of pus from the urine.

On one or two occasions since she has had attacks of the old trouble, which have promptly responded to the same treatment. For the last four months she has been free from these attacks, and greatly improved in health.

Case 2. A. W. R., age 22. About tenth of December last was seized with pain in the back, which lasted for a few days, and was associated with, and followed by, a cloudy condition of the urine. Patient says he has never had gonorrhoea, nor could anything be found, either before or after passing a sound, by local examination, or with the microscope, to lead me to believe otherwise. No stone was found in bladder. Urine was filled with pus, as demonstrated by chemical and microscopical means. Reaction, faintly acid; specific quantity, 1018; no casts or

* Read before the Toronto Clinical Society, May 7th, 1902.

red blood corpuscles, but a few epithelial cells. Filtered urine showed no albumin, but a very marked precipitate of phosphates on boiling. Patient was given urotropin in same manner as Case 1 on December 27th. On the 29th he reported himself as very much better. Urine has become steadily clearer since beginning the capsules, until a sample passed in my office two days after beginning the drug, is absolutely clear and without deposit. The sample was peculiar, however, in that the specific quantity was only 1001, and without odor or appearance of urine. At a subsequent examination, the urine was found normal in every respect.

Case 3. R. S., aged 76. A very feeble old man, with marked arterial degeneration. For a long time he has had pain and difficulty in passing water, with frequent nocturnal micturition. Examination per rectum showed a markedly enlarged prostate gland. The urine was dirty, and contained large quantities of blood-stained mucus, which adhered tenaciously to the vessel, and appeared to have much to do with his difficulty in passing water. The microscope showed pus cells in large quantities, epithelial in great amount, and a considerable number of red blood corpuscles, with a very few granular casts. Filtered urine gave a trace of albumin. He was ordered four six-grain capsules of urotropin, and bladder irrigation twice daily. The latter was never carried out, the attendant being unable to pass the catheter. Returning in a few days, and finding marked improvement, I determined to omit the washing, and see what the medicinal treatment would accomplish, unaided by local means. Within a week from the time urotropin was begun the urine was infinitely better, the blood having disappeared, the mucus very small in amount, while the sample was almost clear to the naked eye. The treatment was continued for two weeks longer, when only the merest traces of pus could be found with the microscope, while the mucus was only seen as an occasional thread. The patient is no longer bothered with frequent desire to pass water, and tells me that the urine which stands over night is as clear and free from deposit as in his younger days.

Physicians' Library

Syphilis, a Symposium. Contributions by Seventeen Distinguished Authorities. Price, \$1.00. Publishers, E. B. Treat & Co., New York.

The contents of this little book consists of a number of short articles on syphilis that appeared in a "special number" of the *International Medical Magazine*. The list of authors contains some of the best-known syphilographers, the statements of whom may be depended upon.

It is gratifying, especially as syphilis is not exclusively a venereal disease, with victims among the dissolute only, to note that a majority of those qualified to pass judgment on the subject seem to agree that, with very few exceptions, it is a curable disease. The general practitioner for whom the articles were especially written will find this book valuable reading.

An American Text-Book of Pathology. Edited by LUDVIG HEKTOEN, M.D., Professor of Pathology, Rush Medical College, Chicago; and DAVID RIESMAN, M.D., Professor of Clinical Medicine, Philadelphia Polyclinic. Handsome imperial octavo of 1,245 pages, 443 illustrations, 66 of them in colors. Philadelphia and London: W. B. Saunders & Co. Canadian agents: J. A. Carveth & Co., Toronto. 1901. Cloth, \$7.50; sheep or half morocco, \$8.50 net.

The importance of the part taken by the science of pathology in the recent wonderful advances in practical medicine is now generally recognized. It is universally conceded that he who would be a good diagnostician and therapist must understand disease—must know pathology. The present work is the most representative treatise on the subject that has appeared in English. It furnishes practitioners and students with a comprehensive text-book on the essential principles and facts in General Pathology and Pathologic Anatomy, with especial emphasis on the relations of the latter to practical medicine. Each section is treated by a specialist, who is thoroughly familiar with his particular subject, and can best frame the theories and conclusions in an authoritative form. The illustrations, which are nearly all original, and of which 66 are in colors, are unsur-

passed in beauty by those in any similar work in the English language. In fact, the pictorial feature of the work forms a complete atlas of pathologic anatomy and histology.

Progressive Medicine, Vol. I., 1902. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by HOBART AMORY HARE, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, handsomely bound in cloth, 452 pages, five illustrations. Per volume, \$2.50, by express, prepaid to any address. Per annum, in four cloth-bound volumes, \$10.00. Lea Brothers & Co., Philadelphia and New York.

This is the first volume of the series of 1902, and it maintains the high standard of its predecessors. The contributors are: Charles H. Frazier, Surgery of the Head, Neck, and Chest; Frederick A. Packard, Infectious Diseases, including Acute Rheumatism, Croupous Pneumonia, and Influenza; Floyd M. Crandall, Diseases of Children; Ludvig Hektoen, Pathology; St. Clair Thomson, Laryngology and Rhinology; Robert L. Randolph, Otology. We have frequently commended this work, and continue to do so.

Morphinism and Narcomanias from Other Drugs. Their Etiology, Treatment, and Medico-legal Relations. By T. D. CROTHERS, M.D., Superintendent of the Walnut Lodge Hospital, Hartford, Conn.; Editor of the *Journal of Inebriety*; Professor of Mental and Nervous Diseases, New York School of Clinical Medicine, etc. Philadelphia and New York: W. B. Saunders & Co. Canadian agents: J. A. Carveth and Co. 1902.

This work has appeared at a very opportune time, as the treatment of patients suffering from narcomania is receiving a good deal of attention at the present time. The author, from his long association with this class of patients, is peculiarly fitted to describe the variable symptomatology of them. Although the greater part of the work is devoted to various aspects of morphinism, such as its treatment, medico-legal relations, etc., still there are chapters on the narcomanias from cocaine, ether, chloral, coffee, tea, and tobacco. We think that the work is an

excellent one and should prove of great value to every practitioner.

A Brief Manual of Prescription Writing in Latin or English. For the use of Physicians, Pharmacists, and Medical and Pharmaceutical Students. By M. L. NEFF, Hon. M.D. Philadelphia: F. A. Davis Company, 1901.

The author of this work presents the subject of medical Latin in a clear and concise form. The text contains sufficient to enable a student, though unfamiliar with the Latin language in a literary way, to write an intelligible Latin prescription. A number of valuable prescriptions are given as models, and blank pages are inserted at the end of the work, upon which the student or physician may copy prescriptions for reference. A table of incompatible drugs will be found a very useful feature of the book.

The International Medical Annual, 1902. A Year-Book of Treatment and Practitioners' Index. Price, \$3.00. Publishers: E. B. Treat & Co., New York.

This volume is a digest of the important medical literature which has appeared during the past year. The abstracts have been made by an able corps of editors, and no effort has been spared to make the work as thorough as possible. The value of the work to the practitioner can probably be best gauged by its large circulation. The price places it within the reach of all, and we know of no other work on medicine which will give as great a return for the money.

NEW BOOKS RECEIVED.

Atlas and Epitome of Operative Surgery. By DR. OTTO ZUCKERKANDL, Privatdocent in the University of Vienna. From the Second Revised and Enlarged German Edition. Edited, with additions by J. CHALMERS DACOSTA, M.D., Professor of the principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia, etc. Second Edition, Thoroughly Revised and Greatly Enlarged. With 40 colored plates, 278 text illus-

trations, and 410 pages of text. Philadelphia and London: W. B. Saunders & Co. 1902. Cloth, \$3.50 net. J. A. Carveth & Co., Toronto, Canadian agents.

Atlas and Epitome of Otology. By GUSTAV BRUHL, M.D., of Berlin, with the collaboration of Professor DR. A. POLITZER, of Vienna. Edited, with additions by S. MACCUEN SMITH, M.D., Clinical Professor of Otology, Jefferson Medical College, Philadelphia. With 244 colored figures on 39 lithographic plates, 99 text illustrations, and 292 pages of text. Philadelphia and London: W. B. Saunders & Co. 1902. Cloth, \$3.00 net. J. A. Carveth & Co., Toronto, Canadian agents.

THE TOILET OF THE NEWBORN INFANT.

Riva-Rocci (*Gaz. Med. Ital.*, January 30, 1902) recommends the following routine: (1) Insert the little finger in the mouth as far as the larynx and remove any mucus or foreign body there; (2) with one in 5,000 solution of perchloride and a tampon of sterilized wool wipe the outer surface of the eyelids; with a second tampon rapidly moisten the conjunctival sac with a few drops of this solution and carefully dry the external parts; as a rule no reaction occurs beyond a slight redness for a few hours; (3) with a third tampon cleanse the anterior nares; gonococcus infection here is not uncommon and is very intractable; a nasal douche has been suggested, but has its risks, and the author considers the other method efficient; (4) the bath should be of pure water: alkalies, soaps, and disinfectants are all irritating to the infant's skin; the only addition permissible is Unna's super-fatted soap; the bath should be at a temperature of 95 deg. F., so as not to produce cutaneous hyperemia and consequent nerve symptoms (in one case only is a hotter bath permissible—namely, in an asphyxiated child in whom the ordinary means of stimulating respiration have failed; it should then be given at 100 deg. to 104 deg. F.)—the bath may last ten or fifteen minutes, if needed for cleansing; (5) dry the child with warm cloths, but not too hot, a mistake often made; for rapid drying sheets of absorbent cotton are excellent; (6) powder the child with a fine absorbent powder, perhaps sterilized; an excellent one is Venetian talc and powdered starch, of each 1 3-4 oz., crystallized carbolic acid 3-4 gr., essence of lemon 10 minims; the whole surface should be evenly powdered, avoiding excess at any part.—*Brit. Med. Jour.*

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OUR LACK OF SELF-APPRECIATION.

No better example of the adage that a prophet is without honor in his own country can be found than the regard in which the leading men in the medical profession in Canada are held by their confreres. We do not mean to say but that such men are held in high esteem by their fellow-practitioners, and their abilities and pre-eminence thoroughly recognized, but we seldom or never hear a paper, nor read an article, in which any of our Canadian physicians or surgeons are quoted as authorities upon the subjects discussed. We can, on the other hand, find the opinions of Englishmen, Americans, Germans, in fact, men of every nationality except Canadians, quoted constantly and oftentimes; especially if the authority referred to be European, the foreign origin seems to add great weight to the opinions expressed. One might naturally infer that we had no men in Canada who could even approach the innermost circle of world-wide medical science. True, we have not many, and we as a nation have cer-

tainly added nothing like our share to the sum total of medical knowledge. Yet if we do not properly appreciate the men who have merited prominence amongst us, it is unlikely that outsiders will do so.

These considerations have been prompted by the fact that in Gould's Year-Book, just published, one of our surgeons is quoted at length on no less than four subjects: on hydatid cyst of the pancreas, on transplantation of the ureters, on tuberculosis of the seminal vesicles, and on prolapsus recti, the last an operation devised by him for the relief of the condition, and which is furthermore described fully in Bryant's "Operative Surgery." We have further in mind that another of our surgeons has been honored by admission *honoris causa* to fellowship in one of the most distinguished medical bodies in the world, an honor richly deserved by one who is probably the most widely educated, in the truest sense of the term, of any member of our profession in this country. Another one of the younger surgeons has recently had a case of recovery following operation for the relief of perforation in typhoid fever, and only a few days ago successfully removed Meckel's ganglion. Another gentleman contributes in a paper published in this issue an idea which will probably prove of great value in a very common and distressing condition. It is worthy of remark in connection with Dr. Howitt that some of his previous work—particularly in reference to intussusception in children—has been better known and more appreciated in the neighboring Republic than here.

We cannot but feel that nothing would so much contribute to a proper estimate of the abilities of our own men as the institution of a post-graduate course here, where practitioners would be brought closely in touch with our leading medical men, and be able to judge at short range the value of the work being done by them. Many of these practitioners would have previously attended post-graduate courses in foreign countries, and might at first be inclined to be critical, yet we believe that a Canadian post-graduate once on a sound footing would have nothing to fear from comparison with the clinics commonly patronized by Canadian graduates.

ANOTHER CAUSE OF CANCER.

Hutchison (*Archives of Surgery*, Vol. XI., No. 42) considers that many cases of multiple cutaneous sarcomata may be fairly attributed to the use of iodine and its salts. The *New York Medical Journal* thinks that some confirmation of this is found in the fact that warts are common in persons engaged in photographic industries, the nature of whose occupations compels prolonged contact with iodine and its preparations.

