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ONE DOLLAR A YEAR

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VOL. II.

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ONE DOLLAR A YEAR

NOTICES

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THE SASKATCHEWAN MEDICAL JOURNAL

VOL. 2

JULY, 1910

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Original Memoirs

PUERPERAL INFECTION *

By Thomas J. Watkins, M.D.

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INTRODUCTORY OBSERVATIONS.

This subject is selected as it is the most important one in gynecology at the present time because of its prophylaxis, its morbidity and mortality, and especially because more progress is being made in it than in any other class of gynecologic diseases. In fact, most of the progress that is being made in medicine is in the study of the various infections, and all of the infections have much in common. For the advance made in our knowledge of infections and immunity we are under great obligation to the vast army of earnest, industrious and highly educated men that are doing laboratory research work.

PROPHYLAXIS.

The thousands of cases of puerperal infection that occur annually is a very serious reflection upon the intelligence and care displayed in the practice of midwifery. It would seem

*From the Bulletin of the Northwestern University Medical School, Chicago, and reprinted by special permission.

that the greatest hope of advance in prophylaxis consists in the general use of sterile rubber gloves. As the laity more and more appreciate that the accoucheur who neglects the use of rubber gloves in his work is careless in his cleanliness, their use will become more general and cases of puerperal infection will become less common. The fear of criticism is a powerful factor in increasing the aseptic care taken during childbirth.

THE TREATMENT IN GENERAL IS BAD.

The treatment of puerperal infection as obtains in general use and as observed in much of the literature is bad if our knowledge of infection, immunity and wound repair is rational. The reason for this is that much of the treatment in general use is heavily laden with a lot of meddling and dangerous traditions, and the clinicians as a class have not made use of the knowledge developed by the research men in the study of infections, immunity, and wound repair. The treatment of puerperal infection is now in about as deplorable a state as the prophylaxis of puerperal infection was in the days of Semmelweis and Holmes. These conditions emphasize the advisability of a closer relationship between the clinician and the research laboratory man.

CLASSIFICATION.

The frequently used classification of "before" and "at term" and "saprophytic" and "non-saprophytic" confuses the subject and it seems to me of little or no use. The infection before and at term is about as much alike as is the infection in a small and a large hand. Saprophytic infection is probably always associated with other bacterial infections and the non-pathogenic bacteria may become pathogenic under the abnormal conditions. The ideal classification would be as to the various varieties of the bacteria involved, but our knowledge has not developed sufficiently to make this practicable. Bacterial examinations of the uterine discharges are contradictory even in the hands of the expert. Blood cultures do not often

give positive results. The severity of the disease varies as much in the same variety as it does in different varieties. The treatment is as yet the same irrespective of the variety. To determine the variety of the bacterial infection, however, is of some value in the prognosis. The conclusion is that a classification as yet complicates the subject and is of no practical value.

INFECTION AND IMMUNITY.

This is a battle between the bacteria involved and the resisting forces of the body. The latter will be referred to as the physiologic resistance. Their conflict may be carried on with or without the presence of an inflammatory exudate, macroscopical, at least, in extent.

The presence of an inflammatory exudate is largely accidental, and depends upon whether a localized area of irritation occurs or not. The irritation is supposed to be due to toxins produced by the bacteria. The localized areas of irritation occur usually in embolic infections in the veins or may occur in the lymphatics. One should remember that the infection in puerperal cases usually extends along the vessels and not by continuity of tissue.

The inflammatory exudate is principally a conservative and not a restructive process. The localized leucocytosis and active proliferation of connective tissue cells are powerful factors in destroying bacteria. The bacteria may also be destroyed by their own toxins that accumulate in the inflammatory exudate. The disease lasts until an immunity results or death occurs and depends upon the virulence of the infection and the power of the physiologic resistance and varies from a few days to five or six weeks. Two or three weeks is probably the average length of time. Whether suppuration occurs or not probably affects very little the duration of the fibrile period of the disease unless a secondary colon bacillus infection occurs or a reinfection from treatment results. One who has operated upon these suppurative cases during the acute attack and removed the pus by excision of the inflam-

matory mass or by incision and drainage must have observed that the febrile period of the disease lasted about the usual time: that is, until immunity developed. Take a case of puerperal ovarian abscess, remove the ovary with the usual aseptic precautions without spilling the pus; and the febrile period of the disease will continue about the usual time, that is, until immunity develops. This is somewhat a personal opinion, but is, I believe, consistent with clinical experience. It is impossible to prove, as there is such a large amount of variation in the virulence of the infection and the physiologic resistance in the different cases. This means that the local infection is of very little importance when compared with the general infection.