Scarcely a month passes without some new suggestion from men of eminence in reference to the causation of cancer. The public now knows, or thinks it does, that cancer is produced by salt, therefore no more cured meats: by uncooked vegetables; salads will soon be struck from the bills of fare. But the cruelest blow of all is this theory of Hutchison's, because most patent medicines contain as ingredients some preparation of iodine. Can it be that the great mass of the people have for generations gone on taking medicines to cure ills, real or imaginary, only to store up in their organisms nests of cancer cells? Such a thought is enough to make a nation quake. Verily, a little knowledge is a dangerous thing.

THE DOCTOR IN POLITICS.

The doctor is in politics with a vengeance just now. It is doubtful if at any previous election so large a proportion of the candidates have been drawn from our profession.

Men entering the medical profession are probably much as other men—good, bad, and indifferent—yet these men, as a result of their training, as a result of their close contact with suffering humanity, and as a result of the respect in which they are held and the confidences reposed in them, become not as other men. Sentiment is developed in them in a higher degree than in any other class, and sentiment is a quality which is more now than ever of value in this work-a-day world. For this reason we hope that a large number of the members of our profession

who are candidates will be returned. They are more likely than others to counteract the materialistic tendency which sways the Legislature as it does most bodies in this age.

DR. RODDICK'S BILL.

Contrary to our anticipations, Dr. Roddick's Dominion Registration Bill has become law. We extend our congratulations to him, and he well deserves them. Not that we feel that any great purpose will be achieved as the result of the measure, but that one man, almost unaided, should have been able, in the face of the most determined opposition, to place such a law on the statute books, shows that he must be possessed of extraordinary energy and tact. In view of all the circumstances, Dr. Roddick's influence must be almost hypnotic.

Editorial Notes

PLACENTA PRÆVIA.

The treatment of placenta prævia must always be a subject of much interest to those engaged in obstetric practice. The performance of internal or bipolar version is still the most successful and the simplest method of treating this complication. That cases of central placenta prævia which do not require any treatment at all do occur, however, is shown by the case recorded by Mr. A. W. Lemarchand in the current number of *The Lancet*. At the present day when the obstetrician is usually also a gynecologist it is not surprising to find that abdominal section has been proposed as a method of treating placenta prævia. There is no doubt a great fascination about the ease and rapidity with which a Cæsarean section can be performed under suitable surroundings and the death-rate of such an operation should be very small indeed. It does not require any prophetic vision to see that the scope of this operation will become larger and larger in the future, and that it will to a considerable extent replace the operation of the induction of premature labor, at any rate in those cases of pelvic contraction in which the question of obtaining a living child with certainty is a matter of some doubt. When we contrast the difficulty of a bipolar or internal version performed through the vagina with the ease and

security of a Caesarean section, it is little wonder that men, often better trained in gynecology than in obstetric medicine, should prefer the latter operation to the former. Unless, however, the operation of Caesarean section is to be performed upon all cases of placenta prævia, a suggestion which even its most staunch supporters would hardly put forward, it must be reserved for those cases in which the hemorrhage is severe—that is to say, precisely the cases that are most likely to give bad results and that are least able to stand the shock of an abdominal section. The present methods of treating placenta prævia, viz., by rupture of the membranes, bipolar or internal version, or the introduction of Champetier de Ribe's bag after rupture of the membranes, are undoubtedly attended with a high fetal mortality, but the maternal death-rate of cases so treated should not, and does not, exceed five per cent. It may be that we do not in this country consider the life of the child as much as we ought to, but no method of treatment can be considered justifiable which increases the risk to the life of the mother for the sake of a child, the chances of whose survival must always be problematical. The case recorded by Mr. Lemarchand is probably an example of a reflexal placenta prævia—that is, a placenta prævia due to the development of the chorionic villi in connection with a portion of the decidua reflexa as well as with the decidua serotina. The investigations of Hofmeyer and others have shown that this is the commonest variety of placenta prævia, but the old view that it is at times due to a low implantation of the ovum cannot be entirely given up, and the interesting specimen recently recorded by Dr. J. Clarence Webster in the *British Journal of Obstetrics and Gynecology* No. 3, 1902, p. 273, shows that such a condition does at times occur. The increase in our knowledge with regard to the decidua reflexa proves that the majority of cases of placenta prævia which produce abortion or premature labor are examples of the reflexal variety, and that the hemorrhage which occurs is due to the want of union or the feeble union between the decidua reflexa and the decidua vera. Cases of central placenta prævia are probably due to the development of chorionic villi in connection with the whole of the decidua reflexa, and the clinical fact that such cases can occur with comparatively little hemorrhage is to be explained by the occurrence of degenerative changes in the decidua reflexa and the imperfect union existing between it and the decidua vera. Further evidence in favor of the view that the placenta in Mr. Lemarchand's case was in large part developed in connection with the decidua reflexa is afforded by his description of it as being thin and spread out over a large area. It is especially

in cases of placenta prævia of reflexal origin that such anomalies are likely to be present.—*The Lancet*.

LEUCOCYTOSIS AS A POINT OF PROGNOSIS IN APPENDICITIS.

The systematic examination of the blood in certain diseases has proved of great value both as regards diagnosis and prognosis. This remark, however, applies more to those conditions which come under the care of the physician than to those which require surgical intervention. In the *Medical News* (New York), of April 5th last is a paper by Dr. H. M. Joy and Dr. F. T. Wright, of Calumet, giving the results of investigations which they have made as to the prognostic value of leucocytosis in cases of appendicitis. They maintain that the leucocyte-count is a valuable additional indication as to when an operation should be resorted to. After a study of a large number of cases they suggest the following procedure. If the signs, symptoms, and history tend to establish a diagnosis of appendicitis, a leucocyte-count it at once made. If the number of leucocytes is high, say about 16,000 per cubic millimetre, and the symptoms of the case considered by themselves would be called severe, an immediate operation should be strongly recommended. The case is a serious one which may at any time pass beyond the possibility of successful operative relief. If the count proves the number of leucocytes to be between 13,000 and 16,000, and the symptoms are moderately severe, an operation is in all probability desirable, but if any strenuous objection be offered or other circumstances be unfavorable for operating the case may be watched for a short time before a definite decision is arrived at. A second blood-count should be made in from four to eight hours; if the leucocytes have increased, say, by 1,000 or more, then the case may be assumed to be becoming more serious, and an immediate operation should be decided on. If the first count be less than 16,000 (supposing the case has been seen from the commencement of the illness), and subsequent examinations of the blood show no increase, then Dr. Joy and Dr. Wright consider that the case will be a mild one, in which the prognosis without operation is good for that particular attack. The above observations are of interest, but whether the practical value will prove to be great is a matter for further trial. We doubt whether the blood-count would be considered of more value by the physician and surgeon than the indications upon which they have been accustomed to rely. Cases, however, are not uncommon in which it is difficult

to decide as to whether an operation should be recommended or not, and in such circumstances the extent of the leucocytosis may prove an additional guide to the course which should be adopted.—*The Lancet*.

MEDICAL MATTERS IN BRITISH COLUMBIA.

The legislation now sought from the British Columbia Legislature in the way of an amendment to the Medical Act has nothing to do with lodge practice. Mr. Staples, M.P.P., of Atlin, is bringing in an amendment of a very ridiculous kind, which has no chance of passing, viz., to allow physicians in rural districts of the Province to practise their profession without being obliged to go up for examination before the Medical Council; while those intending to practise in the cities will be required to do so! The object of it is to allow two or three unlicensed men in his constituency to practise, who do not wish to take the examinations. They are engaged in mining, and wish to do a little medical work on the side, so to speak. There is one amendment, however, which the medical faculty of British Columbia intend to have made, if possible, and that is to have the Medical Act so changed as to have the Registrar of the Medical Council an officer outside that body, as it is in Ontario. As it is now, he must be a member of the Council according to the Act. During the late election there was some dissatisfaction in having the Registrar, the returning officer, counting the votes, and knowing just how every practitioner cast his ballot, while all the other candidates were in the dark. It gave him too much of a "pull," and the medical people of Vancouver and Victoria are almost unanimous in having the change mentioned made.

The Medical Council elections took place on the 20th of March, with the following results: Victoria, Drs. J. C. Davie, O. M. Jones, Chas. J. Fagan; Vancouver, Dr. W. J. McGuigan; Nanaimo, Dr. R. G. McKechnie; New Westminster, Dr. R. E. Walker; and Kamloops, Dr. Arthur P. Proctor. The count stood for the two lowest candidates, McKechnie, 46; Lefevre, 45. Dr. Lefevre, of Vancouver, demanded a recount, the result of which was that four ballots cast for Dr. McKechnie were rejected for indefiniteness, and Dr. Lefevre was declared elected by four votes; the ballot of a practitioner which had been rejected on the first count, March 26th, being allowed by the full Council for Dr. Lefevre at the recount; thus making Dr. McKechnie and Dr. Lefevre even.

The present Council now comprises Drs. Davie, Jones, Fagan, McGuigan Lefevre, Walker, and Proctor. They are elected for three years.

PRACTISING MEDICINE BY TELEPHONE.

We heard a doctor complain recently that one of his patients, in order presumably to save his time, sometimes called him up on the telephone when she wanted him to give advice about the baby. The good dame would sit at the other end of the wire, pencil in hand, and ask the unfortunate doctor to dictate his instructions while she took them down. This continued until one day she asked him to dictate his prescription. At this he rebelled. He was willing to take the baby's temperature and pulse by telephone, and even to inspect the character of the dejections; he was even willing to tell all he knew about babies in general and about that baby in particular; he did not even object for a while to give the lady the full benefit of a professional call and charge it as an office visit; but his conscience smote him when it came to dictating a Latin prescription by telephone, and having a thrifty-minded housewife sign his name to it before her own initials.

Some physician should write a chapter on the medical ethics of the telephone. We would do it ourselves if we felt capable. There are two sides to the question. The patient sometimes gets the better of the doctor, and saves a fee—but the doctor sometimes gets the better of the patient and saves himself a lot of trouble. It is obvious that in either case the patient should pay for it. But the question arises, what should he pay? Is it an office visit, or a house visit? The advice is given in the office, but it is received in the house. This is somewhat of a metaphysical quandary. Should a doctor charge an office fee for giving advice that goes straight to the patient's bedside? On the other hand, should a patient be obliged to pay a house fee for advice which a doctor gives sitting comfortably in his office? The problem is full of difficulties. Perhaps it would be best to call it half-and-half, and charge accordingly.—*Phila. Med. Jour.*

LIEBIG AND PASTEUR.

It may not be generally known that Liebig for a long time refused to accept Pasteur's demonstration of the microbial nature of fermentation. The extreme conservatism (not to call

it by a harsher name) of the eminent German chemist was shown toward Pasteur personally in a curious way. As early as 1845 Liebig had said: "As to the opinion which explains putrefaction of animal substances by the presence of microscopic animalculae, it may be compared to that of a child who would explain the rapidity of the Rhine current by attributing it to the violent movement of the numerous mill-wheels of Mayence."

In 1870, just before the Franco-Prussian war, Pasteur, during a visit to Munich, desiring to convince Liebig of the accuracy of his work on fermentation, called upon the latter in his laboratory. The incident is related in the *Life of Pasteur*, recently issued. According to this account, the tall old man, in a long frock coat, received the French scientist with kindly courtesy; but when Pasteur tried to approach the delicate subject, Liebig, "without losing his amenity," refused all discussion on the score of indisposition. Pasteur met with constant and often bitter opposition in his revolutionizing progress, but this affable way in which he was "turned down" by one of the greatest, but mistaken, chemists of his time, is peculiarly instructive.—*Phila. Med. Jour.*

THE FOURTH DISEASE.

It is almost two years since Clement Dukes called attention to what he designated the "fourth disease." He believes this disease to be distinct from scarlatina, measles and rubella. Since the publication of Dukes' paper, the subject has been much discussed among British clinicians, and the writers have been divided into two sets, one denying the existence of the "fourth disease" as an entity and recognizing the cases so described as only erratic instances of the well-known diseases, especially of scarlatina and rubella, while the followers of Dukes are equally convinced that the disease is a distinct and separate one. It is probably impossible to come to a conclusion of the controversy at present. The clinical course of the various eruptive diseases is so variable that different phases or forms of one disease might be looked upon as separate diseases, and every practitioner knows how difficult it is to be certain of the character of certain atypical cases, especially at the beginning of an epidemic. This fact is brought out in a recent article by Griffith. The description of the "fourth disease" is so strikingly suggestive of scarlet fever that it would be safe for the present to class it as such and especially to employ all the prophylactic measures used in the lat-

ter disease. Until we are able to separate the eruptive disease by detecting the specific agent in each or by a specific biologic reaction, there will probably be cases which different observers will not agree to call by the same name.—*Jour. Am. Med. Asso.*

HARD FACTS FOR THE ANTIVACCINATIONIST.

The number of cases in hospital is 1,437 against 1,567, 1,526 and 1,522 in the three preceding weeks; 274 new cases were admitted during the week, against 449, 389, 376 in the three preceding weeks. A most important analytical table of the deaths which have occurred from the epidemic has been issued by the Registrar-General, and is a severe blow to the antivaccinationist. The deaths number 1,015. Of these, excluding 66 cases in which vaccination or revaccination was not performed until after the patient's infection by smallpox, there was only one death within ten years of the patient's vaccination. Moreover, this death occurred in an infant aged 13 months, who was certified to have been imperfectly vaccinated. Of 457 deaths of persons vaccinated only in infancy not one occurred until the attainment of the tenth year and only 5 between 10 and 15. Of 398 deaths of unvaccinated persons 56 occurred under one year, 112 between 1 and 5 years, 58 between 5 and 10, 37 between 10 and 15. The table further shows that of persons under 20 years of age who were not protected by vaccination, 348 died of smallpox, while only 22 deaths occurred among those of the same age who were vaccinated in infancy. At ages over 20 there were 103 deaths of unvaccinated persons and 448 deaths of persons who had been vaccinated in infancy (including 13 who had been revaccinated only after infection).—*Jour. Am. Med. Asso.*

News Items

DR. DRYER has been added to the staff of the City Hospital, Vancouver, B.C.

DR. ALEXANDER HUGH FERGUSON, of Chicago, has been elected President of the Chicago Medical Society.

A CIVIC hospital under civic control is the principle affirmed by the City Council of Montreal. The vote stood nineteen to twelve.

DR. ROSE, house surgeon at the St. Boniface Hospital, Winnipeg, has resigned and commenced practice in Gladstone, Man.

CONGRATULATIONS are due to Dr. Arthur Small, Toronto, and Dr. Ingersoll Olmsted, Hamilton, on the occasion of their marriages.

DR. RODDICK is to be congratulated upon the successful parliamentary sanction of his bill for the establishment of a Medical Council in Canada.

THE insane in Toronto Jail, according to the report of the special committee appointed by the City Council, numbers thirty-one, with a few imbeciles.

DR. RUSSELL THOMAS, of Lennoxville, Que., Secretary of the St. Francis District Medical Association, has gone as medical officer with the Mounted Rifles to South Africa.

DR. JAMES STEWART, Montreal, Professor of Medicine at McGill University, has been elected President of the Association of American Physicians.

DR. H. L. REDDY has resigned his position as attending physician of the Western Hospital, Montreal, to be succeeded by Dr. W. Grant Stewart. Dr. Reddy has been placed on the consulting staff.

DR. H. B. ANDERSON entertained a number of the friends of Dr. D. M. Anderson and Dr. J. M. Jory, of St. Catharines, prior to their leaving for Halifax on their way to South Africa as medical officers of the Canadian Mounted Rifles.

DR. MCKECHNIE, Nanaimo, B.C., has gone East to take a post-graduate course; he will remain at McGill for three months, then go to New York for a few weeks, and finally attend lectures and visit the hospitals at Vienna. On his return he intends practising in Vancouver.

DR. H. B. ANDERSON has resigned from the editorship of the *Canada Lancet*. He will be succeeded by Dr. John Ferguson. Dr. Anderson's management of the *Lancet* has been most successful, and he was rapidly bringing that ancient journal into its former foremost place amongst medical journals in the Dominion.

THE American Medico-Psychological Association, which will meet this year in Montreal, from the 17th to the 20th of June, has the following as its Committee of Arrangements: Chairman, Dr. J. T. W. Burgess; Drs. G. Villeneuve, J. V. Anglin, E. Phillip Chagnon, James Ferrigo, of Montreal, and Dr. A. Vallee, of Quebec City.

ONE result of the recent tuberculosis conference, held last month at Ottawa, is that two gentlemen have offered to build at their own expense two sanitariums for consumptives. One of these is to be located near Ottawa, and will be erected by Mr. W. C. Edwards, M.P., the newly-elected President of the Association; the other will be located at Montreal, at the expense of Sir William Macdonald.

THERE is to be no compulsory vaccination for Montreal. The City Council has so decided, although the Provincial Board of Health has power to so order. Recent events in connection with the smallpox outbreak in that city has abundantly proven the value of vaccination. Out of 361 patients, only three bore good vaccination marks; 322 of the 361 had never been vaccinated at all. Some 300 municipalities of Quebec have already passed compulsory vaccination by-laws, but Montreal will have none of it.

DR. KNOPF'S PRIZE ESSAY ON TUBERCULOSIS.—Three hundred thousand copies of the German edition of "Tuberculosis as a Disease of the Masses" by Dr. S. A. Knopf, of this city, which received the prize of the German Tuberculosis Congress, have been printed and distributed. The essay has been translated into English, French, Italian, Spanish, Portuguese, Dutch, Russian, Polish, Bulgarian, Roumanian, Hungarian, and Jiddish, and published in fifteen different countries. The right of translation and publication in any language is freely granted in the interest of humanity.—*Medical Record*.

A COMPLIMENTARY banquet to Drs. Rottot, MacCallum, and Hingston, of Montreal, was recently tendered by the profession in Montreal. The occasion was the celebration of the golden jubilee of the three gentlemen in medicine. Dr. Rottot, the Dean of the Medical Faculty of Laval, was graduated in 1847 from the old Medical College of Montreal, which afterwards became Victoria, and is now the Medical Faculty of Laval University. Dr. MacCallum was graduated from McGill in 1850. He held the Chair of Obstetrics for a very long time with distinct honor,

and at the present time is an emeritus professor in the Faculty. Sir William Hingston was graduated in 1851, and at present fills the Chair of Clinical Surgery at Laval. Sir William has been Mayor of Montreal. At the banquet Dr. F. W. Campbell, the Dean of Bishop's, presided, and about one hundred and fifty of the profession in Montreal attended.

MONTREAL DISPENSARY.—The fifty-second annual meeting of the Montreal Dispensary was held about the middle of May, and the report of the Secretary for the Committee of Management showed that during the past official year the applicants for advice and treatment numbered 16,675, as follows: Roman Catholics, 11,643; Protestants, 4,004; other creeds, mostly Jews, 1,028. Medically classified they were as follows: Medical and surgical cases, 8,505; eye and ear, 2,069; women's diseases, 1,725; nose and throat, 912; skin diseases, 1,983; children, 1,327; dentistry, 154.

Selected Abstracts

THE X-RAYS IN MALIGNANT GROWTHS.

At a meeting of the Harvard Medical Society of New York City (*Med. News*, April 5th) William J. Morton read a provisional report of cases with notes on the treatment of malignant growth by the X-rays. The first case was that of a patient suffering from an epithelioma of the cheek, producing great disfigurement and considerable loss of tissue. Before treatment with the X-rays there was hardening of the tissues for three-quarters of an inch beyond the edge of the ulcer, all of which was softened as the result of about three weeks of treatment with the X-rays. Sections of the growth at the edges of the ulcer examined by a competent pathologist were shown to be characteristically epitheliomatous. The case was not cured, but greatly improved. The second case was a young woman suffering from what proved to be sarcoma of the right elbow. Excision of the joint was practised, but sections of the tissues showed that the process was sarcomatous. The arm was amputated in the upper third. After a few months, pains resembling those that first occurred in the left elbow were noticed in the right. A similar swelling of the joint developed. The right arm was submitted to the X-rays, and after the second treatment the pain completely disappeared. It had been treated for a month and the swelling

disappeared, and the arm could be used entirely as if nothing were the matter. The patient was able to swing it, lift weights, and do everything as before. Meantime sarcoma had developed in the stump of the amputated arm. This was under treatment with the X-rays and though the case was not definitely cured, great improvement had been obtained. The third case was that of a patient who suffered from hard tumor of the left breast, which developed in the part subsequent to an injury incurred while bicycle riding. The glands were found enlarged in the axillæ, and these with the tumor in the breast were removed. Six months later recurrence took place, and entire left chest became infiltrated with the neoplasm. There were evidently also metastases to the lungs. Patient complained of intense pain darting to the back. The other breast became brawny, showing the presence of hard nodules, and was evidently involved. Pain was one of the most prominent features of the case. This pain ceased entirely after the first exposure of the X-rays. The tumor in the left chest had broken down, and an extremely fetid discharge made life additionally uncomfortable for the patient and her friends. The odor of this discharge ceased almost entirely after the first few treatments. In a second case of mammary carcinoma the patient had fallen and hurt herself on the right breast. As the result of two or three applications of the Roentgen rays the acute pain ceased and the patient's life became much more comfortable. A reduction of over one inch in the circumference of the tumor took place within ten days after the institution of the X-ray treatment. After treatment for twenty days the size of the growth was reduced, so that it measured only 3 1-2 by 2 in., instead of 5 by 5 in., as formerly. This patient was referred to Morton by Coley, who pronounced the affection a case of typical mammary carcinoma, with sternal involvement and absolutely inoperable. In the fifth case the symptoms pointed to the existence of carcinoma of the stomach, and there was a distinct tumor present in the epigastric region. One of the main features of the affection was considerable pain, which was lessened after the first application, and after three or four treatments entirely disappeared. The sixth case was a sarcoma of the temporal bone. This had been operated upon and as much as possible of the malignant growth removed. The recurrence was treated as carefully as possible with caustics, but without lasting effect. Coley's fluid was then employed, the tumor was reduced in size, the patient's general condition improved, and for a time the outlook was hopeful. Later, however, the sarcoma recurred and spread beyond its original limits, especially in the bones of the skull, so as to make it entirely inoperable. The patient com-

pained of great pain, which was almost intractable to ordinary analgesic remedies. After three treatments with the X-rays the patient was able to sleep at night and to cut down the dose of morphine usually taken at night to less than one-fourth. In a week the tumor was very much reduced in size and the broken-down tissue on its surface began to dry up and become absorbed. The case was evidently progressing towards cure. The eighth patient suffered from recurrent carcinoma of the breast. When first seen there was a nodular tumor, the size of pigeon egg, extremely hard and fixed to the rib. It had an angular feel, and was beginning also to be attached to the skin. The patient had already had three operations for the removal of such nodules. The glands in the axilla were involved, and the surgeons insisted on removing the breast and its glandular connections, but the patient refused it. After three treatments with the X-rays the nodule in the breast became much less noticeable, its angles became rounded and could scarcely be felt, and the tumor was evidently decreasing in size. The nodule disappeared completely in the course of three weeks. This case was under the care of Coley, who confirmed all that Morton said in regard to it. Morton called special attention to the fact that X-rays produced almost immediate and complete relief from pain. This pointed to the fact that the nerves of sensation of the part were entirely benumbed. The lowering of the nerve function of sensory nerves probably indicated also that all nervous supply to the part may be similarly affected. The nerves along which trophic muscles travelled to the new growth were rendered incapable of function; hence the retrogression of the new growth itself. Through the nerves a true paresis of all the protoplasm of the part was effected. The action of the X-rays on micro-organisms would also affect the micro-organism of cancer if it were present. The most important feature of the new growths that are amenable to treatment by the X-rays was superficiality. If the growth was situated in the skin itself, or if it was not covered by skin because of ulcerative processes, the X-rays were sure to be useful. There seemed no doubt that epithelioma of the skin can be cured; also broken-down carcinomata of deeper tissue with the portions of the new growth exposed, because of cutaneous sloughing, could be favorably influenced. Superficial sarcomata were also amenable to treatment in this way. Both forms of radiation—that derived from Ruhmkorff coil or from a static machine—might be used for the production of the X-rays for the cure of cancer. The tube employed for the X-rays should be Crookes' tube, as modified by Jackson. When it was necessary to protect a portion of the exposed surface of the patient from the effect of the

rays, Morton used a screen of block silver or block tin, which was not grounded, nor was the patient insulated. Morton preferred tubes with a high vacuum equal to about a 7-in. air gap. Tubes thus made need not be too strongly actuated. Jackson's modification of Crookes' tube did not deteriorate very rapidly, and would produce its effect for a long time. The X-rays should be employed in such a way as to produce a decided effect upon the tissues, and yet not cause gangrene. If they were used in very strong concentration there was great danger of seriously injuring cutaneous tissues. As the incubation period for gangrene of the skin after X-ray exposure was from nine to twenty-one days, there was great uncertainty as to the results. The operator might be accumulating a series of gangrenous processes that would make themselves felt successively some time after the treatments. In discussing the paper Coley said that in one case which he had referred to Morton, there was recurrent malignant growth in the bones of the mastoid and temporal regions that made the case absolutely hopeless until the X-rays were applied. The improvement effected was so great as to constitute a subsidence of all discomfoting symptoms. The patient was not cured, but was so much benefited that practically all the annoying symptoms had disappeared, and the disappearance of the tumor gave great hope that even radical cure might possibly result. He had recently seen a case of sarcoma involving the entire front of the abdominal wall from the umbilicus to the pubes. The condition was completely inoperable, and seemed absolutely hopeless. Under the X-ray treatment, in Skinner's hands, the tumor decreased very much in size and became much less annoying. This tumor contained a large amount of fibrous tissue, and consequently a slow disappearance might have been expected. In the case of the mammary nodule which disappeared under X-ray treatment in Morton's hands, Coley had not a doubt of its malignant character, but he could not obtain the patient's permission to do anything more than remove the nodule. The pathological report after its first removal showed its malignant character. The woman said she would rather die than lose her breast. When it recurred a third time the case seemed hopeless. After scarcely more than a month of treatment no trace of the nodule could be found.— *British Med. Jour.*

THE TREATMENT OF ECLAMPSIA BY THE METHOD OF PROFESSOR STROGANOFF.