THE INFECTED UTERUS.

The changes in the uterus may vary from being so few as to be scarcely discernible to the naked eye to having a profuse suppurative surface with more or less sloughing tissue with decomposed thrombi and small abscesses in the muscular wall. It is interesting to speculate how the latter condition affects the disease. It would seem to increase the severity of the disease and yet the acuteness of the illness has little or no relation to the amount of pathology in the uterus. The very acute, usually streptococcus, cases often have very little localized pathology. The cases with extensive uterine pathology are seldom the extremely acute cases. You tell me it is a difference in the variety of the infection. The cases with extensive pathology in the uterus are, however, at times streptococcus in part at least. The above would suggest the possibility that the inflammatory exudate, the mixed infection or the saprophytes may help destroy streptococci or staphylococci. The above emphasizes again the small relative importance of the local infection.

The presence of pus in these cases has not the same effect as the presence of pus in some of the other localities of the body in cases of infection. In the pelvis the localized leucocytosis and cell proliferation is much more active than in most

other parts of the body. In very few localities does the pus become sterile as it does in the pelvis. The conditions which favor, limit and stop the growth of the bacteria are problems for investigation. Not long ago it was supposed that the growth of the bacteria took place chiefly in remnants of retained decidua and placenta. Now we know that the presence of suppurative endometritis and the amount of suppuration in the uterus does not determine the severity or duration of the disease. Some of the most acute cases have little or no suppurative endometritis and some cases with a profuse suppurative endometritis may not be very acutely ill or protracted in duration.

TREATMENT.

I will ask you to put aside any prejudices you may have and consider with me what seems to be a rational treatment as based upon the modern conception of infection, immunity and wound repair. No treatment, however, will be ideal until methods for exact detection of the variety of the infection are found and specific serums or vaccines are discovered.

SYSTEMIC TREATMENT.

All will agree that when the cases of puerperal infection come under the care of a physician the systemic infection is the important part of the disease, and that the systemic treatment is the important part of the treatment. Rational systemic treatment would consist in one or more of the following measures:

1. Use of serums or vaccines to neutralize or destroy the bacteria or their toxins.
2. Use of measures to limit or stop the growth of the bacteria.
3. Use of measures to sustain or increase the physiologic resistance.
4. Use of measures to eliminate the toxins.

Serums and vaccines have as yet proved to be of little or no value.

The second, third and fourth can be considered together, as our only known means of limiting or stopping the growth of the bacteria is to use measures to sustain or increase the physiologic resistance, and to force elimination is also to sustain the physiologic resistance.

The physiologic resistance is probably best supported by food, good air in abundance, sunshine, sleep and rest, and good elimination. Our knowledge of support of the physiologic resistance will be increased when it is known which bacteria or toxins are destroyed by the serum and which are antagonized by the leucocytes. Staphylococci and streptococci are chiefly destroyed by phagocytes¹ and injection of mediums to increase the phagocytes such as serum, blood, various proteid substances, yeast, etc.,¹ may prove to be valuable agents. Things which cut down the physiologic resistance such as narcosis, hunger, thirst, anemia, alcohol, muscular exhaustion, and abdominal temperatures² should be avoided.

Duncan³ calls attention to the very close relation between animal poisons and substances that interrupt catalytic action (Enzyme paralyzers). He also calls attention to the fact that some colloidal substances, minute particles of platinum in suspension and mercury antagonize catalytic paralyzers. This suggests a hope that chemistry may determine the action of the bacterial toxins and may discover remedies that will produce an artificial immunity.

LOCAL TREATMENT.

This is of minor importance when compared with the systemic treatment and will be discussed under "An Outline in Hospital Treatment," which will be taken up later.

A STUDY OF 66 CASES.

The cases included in the report contain all patients with puerperal infection that I have treated during the last five

¹Hektocn; Keen's System of Surgery, Vol. 1. ²Ibid. ³Chemistry of Commerce, page 88.

years. They were all treated at Wesley or St. Luke's hospitals and were, generally speaking, severe infections, as only the very worst cases of puerperal infection are usually sent to the hospital. A number of them had been curetted, had been given intra-uterine douches, had become dangerously ill and were then sent to the hospital. The cases are reported to show the result obtained in a number of cases of severe puerperal infection by treatment which was chiefly systemic:

Number of cases treated, 66.