Last year Stroganoff (F. S. Newell, *Boston Medical and Surgical Journal*) published a series of fifty-eight cases of

eclampsia which came under his observation in the years from 1898 to 1900. A definite routine treatment was adopted, and none of the patients died. In view of the fact that the average mortality from eclampsia is from 20 to 30 per cent., it is evident that the cases reported were of an unusually benign type, or that the method of treatment was more efficient than any previously described.

Stroganoff believes that eclampsia is an acute infectious disease which runs an almost definitely self-limited course, seldom exceeding twenty-four and rarely forty-eight hours. The principal danger is in the convulsions, which profoundly depress the heart and respiratory centres. It follows from this that the convulsions are the dangerous element, and so far as possible they must be suppressed. Accordingly the indications in the treatment of the disease are : (1) The prevention of the convulsion by lessening the irritability of the nervous system and by removing all external sources of irritation, especially those connected with the birth canal. (2) The strengthening of the vital processes by careful supervision of the cardiac and pulmonary circulations by securing as large a quantity of oxygen as possible, and by prompt delivery.

These indications are met by the administration of oxygen during convulsions, combined with morphine and chloral. Cardiac stimulants are given when the heart's action is weak, and prompt delivery is resorted to when convulsions do not yield to treatment. A milk diet is employed, and all methods which tend to distress the patient are avoided. Chloroform does not stop the convulsions and is injurious to the patient. If the patient is under observation at the time of the first convulsion, one-quarter grain of morphine sulphate is given hypodermically at once. This is to be repeated in cases of average severity once an hour. If the patient is restless, the dose should be repeated earlier, while in mild cases the dose should be lengthened to two hours. About two hours after the last dose of morphine, or earlier if the patient is restless, 20 to 40 grains of chloral hydrate is given by the mouth or rectum. The chloral is to be given at intervals of from six to ten hours without reference to whether the convulsions have ceased or not. If the patient is restless or unconscious, the effect of the chloral should be kept up for a second twenty-four hours. If at any time during this interval convulsions recur or are shortened, the morphine should be repeated as at first and the chloral continued. The morphine should never exceed one-quarter of a grain at a single dose. If the convulsions do not cease early in the treatment, immediate delivery is indicated. Sweating, which is so commonly employed

in eclampsia, should not be used. Both hot-air and hot-water baths are often harmful, depressing the overburdened heart and favoring recurrence of the convulsions. These drawbacks more than counterbalance the slight benefit obtained by the increased excretion of toxins.

The method of Stroganoff has been employed in nine cases in the Boston City Hospital, but in only five was it strictly followed to the exclusion of other forms of treatment. The results in the main were satisfactory. Postpartum cases yield very readily to the sedative treatment. In eight out of the nine cases the convulsions ceased as soon as the second dose of morphine was administered. Among the nine cases, four were postpartum and five were antepartum. In all the postpartum cases convulsions ceased promptly and the patients recovered. In the antepartum cases the convulsions ceased promptly in four; in the fifth the morphine had no effect on the convulsions, which increased after the delivery, in spite of all the measures taken to prevent them, patient dying about twenty-four hours after the first attack.

The cases treated in the Boston City Hospital are too few to pronounce a definite opinion as to the value of the treatment, but it may be stated that in postpartum eclampsia morphine and chloral in combination have a beneficial action in controlling convulsions. In antepartum eclampsia the treatment is less efficient, but the course of the disease is altered for the better in the majority of cases. The results obtained warrant a further trial of the method.—*Medicine*.

THE TREATMENT OF SUPPURATION IN THE UTERINE APPENDAGES.

C. P. Noble (*American Medicine*, March 29, 1902) says that the methods of dealing with suppuration of the uterine appendages have been greatly improved within the past fourteen years. The mortality has been reduced from more than sixteen per cent. in the first half of this period to less than five per cent. in the second half.

This reduction in the mortality has been obtained by (1) abandoning abdominal section in the treatment of pyosalpinx and abscess of the ovary when complicated by intraperitoneal abscess and by substituting direct incision and drainage in this group of cases, and also for recent cases of pelvic suppuration of puerperal origin; (2) by substituting hysterectomy for oophorosalingectomy for the removal of bilateral suppuration in the uterine appendages.

The changes in methods of operation have permitted the development of a much more perfect technique, which yields greatly improved results, remote as well as immediate. Ventral hernias, pedicle abscesses, and troublesome intraperitoneal adhesions have become very rare instead of very frequent sequels of abdominal operations.

Free incision and drainage in cases of suppuration of the uterine appendages complicated by intraperitoneal abscess has proven to be a most valuable life-saving measure, yielding a mortality of less than 2 per cent., as contrasted with 27 per cent. from abdominal section. The remote results have been scarcely less gratifying, thirty-two out of the fifty-four having been permanently cured.

Incision and drainage has proved to be a most conservative operation, not only in the saving of life, but in the conservation of the sexual organs. Of the fourteen patients in whom subsequently a radical abdominal operation was performed, in only three was it necessary to remove more than one uterine appendage. The substitution of incision for the radical operation has saved many young women from annoyance of a premature menopause, and has enabled a number of them to bear children. Six pregnancies are known to have occurred, resulting in five children—one pair of twins, one miscarriage, and one pregnancy now developing.

Direct incision and drainage finds its best indication in (1) puerperal phlegmon; (2) in puerperal ovarian abscess, intraperitoneal abscess, and pycosalpinx; (3) in complicated cases of pelvic suppuration of whatever origin, in which the pus is not contained within the ovary and tube.

The value of direct incision is most manifest in the worst class of cases, in which the patient is acutely ill from suppuration and peritonitis, and in which abdominal section gives its worst results.—*Med. Age.*

THE RESULTS OF OPERATION IN SIXTY CASES OF MALIGNANT DISEASE
OF THE BREAST.

Sheild, A. M. (*Lancet*), calls attention to the importance of early diagnosis in mammary cancer. The significance of slight hardening or thickening in the glandular tissue of the breast in women past forty years of age should not be overlooked. A nodule of cancer cannot be distinguished from a cyst, except by exploratory operation. Dubious tumors of the breast need exploratory operations as much as those of the abdomen. Im-

portance is laid upon the necessity of removing the pectoral muscles and clearing the axilla in every case, as the glands are invariably involved. When everything appears normal, glands the size of a hazelnut or almond, and distinctly cancerous in structure, may be found beneath the pectoralis minor muscle.

In the sixty cases, with the exception of two where the diagnosis was uncertain, the operation was very thorough. The axilla was in every case dissected out and the lymphatic tissue removed. In cases where the axillary glands were involved, the lower part of the pectoral muscle was removed, and in several cases the pectoralis minor muscle was cut across to give access to the chain of glands lying below the clavicle. Of forty cases, eight were found to be well for a period of five years and upward; four for four years and upward; seven for three years and upward; and eleven for two years and upward.

The condition of the arm as to usefulness is an important factor in the operation. If it is tied to the side by a painful scar and there is chronic edema of the hand, the operation has been of little service. These results are brought about by a free removal of the skin of the axilla. If this is necessary, owing to the disease of the skin, the operation is hardly worth doing. Soon after operation, passive movements of the shoulder should begin, to prevent contraction of scar tissue.

The conclusions drawn from the carefully tabulated results in these sixty cases are that the risk of removing cancer of the breast by extensive operation is small; the mortality should not be above one or two per cent. Early and free removal gives a prospect of years of freedom from the disease, and in a fair percentage of cases good health. The cases which do badly are (1) soft, rapidly-growing cancer, in young and vascular women; (2) cases of long continuance before operation, where the skin and cervical glands are widely infected. Early exploration by incision of small nodules and infiltrations of the breast is of the first importance. This latter should be promptly undertaken by the general practitioner, who sees these cases early.—*Medicine*.

SOME SURGICAL ASPECTS OF MECKEL'S DIVERTICULUM.

W. Sheen (*Bristol Medico-Chirurgical Jour.*) calls attention to the fact that the vitelline or omphalo-mesenteric duct usually becomes obliterated in the eighth week of fetal life, or a little earlier, and then disappears. It may persist under various aspects, the commonest of which is where its proximal end develops into

a blind sac of gut some three inches long, attached to the ileum near its lower part, forming the ordinary Meckel's diverticulum and usually giving no signs of its presence during life. Other lines of development or partial failure of involution may give rise to conditions of both clinical and pathological interest, and examples occur with sufficient frequency scattered through surgical literature to make the subject appear worthy of summary and comment. Closely associated with the duct, and producing various phenomena as a consequence of their persistence, are the omphalo-mesenteric vessels. Experience has shown that these cases may be divided into seven classes. (1) The common form of Meckel's diverticulum is a free tube of intestine ending blindly, springing from the convex border of the ileum usually about three feet from the ileo-cecal valve. It usually has no mesentery and varies in length from three to ten inches. It may be strangulated in a hernial sac, may be ulcerated or perforated, may become knotted and produce strangulation. (2) The end of the diverticulum is connected with the posterior aspect of the umbilicus by a fibrous cord which may be partially pervious. It may cause intestinal obstruction in various ways, the gut being thrown over it or drawn under it, or pushed through its mesentery—as in the case above detailed—or under certain conditions, especially much distention of the bowel, the diverticulum may drag upon it at its point of attachment, producing kinking. (3) The end of the diverticulum may be simply attached to the posterior surface of the umbilicus, giving the same series of conditions as in class two. (4) The most important class is that in which the diverticulum having been continued for a variable distance into the cord, is pervious throughout at its separation. The mucous membrane at the umbilicus, prolapsing and proliferating, often forms a little polypus, in the centre of which is a minute channel through which fecal matter exudes. (5) There may be a thick-walled, pear-shaped sac passing downward and backward, and adherent by a band of fibrous tissue to the small gut. In such a case the vitello-intestinal duct has become obliterated and the remainder has become distended by secretion. (6) Closure of the process at its proximal and distal extremities will give rise to cysts in or behind the umbilicus. (7) The duct may exist in or as a fibrous cord from umbilicus to intestine. Illustrative cases are given under the foregoing headings.—*Woman's Med. Jour.*

THE VOMITING OF PREGNANCY.

Condamin (*Lyon Med.*, February 2nd, 1902), believes that the vomiting of pregnancy is due to an intoxication of the or-

ganism, and that the rational treatment is to rid the organisms of toxins. He has had great success during the last few years in many obstinate cases by withholding all food from the stomach for eight or ten days, and by the rectal injection of artificial serum. The following case serves as a good example : A young woman had been unable to retain any nourishment for three weeks, and was sent to hospital (for the induction of abortion) by her medical attendant, who had tried all the usual drug treatment in vain. The patient looked extremely ill, and was unable to stand even with assistance. The temperature was normal and the facies cadaveric. The condition was considered too serious for any uterine interference. Three or four litres of artificial serum were therefore ordered to be given daily *per rectum*. On the second day the urine became much increased in quantity, and the patient took notice of her surroundings. On the eleventh day fluid food was given by the mouth and tolerated perfectly. In other grave cases milk has been given on the fourth or fifth day from the beginning of treatment, but as a rule it was found that gastric toleration was not re-established before the eighth day. The rectal injections generally caused very little disturbance, but if any irritation resulted the addition of a few drops of laudanum to the injection was often enough to allay it. If the injections cannot be retained the serum may be given subcutaneously, but by this means large doses cannot be administered at such short intervals. The method is applicable to both slight and severe cases, and the combination of rest for the stomach and flushing of the tissues has been found to allay not only the vomiting but also the troublesome pyloric and epigastric spasm. In only one case has Condamin failed to prevent a fatal issue, and here a very acute cerebral edema was found at the necropsy.—*British Medical Journal*.

LARYNGEAL PARALYSES AND THEIR IMPORTANCE IN GENERAL MEDICINE.

J. W. Gleitsmann (*New York Med. Jour.*, December 14th, 1901) considers the organic causes of laryngeal paralysis under two distinctly separate divisions, viz.: those emanating from the bulbous and spinal column, and peripheral ones. The former are softening processes, hemorrhages, syphilis, tumors, diphtheria, progressive bulbar paralysis, amyotrophic lateral sclerosis, syringo-myelia, and locomotor ataxia. Peripheral causes are tumors of the neck (cancer of the oesophagus), aneurism of the aorta, of the innominate, or of the right subclavian (on account of the greater frequency of aortic than subclavian aneurism, the

left recurrent is oftener paralyzed than the right), mediastinal tumors, such as malignant growths, infiltration of peritracheal or bronchial glands in syphilis, pleuritic adhesions, as in tuberculosis, traumatism and injuries; further infectious diseases, influenza, scarlet fever, typhoid fever, toxic influences, principally lead, which is apt to produce also abductor paralysis or rheumatism, both causing peripheral neuritis, although the diagnosis of rheumatism ought not to be made hastily and before an earnest and conscientious search for other factors has been made. The paramount importance of these paralyzes (especially of the abductor muscle) for the practitioner results from the fact that it has very often been accidentally discovered, at a laryngoscopic examination, and is also frequently observed before the underlying grave affection has been recognized or has caused any perceptible symptoms. Two examples are cited. One a case in which abductor paralysis antedated all the other usual symptoms of locomotor ataxia, and another in which the position of one vocal cord in the median line (in an otherwise apparently healthy person) was the incentive to a careful examination of the entire organism. In the latter an aneurism was found. Another equally important point for practical medicine consists in the absence of any laryngeal subjective symptoms in many cases, when only unilateral abductor paresis is present. The author advises that in all doubtful and obscure troubles a thorough examination of the larynx should be made.—*Interstate Medical Journal*.

LOCALIZED EDEMA IN PUERPERAL INFECTION.

Budin (*Bull. de la Soc. d'Obstet. de Paris*, January 16th, 1901) dwells on the frequency of irregular and localized edema appearing on different parts of the body some time after the advent of puerperal sepsis. The chief importance about this condition seems that it is frequent in the lower extremities, and then may be taken for phlegmasia dolens, though there is no plugging of veins nor deep general edema of the lower extremity. Budin describes a case where rigors occurred on the fourth day of the puerperium, and the curette was used. In three weeks the right foot became edematous, and then the right thigh; the swelling disappeared from the right lower extremity in a very irregular manner. On the fourth week the left foot became swollen; by a week later both feet, as well as the legs and thighs, were free from swelling, and the patient soon recovered. Perret related,

in 1901, a case where edema of the lower extremities commenced just one calendar month after delivery, where septic infection had occurred. The edema disappeared in a few days. As in Budin's case, there was no pain such as is seen in phlegmasia dolens. Budin himself attended a bad case of *post-partum* hemorrhage in a lady who was already reduced by bleeding during labor. Edema of the lower extremities set in at the end of three weeks. Phlegmasia was suspected, but there was no pain, and the swollen limbs, as in the other cases, could be moved. Budin further dwelt on one instance of this puerperal edema where deep abscess was suspected. Marked edema developed in the lower part of the abdomen on the left side, and in the upper part of the left thigh in the third week. The patient had suffered from grave septic symptoms during the first few days after labor. Suppuration was suspected, but there was no trace of parametritic exudation, so no operation was performed. The edema disappeared in a few days, not even an incision had been necessary. Yet the general infection was bad, and the patient, apparently convalescent, died suddenly. Budin concluded with detailing a case where the patient was the wife of a colleague. Edema in the left groin and thigh occurred some days after the removal of a piece of adherent placenta. The septic symptoms caused by the retained tissue disappeared, yet in a few days the edema set in. Several colleagues met in consultation, and one, a surgeon, insisted that a pelvic abscess existed, needing immediate operation. Bouilly, Landouzy, Maygrier, and Budin, who denied that abscess existed, were called in consultation with the surgeon, but operation was declined. A few days later the edema had vanished, and the patient recovered completely. This case occurred in 1892. Boissard, Maygrier, and Bar joined in an instructive discussion which followed the reading of Budin's paper.—*British Medical Journal*.

THE TREATMENT OF MOVABLE KIDNEY.

Henry Morris (*Lancet*) says that when movable kidney is associated with enteroptosis no operation should be performed on the kidney unless it is evident that the more serious symptoms are due to the mobile kidney alone, and not until after the trial of a well-fitting abdominal support and the careful dietetic and medicinal treatment of the gastric and intestinal disorders. Should these means fail and the kidney evidently be most at fault, nephropexy, followed by the wearing of an abdominal belt, should be tried.

When a movable kidney is complicated by a movable liver, or when both kidneys move, the same rule should be followed as in general enteroptosis; in the case of both kidneys moving (when both organs have been giving trouble) they should be fixed one after the other at an interval of a week, so that convalescence from both operations may be taking place simultaneously. I have in several instances thus operated upon both organs with the most satisfactory results.

When the movable kidney occurs in a hysterical or neurasthenic patient, all palliative means should be tried before resorting to an operation, and the patient's friends should be informed of the uncertainty of the results from operation. The statistics show that a cure may be hoped for by nephropexy in about half of these cases.

For the uncomplicated movable or floating kidney, in which the principal symptoms are pain and gastro-intestinal troubles, the operation may be confidently advised and carried out without any previous trial of belts or of rest. When renal crises are a feature of the case, nephropexy ought to be strongly urged because of the impossibility of keeping the kidney in its proper place by a belt, and because of the constant risk of hydronephrosis and recurring pain, even if the renal crises can be kept under control.

When a movable kidney gives rise to no inconvenience an operation ought not to be thought of, and a belt need not be worn.—*Woman's Med. Jour.*

TONIC CONTRACTIONS OF THE STOMACH.

I. Boas says (*Deutsche med. Wochenschrift*) that tonic contractions of the fundus of the stomach may be divided into three classes, according to their intensity and duration: (1) Slight contractions, which are only with difficulty felt by the hand and involve but a portion of the fundus. They last but a few seconds and are not perceptible to the patient. As a rule, they are accompanied by no gurgling sound; (2) moderate contractions, which are plainly felt by the hand and are generally visible to the examiner. They are of but short duration and are always followed by a gurgling sound. The patient complains of slight pain during the continuance of the contraction; (3) powerful contractions, which produce a movement of the entire anterior abdominal wall and are accompanied by loud gurgling sounds and pronounced pain. They are of much longer duration than either slight or moderate contractions. Tonic contractions of the stom-

ach are only observed when food is present in the organ. They are diagnostic of pyloric stenosis and vary in intensity directly with the degree of such stenosis. Pyloric stenosis may be nervous in origin (spasm of the pylorus), or it may be due to cicatricial narrowing resulting from carcinoma, ulcer, etc. The varieties of tonic contractions of the fundus do not suffice for a diagnosis of the cause of the pyloric stenosis, but only for an estimation of its degree. Thus powerful contractions may accompany spasm of the pylorus, while carcinoma may only cause slight contractions. However, when tonic contractions are present, it is certain that pyloric stenosis exists, and further measures should be instituted to ascertain its cause. Three cases are related in illustration of the above principles.—*Med. Record.*

HOW TO SEE STOMACH CURVATURES.

Various methods of stomach examination have been advocated in order to locate the position of the curvatures. Many of them involve the use of special instruments and necessitate considerable skill. M. I. Knapp (*N. Y. Med. Jour.*, Feb. 15th, 1902) suggests a very simple and, as he says, unerring method to determine this point. The patient lies flat upon the back, relaxing his muscles and breathing easily. The examiner stands at the side or at the shoulder of the patient so as to look either up to the stomach region or down upon it. As the patient breathes the examiner follows certain lines which he sees move up and down with respiration. The curvatures of the stomach will be seen as very distinct fine lines moving under the skin even when the wall has considerable fat. A mark is made where the lines stop each time and to corroborate the observation percussion is used by placing the hand flat upon the abdomen, one finger on either side of the above line. If the line of curvature has been properly located, a change in note will be found at that point. The percussion should be light and the stethoscope is of great assistance. It may be placed anywhere in the neighborhood of the stomach.—*Medical News.*

CANCER OF THE SKIN.

J. A. Fordyce, M.D. (*Jour. of Cutaneous and Genito-Urinary Diseases*) states in part:

“The malignancy of epithelial cancers depends rather upon their structure than their location. We are able, in a general

way, to arrive at certain conclusions regarding the relative malignancy of cutaneous cancers from a histological study of their structure and the manner of their growth. The lowermost layer of the epidermis and the outer root sheath of the hair follicle are separated from the derma by a stratum of columnar cells, which have the same relationship to certain cutaneous cancers that the basement membrane of glands has to carcinomas starting in these organs. An intact basement membrane prevents the proliferating glandular epithelium from infecting the surrounding tissue, so that we have an adenoma-like growth before a carcinoma.

"Circumscribed, non-infiltrating epitheliomas are readily cured by excision or caustics, and show little tendency to recur. On the other hand, chronic infiltrating rodent ulcers recur quite as often after excision as after the use of the curette and suitable caustics. Curettage alone, *without* the subsequent use of active caustics, like arsenic or chloride of zinc, spreads the growth by opening the lymph vessels, and more readily permits absorption and dissemination of the cancer cells. Caustics destroy the cell growth which is beyond the reach of the curette, and if repeatedly used when the slightest recurrence shows itself many infiltrating epitheliomas may be radically cured with less destruction of tissue than by the purely surgical methods. It is in this class of cases (chronic infiltrating rodent ulcers) that such brilliant results have been attained by the Roentgen rays."—*Med. Age.*

TUBERCULOUS ULCER OF THE STOMACH.

Tuberculous ulcer is a rare condition of the stomach, but there is evidence to show that it is likely to be one of the terminal complications of general tuberculous disease. This probably accounts for the fact that its symptomatology may be masked by the many other symptoms present. Batsere has collected (*These de Toulouse, 1901*) a series of 35 observations, in which he points out the diagnostic features of gastric tuberculous ulceration. Such ulcers are generally multiple, even numerous. They are situated for the most part close to the pylorus and on the greater curvature. They are round in contrast to the shape met with in the intestine. The symptomatology is extremely variable, at times absent, though occasionally well-marked signs may be present. The most reliable symptoms are pain, vomiting, and hematemesis. The former is most frequently absent. It is caused by the ingestion of food as in other cases, and when occurring corresponds with the taking of food. Pain may be ex-

tremely severe and lancinating. Usually speaking, it disappears gradually within a couple of hours after taking food, and its most frequent site is the epigastric area. Vomiting frequently follows pain, and when hematemesis occurs it points to a diagnosis. The progress of such ulceration is generally fatally progressive; rarely is there any remission. Some cases at the same time have shown a transitory subsidence of the symptoms, and one is led to suppose that the ulcers have healed. There may then occur a very copious hemorrhage, which generally brings about a fatal termination. The writer is able to record some cases of cure under strict dietary treatment.—*British Medical Journal*.

SUDDEN DEATH IN CHILDBED.

This subject was discussed last year at a meeting of the Obstetrical Society of Cologne. Twelve cases occurred in 10,334 labors conducted from 1888 to 1899 inclusive, by the Midwives' Institute, in the Rhine City, making a percentage of 0.11. In 2 of the 12 the death was due to pulmonary embolism, a proportion lower than might have been expected. Schafer (*Monats. f. Geburts u. Gynak.*, February, 1902, p. 230) related a distinct case of air embolism. The patient, aged 40, terminated her fifteenth pregnancy spontaneously at the seventh month, after much flooding. The placenta was detached manually. There was atony of the uterus, which could not be controlled by ergotin and intra-uterine injections, so the tampon was applied to the uterine cavity. As anemia was acute, autotransfusion of artificial serum was practised. Death occurred suddenly one hour later after restlessness, dyspnea, and cyanosis. Soon after death the necropsy was undertaken; after tying of the great vessels the heart was removed and carefully opened under water. Bubbles of air escaped when an incision was made into the right side of the heart; the left ventricle was fairly contracted, and contained a little fluid, very pale, and slightly yellow blood. The vena cava inferior contained pale reddish-brown blood full of bubbles. Air was also found in the pelvic veins. The presence of air in the veins is particularly dangerous where acute anemia exists.—*British Medical Journal*.

PRURITUS VULVÆ: ITS CAUSE AND TREATMENT.

L. Seeligmann (*Deut. med. Woch.*, February 27th) has investigated the condition known as pruritus vulvæ bacteriologi-

cally. He points out that he has dealt chiefly with those cases in which the primary cause cannot be found or no layer is present and therefore with the class generally believed to be true neurosis, and not with cases of kraurosis vulvæ. In the latter, the skin changes are definite, and it has nothing whatsoever to do with pruritus. Seeligmann found a diplococcus in the skin of the vulva of patients suffering from pruritus which has definite characteristics. It is obtained generally in pure culture but after the cases had been cured, he always failed to cultivate any of the micro-organisms at all. It is like the gonococcus, but differs from it by its behaviour towards Gram's staining and in culture. It is readily stained by all aniline stains and also by Gram's method. It grows readily on agar-agar, glycerine-agar, bouillon (with unpleasant odor), potato, yeast-bouillon (with a most objectionable odor), and slowly on gelatine. The cultures are easily killed in five minutes by 10 per cent. solutions of guaiacol vasogen. Applying this experimental bactericide to practice, he finds the 10 per cent. solutions of guaiacol-vasogen, applied by a pledget of cotton wool to the affected part at night time (the wool is allowed to remain *in situ* all night) are usually sufficient to cure the condition in a few days, but at times it may be necessary to continue the treatment for a longer period, or to use stronger solutions (15 to 20 per cent.). Care must be exercised, if strong solutions are used, that the skin is not irritated too much.—*Brit. Med. Jour.*

NEUROSIS AND APPENDICITIS.