Number of cases with suppurative peritonitis, 6.

Number of cases with pelvic inflammatory exudates, 31.

There were other complications as follows: iliopsoas abscess, 1; pyemic abscesses, 1; lobular pneumonia (probably embolic), 5; phlebitis, 2; intestinal obstruction, 2; acute post operative dilatation of the stomach, 1; acute nephritis, 2. Many of the other cases, however, had some albumin and occasional casts in the urine. Thirty of the cases had a maximum temperature of 103+ and 36 of the cases had a maximum temperature of —103. The amount of fever did not well represent the severity of the illness, as some of the cases with a —103 temperature were more dangerously ill than some with a temperature of 103+. Eleven of the 31 cases with a pelvic exudate had a maximum temperature of —103. The leucocyte count varied from 5,000 to 58,000. Only three of the cases were diagnosed as gonorrhoeal infection. 34 of the cases with a temperature of 103—. Eleven of the 31 cases were diagnosed as gonorrhoeal infection. Thirty-four of the cases were given supportive treatment only (measures to sustain or increase the physiologic resistance). Eighteen of the 31 cases with a pelvic exudate had systemic treatment only. In 21 of the cases where the uterine cavity was explored or packed systemic treatment alone was used after the uterus was emptied. This is, in 55 of the cases the treatment was chiefly "supportive only." Intra-uterine irrigations or medicinal applications were not used in any of the cases.

Results: 59 recovered and 7 died; 6 of the fatal cases had general suppurative peritonitis, were so ill that little hope

of recovery existed, and one lived only a few hours, one two days, one four days, one five days, and two six days. If one were to exclude these apparently hopeless cases, then the mortality would have been one in sixty cases. The other fatal case came to the hospital with a large pelvic abscess, containing colon bacillus, which was incised and drained; a second abscess occurred which was punctured through the old sinus. She later developed a general peritonitis and died on the 20th day after admission. It was a surprise to find that the average stay in the hospital of the cases that recovered was about 18 days. None of the cases included under the list of "other complications" died. The pelvic exudates varied in size from small masses of exudate to exudates that extended to the umbilicus. All the cases were examined when discharged and of the 31 cases of exudate four had a slight thickening and four had a slight exudate when they left the hospital. One had a well-defined mass, the excision of which was advised, but the patient refused operation. It was noticeable that the exudates showed little or no tendency to absorb until the temperature and leucocyte count became about normal and then the absorption was usually rapid.

OUTLINE OF HOSPITAL TREATMENT IN DETAIL.

1. A complete history and physical examination is made. The blood and urine are examined at regular intervals. Bacterial examinations are made in some of the cases, but not as a routine for reasons given above.

2. If the foetus is not expelled, and the cervix not well dilated, the uterine cavity, cervix and vagina are firmly packed with sterile gauze, irrespective of the amount of temperature. This is done for the purpose of damming back the secretions, separating the decidua or placenta, stimulating uterine contractions and emptying the uterus without traumatism. The gauze, foetus and placenta are often expelled spontaneously within 24 hours. If it is not expelled within 24 hours the gauze is removed and replaced if the cervix is not sufficiently

dilated to allow the uterus to be quickly emptied without the use of an anesthetic or without inflicting much traumatism.

3. If the foetus has been expelled the uterine cavity is explored only when there is hemorrhage or decidedly offensive odor, as they mean retained decidua or placental tissue. Even in these cases it is good treatment to pack the uterine cavity, cervix and vagina with gauze and let the uterus empty itself, especially for the inexperienced and when the assistance and surroundings are unsuitable for clean surgical work. If the uterus has to be emptied it should be done preferably with the finger. A placenta forcep or a large curette may be used in the early months of pregnancy. One should always bear in mind the dangers of puncture, rupture, mistaking the site of placental attachment for placental tissue, dislodging infected thrombi in the uterine sinuses, breaking down the leucocyte wall, extending the infection by traumatism, and diminishing the physiologic resistance by narcosis, by loss of blood and by traumatism. A suppurating, sloughing wound in the uterus should be treated with the same, gentle, careful methods as one would use in the treatment of a suppurating, sloughing wound on the hand. One should remember that such a wound in the uterus is always covered with a hot normal saline solution. Many of us would consider such a dressing sufficient and the best local treatment for a suppurating, sloughing wound of the hand.