Schauman (*Finska Lakare Handlingar*, p. 55, 1901) considers that there is a distinct connection between the nervous "diathesis" and appendicitis. Very frequently members of the same family are attacked by appendicitis, and the writer has collected 14 cases in which such has occurred. In 75 cases only one member of a family was affected, but there was marked evidence of family neurotic tendencies. During the last year Schauman has observed in the Helsingfors Hospital 5 cases of serious neurasthenia, in which, as a late complication, attacks of appendicitis occurred. Accompanying the appendicitis there is frequently a muco-membranous entero-colitis, which may be regarded as nervous in origin. In connection with general neurosis displacements of the abdominal organs are frequently met with. In fifty cases the writer found that in 40 (78.4 per cent.) there was evident gastropnoxis, and hence supposes that appendicitis may be predisposed by a loss of abdominal tone, producing a gradual or

a sudden change in the position of the appendix, and altering its normal structure. From one or other of these the organ loses power of resistance, and infection or retention of fecal matter is favored. Nothangel has found the appendix lying in the umbilical region, the left iliac fossa, and the true pelvis, and Siredey and Edebohls have met with nephroses when removing this tissue. Appendicitis may be caused by inflammations in neighboring organs, but those genital affections associated with or dependent upon neurasthenic conditions strongly predispose.—*Brit. Med. Jour.*

INTERMITTENT CLAUDICATION (INTERMITTENT LIMPING) DUE TO
OBLITERATING NEURITIS.

C. L. Dana (*Medical Record*, Feb. 22nd, 1902) says that there is a group of symptoms characterized by intermittent or temporary attacks of paralysis, usually of one leg, accompanied with pain, paresthesia, stiffness, and vasomotor disturbances, and absence of pulsation of one or both foot arteries.

It is chronic in course and may lead to gangrene, or symptoms resembling erythromelalgia or Raynaud's disease. It affects oftenest one leg, but may attack both, and may affect the arm. It occurs in middle-aged people of neurotic temperament, is due to or associated with exposure, alcoholism, gout, diabetes, excessive use of tobacco, and syphilis.

It is due to arterial sclerosis, causing obliteration of the smaller arteries, also to disease such as aneurism of the large trunks.

The trouble has been called painful paralysis, intermittent claudication, intermittent limping, and perhaps most appropriately, intermittent muscular paralysis, due to arterial sclerosis. The diagnostic points are the absence of the foot pulse, together with the symptoms above enumerated.—*Medical Age.*

LEUKOCYTOSIS AS A POINT OF PROGNOSIS IN APPENDICITIS.

Joy and Wright, after an exhaustive and painstaking article on this subject, summarized as follows: The leukocyte count is a valuable aid to prognosis in appendicitis. This is distinct from its diagnostic value. A high stationary, or an increasing count, indicates a morbid condition of increasing severity, which demands operation, no matter what the clinical symptoms may be. A low stationary or decreasing count indicates that the severity of the case is abating and that operation may be safely post-

poned. Cases in which a falling count is accompanied by unmistakable signs of a generally bad condition form the rare exception to this second principle, and in them there is no chance of error. No arbitrary set of prognostic values to be assigned to various degrees of leukocytosis can be constructed. The important point is to follow any scheme in which one learns to have confidence, provided the essential principle be preserved. The count indicates when operation should be performed for the best interests of the patient. Circumstances often render it desirable to postpone operation in appendicitis. Study of the blood-count enables it to be determined whether this may be done with safety, and often renders such postponement permissible.—*Amer. Med.*

SPASM OF THE PYLORUS MISTAKEN FOR A TUMOR.—OPERATION.—CURE.

Poirier (*La Presse Med.*) reports the case of a woman of fifty-eight years, who presented all the symptoms of a cancer of the pylorus—signs of pyloric stenosis, a cachectic appearance, and sub-clavicular and inguinal adenopathies. This diagnosis was confirmed by several physicians and surgeons. Nevertheless, this woman had never had hematemesis, and she did not present the appearance of tumor of the epigastric region. The operation revealed a condition of simple pyloric spasm (the stomach contracted with great readiness under the fingers of the operator), this being due, probably, to the presence at the level of the pylorus of a small indurated area about the size of a small nut. This was excised and since the operation the patient has not shown the least gastric symptom.—*Med. Record.*

CONCERNING THE CHOICE OF OPERATION IN FIBROIDS.

Dr. R. Olshausen (*Cent. f. Gyn.*, Jan. 4th, 1902) believes in preserving the ovaries, when possible, in hysterectomy for fibroids. He cites three cases of psychosis following the removal of both ovaries with uterus. He goes further and with Zweifel recommends leaving uterine mucosa so that menstruation may continue besides avoiding the storm of nerve symptoms consequent upon removal of both ovaries. He therefore not only advises a high supra-vaginal myomectomy, but the simple enucleation of any number of fibroids, leaving the framework of the uterus behind and as nearly intact as possible.

His first series of thirty-five cases (in the last three or four years) has had a high mortality—five deaths. But this was

probably bad luck, and he expects a better showing in his next series of cases.

The technique is simple. The tumor is enucleated from its bed. All bleeding points are controlled by ligatures passed with a needle beneath the vessel. The bed of the tumor is then sewed up in several stages, either with independent sutures or continuously. He prefers catgut so as to reduce the amount of ligature material for absorption to a minimum. Therefore he opposes the use of silk. He is rather opposed to vaginal work in these cases, preferring the abdominal route.—*Post Graduate*.

THE TREATMENT OF GONORRHEA WITH PROTARGOL.

Jesionek (*Munchener medicinische Wochenschrift*, Nov. 5, 1901) believes that the great discrepancy in the reports of results obtained by the use of protargol in gonorrhoea is due for the most part to carelessness in the preparation of the solutions. Both physician and apothecary should see that protargol solutions are made cold and from fresh material. Under these conditions the results are more favorable than by the use of any other medication. Jesionek emphasizes the facts that in the beginning of treatment injections cannot be made often enough, and that after active symptoms have disappeared the injections should be continued for some time. In the first stages he uses a 1-4th per cent. solution. There is very little irritation, and it would seem that the penetration of protargol solutions into the deeper layers of the mucosa is in direct proportion to the concentration of the solutions. In the more chronic forms of the disease he uses solutions of from 3-4th per cent. to 2 per cent. strength.—*Amer. Med.*

PYLORECTOMY; NINETEEN YEARS' AFTER-HISTORY.

This is the report (Dr. Rydigier, *Przegląd Lekarski*, November 29th, 1900) of the after-history of the oldest case of pylorotomy on record. The operation was performed nineteen years before this report was issued. The operation was performed for gastric ulcer on a woman aged thirty. The ulcer had penetrated into the head of the pancreas, and part of that organ was removed. The patient has had five children since, the eldest being seventeen years old. She remains in good health. Rydigier prefers this operation to that of gastro-enterostomy in such cases when the woman is fairly healthy and there are not too many adhesions. It eliminates the danger of future hemorrhage.—*Post Graduate*.

THE BLOOD IN SYPHILIS, TABES AND GENERAL PARALYSIS.

In order to ascertain the pathological changes in compensatory hypertrophy of the kidney Gino Galeotti and Gius Villa-Santa (*Beitrag zur path. Anat. und allg. Path.*, B. 31, H. 1) have observed the results of unilateral nephrectomy upon dogs and rabbits. They show that the changes in the hypertrophied kidney vary accordingly as the animal is young and in the development stage or is full grown. In the first instance the number of the glomeruli is increased; in the second there is no increase in number, but each is markedly increased in size. The result is the same in both cases—an increased functional activity. The work is of interest in showing how cells under different conditions of life react to a stimulus which calls for an increase of living substance.—*Medical News*.

THE CONDITION OF THE BLOOD IN SCARLET FEVER.

The blood of 25 cases (Mackie F. Percival, *The Lancet*) of varying intensity was examined. Moderate anemia was constant, as was pathological leucocytosis, the latter appearing to vary directly with the severity of the angina, while its time of onset was very variable. An increase in the degree of leucocytosis in any given cases appeared to be a favorable prognostic sign, and *vice versa*, the sudden fall perhaps indicating the complication of sepsis. As there is no leucocytosis in measles, the blood count has a value in differential diagnosis.—*Archives of Pediatrics*.

Special Selections

RELATION OF URIC ACID AND XANTHIN BASES TO GOUT AND THE SO-CALLED URIC ACID DIATHESIS.*

BY DAVID L. EDSALL, M.D., PHILADELPHIA.

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Until comparatively recent times there has been a very generally shared belief in uric acid as the cause of gout, and of many symptoms besides typical arthritic gout. Recently the pendu-

* Read, by invitation, before the Medical Society of the State of Kansas, at Pittsburg, Kansas, May 2nd, 1901.

lum has been rather energetically swinging from side to side. While conservative writers generally express themselves very guardedly concerning this question, those of partisan sympathies either uphold the older view more emphatically than ever, or, on the other hand, deny that uric acid has any influence. Some of those who oppose the uric acid theory believe however, that closely related antecedent substances, the purin (or xanthin) bases, are the cause both of typical gout and of the uric acid diathesis, explaining the occurrence of these disorders through imperfect oxidation of the xanthin bases to uric acid.

If such contradictory opinions still be expressed, it is evident that the question is not yet settled, and it is also evident that such energetic expression of extreme views is unwarranted. A number of the reasons for such a divergence of opinion are fairly easily found. Chief among them are the use of very faulty chemical methods and erroneous ideas concerning the origin of the uric acid and xanthin bases. So far as may be necessary the faults of various methods of work will be mentioned, but in the first place a few facts will be noted, which concern the source of the uric acid and xanthin bases found in the urine and the effect of diet, and in a general way, of abnormalities in tissue processes upon the amount excreted.

The most important fact recently determined concerning the source of these substances is that, under ordinary circumstances, the greater portion of both uric acid and xanthin bases comes from the food. But while this is entirely true, the old idea that variations, in the excretion of uric acid are due to variations in the completeness with which nitrogenous substances are oxidized—*increase being dependent upon imperfect oxidation of food and tissue to urea, lesser amounts to more complete oxidation*—is now known to be erroneous. Changes in the excretion of uric acid or xanthin bases are not coincident with changes in the excretion of urea, but are, in large part, or perhaps wholly, independent of the urea excretion; and uric acid and xanthin bases are not excreted because they have in part escaped oxidation to urea, but because they are natural and products of the metabolism of a certain portion of the nitrogenous food and tissues, *i.e.*, those substances that yield nucleic acid, the nucleoproteids. That is, nitrogenous substances yield different amounts of urea, and of uric acid and xanthin bases, according to the constitution of those nitrogenous substances, and the yield in uric acid and xanthin bases is not proportional to the yield in urea, nor is it dependent upon imperfections in the formation of urea. The urea and the uric and xanthin bases have a different source, and their formation depends upon wholly

separate chemical processes, and the two classes of substances must be studied separately. Conclusions which are based upon a comparison of the two, or the establishment of a ratio between the two, are therefore wholly erroneous. Diet must be taken into consideration in studying either, but from wholly different standpoints, the amount of pure proteid contained being the important matter in connection with the urea, while the amount of nucleoproteid is the chief point in connection with uric acid and xanthin bases. The process of digestion of these two classes of foods is entirely different from the beginning. Pure proteid passes first through the usual stages of proteolytic digestion, and ultimately is largely excreted as urea; but it yields no nucleinic acid and probably no uric acid or xanthin bases. Nucleoproteid, on the contrary, is, according to the recent researches of Umber, broken up at once into a pure proteid fraction and nucleinic acid. The pure proteid passes through the usual stages of proteolytic digestion and increases the amount of urea excreted, while the nucleinic acid yields large amounts of uric acid and some xanthin bases, the steps leading to these end products being as yet almost wholly unknown.

The practical conclusion to be derived from these facts is that apparent variations in the excretion of uric acid and xanthin bases may be due largely to diet, and the discovery of such variations warrants no conclusion unless it is known that they are not due to the diet. We have no practical way of determining with any degree of exactness how much nucleoproteid any diet contains, and further, we do not know just how much uric acid or xanthin bases should be furnished by a given quantity of nucleoproteid. Indeed, it is wholly probable that individuals differ in the amount of uric acid and xanthin bases which they excrete while on the same diet, and also that any individual will excrete different quantities at different times when on the same diet. Therefore it is allowable to state that variations in excretion are abnormal only when they are apparently not due to diet, and when the variations are more marked than those that occur normally when on a constant diet. This means that we have no satisfactory means at our command to demonstrate comparatively slight variations from the normal, and some pathological changes in the excretion may escape our knowledge. But we have, at any rate, learned that we must avoid drawing conclusions from slight variations.

It has been stated that the greater part of the uric acid and xanthin bases come from the food. This is in itself sufficient to demonstrate the incorrectness of a theory concerning the source of these substances which for some time was in great

favor, but is now known to be erroneous. After Horbaczewski and his followers demonstrated that uric acid and xanthin bases are furnished by the breaking down of tissues rich in nucleoproteid, such as thymus, spleen, and pancreas and general observers found that the uric acid was often increased coincidentally with the presence of a leukocytosis the theory arose that the uric acid and xanthin bases of the urine are almost solely the products of the decomposition of leukocytes. As stated, however, they are now known to be chiefly the products of the decomposition of the food taken, and hence in large part unrelated to changes in the leukocytes. Further, contrary to comparatively recent teaching, there is no constant relation to changes in the number of leukocytes. Numerous observers have demonstrated this fact and as striking an example of its truth as I have seen was shown by the condition in two cases in which I investigated the urine. One of these was a case of leukemia with over 350,000 leukocytes per cmm.; the other one of so-called Banti's disease with only about 2,000 per cmm. The latter patient passed about 0.3 grams in 24 hours, while the leukemic excreted less than 0.5 grams per day and his xanthin bases lay between 0.040 and 0.070 grams. While we must admit that some of the uric acid and xanthin bases undoubtedly come from leukocytic decomposition, because of the chemical composition of these cells, this portion is certainly small under ordinary circumstances and perhaps is never large. The fraction which is derived from the body tissues is probably increased much more largely by changes in the activity of the blood-forming organs and in the structure of these organs than by variation in the number of the circulating leukocytes.

The testimony concerning the influence of disease of these organs on the excretion of uric acid is, however, limited and indefinite. So far as the spleen is concerned, observations indicate that this organ has no decided effect. The same is, I believe, true of the lymph glands. Both the lymphatic tissue and the spleen seem at times to have some influence, but the diseases of the spleen or lymph glands, which at times seem to be associated with an increase, are often unaccompanied by any changes; and removal of the spleen does not have any distinct effect.

I think it probable that the bone marrow has a more decided and constant influence upon uric acid and xanthin base formation and excretion. Leukemic changes in the bone marrow are, so far as observations have been made, nearly always accompanied by a striking excess in excretion, while leukemic changes in the lymphatic apparatus often are not accompanied by such an excess, and in a number of cases of the latter kind in which excess was

found it was either probable or certain that there was marked disease of the marrow as well; and there are other minor reasons for thinking that the marrow has a prominent influence. But all our knowledge concerning the source of the uric acid and xanthin bases produced in the body is vague and indefinite, and we are justified in saying only that all organs rich in cells probably contribute a share, and there is no good reason to think that the blood-forming or blood-destroying organs have a much more important influence than that of others.

One thing may, however, be considered to be fairly certainly demonstrated, *i. e.*, that the liver does not have the extremely important influence that was for so long attributed to it. It is possible that the liver plays a somewhat more important role than other organs; more probably, however, its influence is dependent solely upon its size and its richness in cells. And whatever its influence may be, it is but a fraction of that exercised by the tissues in general. A theory, originated chiefly by Bunge, is that uric acid is produced largely by synthesis from glyocol. This, if true, would help to rehabilitate the old view that the liver is of chief importance in the production of uric acid. The theory is, however, unsupported by any convincing testimony, and there is so much evidence against it that it is very probable that it is incorrect, or that, at any rate, if any uric acid is produced in this way, it is small in amount.

To turn to the relation which uric acid and xanthin bases bear to the special conditions in which they are supposed to be active, namely, gout, and the so-called uric acid diathesis, and first to consider their relation to actual gout. The relation of uric acid to gout being the more important, may be discussed first.

The chief theories concerning the action of uric acid in gout which are put forward by those who believe that it causes this disease, are (1) that it acts as a poison, and (2) that its effects are mechanical.

The supporters of these theories use a number of facts conjointly, and it will be necessary, therefore, to intermingle the discussion of them somewhat.

As to the main facts which are known concerning uric acid in gout these are chiefly, that uric acid is found in the blood of gouty subjects in abnormally large amounts, a fact which has been repeatedly denied since Garrod first asserted it, but which has been satisfactorily demonstrated to be usually true, even when the best of modern methods was used in estimating the uric acid (Magnus-Levy). Further, it is practically settled now that there is, in many cases at any rate, and in most of those properly studied, a decided reduction in the excretion of uric acid before

the attacks, and an equally marked, and even more notable, rise in the excretion during and after the attacks. In other words, it now appears evident that there is not, as was once stated, an added retention of uric acid at the time of the attacks, but a decided increase in its excretion at this time (Magnus-Levy, His, *et al.*). Further, it is of course known—and has for a long time been known—that there is a deposit of urates in the tissues about the joints, and in some other tissues. Very important testimony of the relation of uric acid to gout may also be found in the recent reports of Freudweiler and His in particular. Contrary to the teaching which has been quite generally accepted recently, these authors find that injection of urates causes distinct local necrosis, and this necrosis seems too widespread to be due wholly to mechanical action, and must be at least partly toxic; and, contrary to the teaching of the Ebstein school, it seems to be secondary to the deposit of urates and to be due to the urates. It is also accompanied by acute inflammatory reaction and there is subsequently a development of fibrous tissue, the lesions resembling those which are found in gout about the deposits of urates. The methods which these investigators used were the best that have yet been applied to the study of this point, and the followers of Ebstein have been unable to upset their evidence.

The mention of this work is sufficient to demonstrate that those who have recently been stating that uric acid is absolutely nontoxic have not sufficient ground for their assertions, and are indeed opposed to the most convincing and most modern testimony in making this statement. When the work quoted is properly considered, it lends considerable probability to the view that the local lesions in gout are due to uric acid or urates, makes it seem not impossible that the main symptoms of an acute attack are caused by this substance, and strongly suggests that, after all, the general symptoms of the disease are due to it. There are, however, very weighty reasons for thinking that this is not true. In the first place, there is reason to believe that the arthritic symptoms in the attack are not due to new deposition of urates. One of the principal facts pointing against such a view is that the excretion of urates occurs during and immediately after an attack, and not in the interval, and the decrease in the excretion appears before the attacks while there is relative freedom from symptoms. The attack, therefore, is not accompanied by added retention of uric acid, but by its freer excretion. Furthermore, whatever the effects of the injection of urates, there is no doubt that much of the deposit of urates in gouty persons occurs without of clinical evidences of inflammation, for many of the tophi

are formed without any direct symptoms. In addition to this, uratic deposits are often found in persons who have not had any symptoms pointing to their presence, and who have never had any symptoms of gout. While, therefore, the injection of urates does demonstrate the possibility that uric acid may have some local toxic action, it does not demonstrate that it produces the local symptoms in gout.

And the peculiar course of the excretion of uric acid does not justify one in drawing any immediate conclusions. We may give up the old idea that the attack is due to an increased retention of acid and still believe, as has recently been suggested by the His school, that the symptoms are due either to a solution of deposits and a flooding of the tissues with uric acid, or that some alterations in metabolism cause an increase in the uric acid in the blood at the time of the attack, and that the attack really acts as a curative measure by getting rid of some of the excess of uric acid. But there is no evidence that uric acid is present in the blood at the time of the attack in any larger amounts than during the interval. Indeed, there is good evidence that the amount does not vary distinctly in these two periods. And one of the most difficult facts to overcome in reaching a belief that uric acid has any important toxic action in gout is that the ingestion of an amount of uric acid, larger than that which we have reason to consider, is added to the circulation under such circumstances, and an amount, certainly larger than the additional excretion in the urine, has been administered to animals and to men without the production of more than slight symptoms of local irritation of the stomach and urinary passages. And, further, persons who were actually subjects of gout have been given food which produces uric acid in large amounts, and have even been given nucleinic acid, which is certainly the chief source of uric acid, in considerable quantities without intensifying their symptoms at all, and, indeed, in some cases with improvement in their symptoms, though the uric acid was increased as shown by the excretion. Even more worthy of consideration is the fact that the reduction in the excretion is not confined to the uric acid or the purin bases before the attack, and the increase in the excretion after the attack also involves other substances than those just mentioned. The total nitrogen of the urine, as compared with the intake, falls in the intervals, and rises excessively during and after an attack, *i.e.*, there is definitely known to be a severe loss of body protein at the time of the attack, such as is seen in acute toxic conditions, while in the interval there is a very decided retention of nitrogen, a retention that suggests that seen in convalescence from acute toxic states, but is still

rather too great to be attributed to mere effect of loss. The variations are certainly too great to permit of their being produced by the variations in the uric acid, or uric acid and purin bases alone. Again, there is no good reason for attributing this tissue-loss to intoxication with uric acid, for there is no evidence that an excess of uric acid in the circulation can cause such a loss, and much evidence that it does not. We have far more reason for the belief that there is some other agent at work which causes a general toxic tissue decomposition during the attack, and that the excretion of uric acid increases with the excretion of other products of tissue destruction, rather than for the view that increase in the uric acid causes this general tissue decomposition, whether this increase is produced by solution of uratic deposits or in other ways.

As to direct consideration of the excess of uric acid in the blood in gout, there is good evidence that such an excess exists, but an excess of uric acid in the blood is also found under other circumstances, both in acute conditions, particularly pneumonia, and in chronic conditions, notably leukemia and nephritis, and there is in such conditions no evidence that this excess causes any distinct symptoms or produces any of the lesions characteristic of gout. Actual gout and gouty tophi have at times been observed in both nephritis and leukemia, but gout is exceptional in nephritis and both gout and typhus formation are rare in leukemia.

The evidence, then, against a general toxic action of uric acid or urates as the cause of gout seems to me to be so strong that it cannot be believed that they are the main cause of the general symptoms, whatever the effects may be where injected in quantities.

There has often been an attempt made to explain the peculiar periodicity of gout and the supposed deposition of uric acid at the time of the attack by the statement that there are alterations in the alkalinity of the blood, the alkalinity being supposed to be reduced at the time of the attack, and the reduction causing the deposition of urates. So far as this theory teaches that the deposition of urates causes the attack, it is, I think, largely disproved by the previously stated facts. But either as an explanation of the disease *in toto*, or of its periodical course alone, it is even less satisfactory than that of intoxication. The theory was built chiefly upon supposition, and more accurate work (Klemperer, Magnus-Levy) shows that the alkalinity is not altered at the time of the attack as compared with the interval and there is no demonstrable variation from the normal at any period.

The pure mechanical theory of the relation of uric acid to gout was most actively supported by Gerhard himself, and more recently and more energetically by Sir William Roberts. It was based by the latter author chiefly upon the following hypotheses: He considered the local arthritic symptoms of the attack to be due to deposition of biurates about the joints, while he attributed the more general symptoms at the time of the attack or at other periods to small deposits in other regions, the greater part of the latter deposits being probably rapidly dissolved in most cases and leaving no post-mortem evidence that they had been present, and in other cases being overlooked by the pathologist. He believes that uric acid is found in the body normally in the form of a quadriurate, that it is retained in gout, and that the retained quadriurate in the presence of salts of the alkalis is transformed into the less soluble biurate. The fluids of the body, more particularly the synovia and lymph, become supersaturated with biurates and the excess crystallizes out. The reason that deposits occur in the regions in which they are ordinarily found is, he thinks, that the synovia and lymph contain a larger amount of sodium salts than the other fluids and sodium salts cause the biurate to precipitate from solutions. He believes that uric acid has no special toxic action, and thinks its influence is purely mechanical. There are a number of objections to this view. In the first place, there is no good evidence that uric acid ever forms the so-called quadriurate, and the teaching that it is present in normal blood as a quadriurate depends purely upon hypothesis and very imperfect analogy. Further, there is good evidence that urates are deposited in gout and other conditions without causing any symptoms resembling gout, or indeed any symptoms at all. And, again, if uric acid does produce the arthritic symptoms in gout the best evidence at hand tends to show that it does so chiefly by its toxic action, an action which Sir William Roberts denies. There is no good reason—according to the statements he gives—why some uric acid should not crystallize out in the blood-stream, if its existence in gout depends upon supersaturation in the fluid which it contains, and the presence of a large amount of sodium salts. For he states that the blood is saturated or oversaturated in gout, and the blood contains sodium salts in only a little smaller amount than the synovial fluid. But the evidence concerning its crystallizing out in the blood-stream, even that offered by Sir William Roberts, is wholly negative. These arguments are, however, valueless in either case, for Klemperer's work shows that the blood of gouty subjects is by no means saturated with urates. More important testimony

against this theory is found in the fact that the blood does not contain more acid at the time of the attack than in the interval, and hence that there is no evident reason for a deposit at this time. And again we may refer to His and Magnus-Levy's work showing that the excretion of uric acid is greater at the time of the attack than before; an observation pointing to the solution of the deposits at this time, rather than to their increase. Still more important is the previously mentioned fact that there is a loss of nitrogen at the time of the attack, which is so severe as to indicate strongly that there is a decided intoxication at this time, a poisoning which one cannot attribute to mere local irritation and inflammation; the assumption of a general toxic action of uric acid would be more acceptable than this view. And, finally, there is quite as marked an overloading of the circulation with uric acid in some other conditions, as there is in gout, and in some of these conditions we should, if the theory under discussion were correct, find at least a very marked tendency to gout. Nephritis is the most important of these conditions. There is in this disease a marked tendency to increase of uric acid in the blood, and this increase, as it apparently is in gout, is due to retention. At the same time, there is a marked tendency to retention of sodium salts. These would appear to be the ideal conditions for the production of gout, and yet nephritis and even prolonged uremia, without symptoms of gout, are immeasurably more frequent than the same conditions combined with gout. And it is only by a great strain upon one's credulity that one can attribute the general and visceral symptoms of gout and particularly the extremely violent symptoms that may be seen in retrocedent gout to depositions of uric acid. Scattered depositions of the acid, which would prove this, have never been found. Sir William Roberts asks, "Have they ever been looked for?" It may be answered that with modern methods of fixing and hardening tissues they could not have been entirely overlooked. The claim that they are slight and that they are easily and soon dissolved, is not susceptible of either proof or disproof; but many of the characteristics of the general symptoms are such that it taxes one's ingenuity to attempt to conceive of the manner in which a mere deposition of uric acid could cause them. The reasons given are, I think, sufficient to demonstrate that the purely mechanical uric acid theory will not hold, whatever hypothesis is used in support of it. The lack of evidence that deposition occurs at the time of the attack, and, more especially, the distinct evidence that some toxic agent is at work are, I believe, sufficient to put this theory beyond consideration.

The main question, then, which is to be decided is, I think, whether uric acid causes both general toxic symptoms and local toxic symptoms, as well as the local symptoms of irritation that would be caused by any foreign body; whether it causes some or all of the local toxic and mechanical symptoms, but no general symptoms of importance; or whether it causes no symptoms at all that can be directly attributed to it, excepting those which would be produced by any foreign body deposited about the joints. I believe that the testimony which I have mentioned demonstrated with a great degree of probability that uric acid does not cause any notable evidences of intoxication and does not produce the decided general symptoms of the disease. On the other hand, I believe that the work of Freudweiler and His obliges us to admit that uric acid may produce much of the local difficulty in gout at the time of the attack as well as in the interval through its local toxic action when present in extremely concentrated form. There is now certainly only weak ground for the belief that it has a purely mechanical action in gout. Its role in gout may perhaps be compared with that of sugar in diabetes though the analogy is not perfect by any means; that is, excessive quantities of sugar in the blood are harmful and are apparently capable of producing chronic inflammatory changes, but hyperglycemia is a result of the causal condition, not itself the cause. I believe that uric acid may justly be looked at in much the same way, but looked at in this way it would be given only a subsidiary role in the disease and the main cause of the intoxication would then have to be referred to some other toxic substance or substances as yet unknown.

There is one thought which has not been considered, but which is worthy of brief mention. I believe that it is possible that the uric acid in gout is different from the uric acid in other conditions in which an excess apparently does not cause symptoms. This at first of course seems to be extremely improbable, but I think it is within the bounds of possibility. It is known that many substances, when produced differently, have different physiological actions, although their chemical constitution seems to be exactly similar, and this is notably true of several of the xanthin bases, which are closely allied to uric acid. Caffeine, for instance, when derived from its natural source, is only slightly toxic, while some synthetic preparations of caffeine are extremely toxic; and while guanine has little toxic action as a rule, some preparations of guanine are very toxic.

It may then be considered as a remote possibility that the uric acid in the blood in gout is, in part at least, present in a form

which is toxic while it is not notably toxic in other conditions. This is, however, extremely improbable, and there are many facts which point strongly against such a view.

The question of the relation between uric acid and the so-called uric acid diathesis may be dealt with more briefly, for there is much less real evidence to be weighed. It is impossible to consider seriously the numerous claims which have recently been made that disorders of various kinds are due to uric acid. Certain writers insist that epilepsy, hypochondriasis, neurasthenia, and other nervous disorders; disturbances of the alimentary tract of the most various kind, even including diseases of the teeth, gums, and throat; and apparently everything else that is not clearly due to some other cause, may be attributed to an excess of uric acid. This is merely a superficial way of escaping from difficulties.

The impulse to such expressions was given largely by Dr. Alexander Haig's publications, in which it is claimed that the ratio between the uric acid and the urea is an index of the presence or absence of an excess of uric acid in the system and of poisoning by this substance. All the conclusions reached by Dr. Haig are based essentially upon this assumption; but, unfortunately, all the conclusions reached by such methods must be considered wholly valueless, for, as stated earlier, the ratio between the uric acid and the urea has no value as an index of the amount of uric acid produced or retained in the system or of the activity of oxidative processes. The essential fallacy in this teaching lies in the assumption that uric acid should be almost entirely excreted as urea; and that, when the amount of uric acid in proportion to that of urea rises, the uric acid is present in the system in abnormally large amounts. This is wholly incorrect. The ratio between the uric acid and the urea, as has been stated, depends chiefly upon the character of the food; not upon the activity of metabolic processes. Hence, it would be quite as fallacious as to draw exact conclusions concerning the severity of diabetes by determining the ratio between the sugar of the urine and the urea, without controlling the diet; and, if the diet is considered, Dr. Haig's gout ratio loses its apparent importance. The changes in the uric acid excretion, which he describes as the result of the use of drugs, are, in large part, not confirmed by other investigators that have used better methods. These, as well as many of his other results, are evidently due to the use of methods that are antiquated and are unsuited to serious investigations.

In a discussion of the so-called uric acid diathesis there is no

place for all this array of diseases. It is quite as unjustifiable to include all of these under the name of uric acid diathesis as to call any obscure disturbance of health neurasthenia. There are, however, two general classes of cases in which the wisdom of the term uric acid diathesis deserves consideration: In the first there are, with other symptoms of varied kind, atypical arthritic symptoms; tophus, or uric acid calculus formation; perhaps a marked tendency to the eczematous, or other skin eruptions, common in subjects of gout, usually the methods of life general among gouty persons; and often a very strong family history of actual gout. In such cases one is usually justified in deciding as he would in typical gout, whether uric acid has any real relation to the disorder. If it produces the symptoms, it must cause most of them by toxic, not by mere mechanical action. As I have stated, the testimony concerning gout favors the view that the toxic symptoms in this disease are, for the most part, not due to this substance; I believe, therefore, the same is true in cases that seem to be irregular gout—that is, that uric acid may produce some of the symptoms, but cannot be looked upon as the prime cause of the disturbance. Since marked local symptoms and urate deposits are usually absent in these cases, the testimony in favor of uric acid is much less marked than it is in actual gout.

The second class of cases is composed of those in which there are no distinct symptoms immediately suggesting actual gout, but in which there is often the same history of excess in food or in alcoholic beverages, with a sluggish life, frequently a family tendency to the same condition, often decided periodic exacerbations of the symptoms and a tendency to the deposit of uric acid or urates in the urine; while headache, depression of spirits, and gastro-intestinal disturbances are very frequent, and there is often—especially very late in life—a disposition to grow fat, and to the development of renal and cardiovascular changes, and of chronic bronchial catarrh. Not uncommonly, a mild and inconstant glycosuria appears in older subjects; and occasionally definite gouty symptoms or actual gout ultimately develop. Unless distinct symptoms of gout appear in such cases, it is difficult, and, indeed, I think it is impossible to say that there is a real relation to gout. The characteristics of these cases, which are shared by all of them, are that there is evidently a disturbance of nutrition; that there is usually overfeeding, and probably insufficient oxidation; and that the urine frequently shows a deposition of urates. That they all belong to the class of gouty diathesis is, I believe, questionable in the extreme; and that uric

acid plays an important role in the production of the symptoms is exceedingly improbable.

The appearances of the urine demonstrate nothing, except that its condition is unfavorable to the complete solution of the uric acid or urates. Its appearance does not prove that the amount of uric acid varies in any way from the normal, for it is well determined that a deposit may occur from many causes besides increase in the amount of uric acid; and actual estimations of the uric acid—which, with others, I have repeatedly made in such cases—have shown no frequent or notable variations from the normal. In other words, the study of uric acid in the condition which bears its name, when carried out by proper methods, has been fruitless; and this study, by itself, would indicate that uric acid bears no definite relation to the diathesis.

Hence, if we believe that uric acid is the cause of this condition, we must hold this belief upon the strength of two hypotheses: That these cases are really instances of gout, masquerading in strange costumes; and that gout is due to uric acid. As to the latter hypothesis, it is unnecessary to repeat myself further; as to the probability that these cases are really irregular instances of gout, I think that the testimony is wholly unsatisfactory, so far as drawing any definite and positive conclusions is concerned. That some of these patients develop gout is insufficient ground for stating that all of them have been of gouty diathesis from the beginning, or that even those that do develop gout had originally any condition that was, in itself, related to that disease. Were the tendency to gout more constant with them, it would be of more importance; but I do not believe that actual gout occurs in a large proportion of these cases, unless the term gout be made to include all those disorders that are due to civilized life — a method of using the term that has been adopted by some authors.

I think, in other words, that we have been calling a large number of varied disturbances of metabolism by one name, and by one that, so far as we yet know, is not actually deserved by many cases in this class. We are obliged to group them together at present, because we have, as yet, no way of distinguishing them; but there is probably no more successful means of limiting knowledge concerning any disorder than by giving a name which implies a knowledge of its cause. I think we should admit that we have no good reason for believing that uric acid causes the disturbances attributed to it, and that we do not know the true cause. We should then be much more likely to

make more careful classifications of these cases, and to learn more about their actual clinical characteristics and about their etiology. One thing is certainly true; estimation of the amount of uric acid present in the urine, whether a good method or a bad one is used, is utterly valueless from a diagnostic standpoint. There is a widespread notion that the condition called uric acid diathesis can be diagnosed by estimating the uric acid, but when carried out for this purpose such a procedure is a waste of the examiner's energy and of the patient's money.

As was noted in the beginning of this paper, and as is known to all of you, there was made, some years ago, a very active attempt to prove that gout is due to an excess of xanthin bases in the system; and, more recently, in this country particularly, there have been some attempts to show that the "uric acid diathesis" is due to the same substances. This question may be dealt with most briefly of all. The basis of this teaching was the supposedly exact observation, by Kolisch and a number of writers that followed him, that the xanthin bases are increased in cases of gout; and also that in renal disease their amount is increased. The latter increase was supposed to be due to imperfect oxidation to uric acid, as a result of the renal disease itself; for Kolisch taught that the oxidation of xanthin bases to uric acid is carried out by the kidney. As is so often the case, the original teaching has persisted in the minds of many, even after it has been proved to be incorrect. Kolisch's views have been demonstrated to be wrong in both particulars, namely, there is not an increase in the xanthin bases excreted in gout, and, so far as subsequent investigations have gone, there is no reason for thinking that disease of the kidney has any influence upon the oxidation of xanthin bases to uric acid.

The statements originally made were due, as have been so many statements concerning uric acid, to the use of bad methods, more especially the Kruger-Wulff method, which practically always gives results that are too high. The use of more exact processes—particularly that of Solkowski—has served to contradict and disprove the statements of Kolisch and his followers.

A great deal of stress has been laid upon the toxicity of some of the xanthin bases. That they are toxic, however, proves nothing concerning gout or the uric acid diathesis. Besides the xanthin bases there are numerous excretory substances that are toxic; but we do not accuse them of being the cause of gout or the uric acid diathesis, and we have, from a study of their excretion, no better reason for thinking that the xanthin bases are the actual cause of these conditions. The excretion of these

bases is about normal, and, consequently, the conditions concerning them are in this particular the same as those concerning any other toxic excretory product that one may wish to choose; and more direct methods of experimentation with the xanthin bases, while they have shown that these substances may cause toxic lesions, especially in kidneys, have also demonstrated that, with the possible exception of adenin, they are apparently incapable of producing the joint-lesions characteristic of gout. The whole discussion concerning the xanthin bases, so far as any work relating to them has gone, may, unfortunately, as Friedrich Muller puts it, be brought to the conclusion that the use of bad methods has led to a great waste of time, for it gave the impulse to an extensive study of these substances, a study which better methods have shown to be wholly fruitless.

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