If the uterus is found to be empty by the absence of hemorrhage, very offensive discharge or if it has been emptied it is left alone.

4. Uterine and vaginal drainage is obtained by elevating the head of the bed and by keeping a moist sterile dressing over the vulva to keep the secretions from coagulating or desiccating. Intra-uterine or vaginal douches are not used as they are dangerous, useless and disturbing to the patient.

5. An ice cap is placed over the lower abdomen during the acute period of the disease. Heat is used later if needed to promote absorption.

6. Opiates, preferably codein, are given in moderation to control the pain.

7. The bowels are moved, preferably by enemas. The milk and molasses (equal parts, one pint) is often very useful in obstinate cases.

8. Systemic treatment.—This, with our present knowledge of immunity, is considered the most important part of the treatment and consists in doing our utmost to sustain and increase the physiological resistance. Physiologic resistance is probably best treated by the use of things which are essential to the vigorous good health of the well; namely, food, water, fresh air, sunshine, sleep and good cheer. These may be considered very elementary, but they are the most important remedies which we have at present to combat infection.

a. Food.

Milk, eggs, and beef juice are chiefly depended upon for nourishment during the most acute period of the disease. After the high temperature subsides an easily digested food, especially rare beef, is given if there is not much stomach or intestinal disturbance.

b. Water.

Care is exercised that the patient takes two or three quarts of water daily. If this is not easily taken by mouth normal salines per rectum are given. The drop method of rectal salines with the temperature of 110 to 115 with the foot of the bed elevated, when not contraindicated by the necessity for active drainage, is found especially valuable when the amount of urine is small, tongue coated, stomach irritable and skin dry. In fact, the drop method of normal saline as above seems to be the most effective treatment for these conditions. It takes at least two quarts daily to keep the wastes of the body in a suitable solution for elimination. High rectal tubes in about 999 out of 1,000 times are bent and coiled tubes and their frequent use is a reflection upon the intelligence of the profession. The normal salines are valuable adjuncts in obtaining regular bowel movements.

c. Fresh air and sunshine.

When possible the patient is kept in a sunny room, well supplied with windows and the shades are left up and the windows open, except when the patient has to be uncovered. These conditions are extremely valuable helps in obtaining good rest, sleep, appetite and digestion. Care is taken that the patient sleeps six to eight hours daily and anodynes, hypnotics or sedatives are given if necessary for this purpose. The patient that sleeps well seldom becomes delirious. Some preparation of opium, preferably codein, is given to relieve severe pain. Baths are given to relieve high temperatures and as a sedative. Fresh air and sunshine is as important in these cases as in the cases of tubercular infection.

d. Good cheer.

The well do not rest, sleep, eat or digest satisfactorily when worried, depressed or frightened, and the sick are more susceptible than the well. Care is taken to avoid meddlesome and painful local examinations and treatment so as not to disturb the mental condition of the patient.

Elimination—Physiologic resistance is probably aided by the free action of the kidneys, bowels and skin as the toxins are thus eliminated.

Phagocytosis.—Mention has been made of remedies that develop or increase the leucocytes. This would seem to be valuable especially in infections like streptococci and staphylococci, which are chiefly destroyed by phagocytosis and it is possible that these remedies have been neglected. There has been, however, no especially favorable reports from their use. Care should be taken to avoid narcosis, alcohol, abnormal temperatures, muscular exhaustion, anemia, hunger, thirst, toxemia and other infections, as they lower the body resistance.

Medicines.—Very few medicines are usually given except as above noted. Bromides are sometimes given for nervousness. Asafoetida is sometimes administered per rectum to quiet the patient and relieve flatulency. Alcohol is not given, as it lowers the opsonic index, interferes with the appetite, digestion, rest and sleep. Tonics are given at times to increase

the appetite for food. Iron is often useful during the period of resolution. Stimulants like strychnia, digitalis, etc., are seldom given, as rest, not action, is usually desired. There is little or no evidence, theoretical or clinical, to show that quinine or silver, internal or external, are of any value.

TREATMENT OF INFLAMMATORY EXUDATES.

1. Suppurative peritonitis. These cases are so ill, so overwhelmed with infection that there is little hope for recovery. The best local treatment is probably vaginal incision through the posterior vaginal fornix and free drainage facilitated by posture. Much better postural drainage is obtained by elevating the head of the bed than by elevating the chest, as is often done. The vaginal incision can be done in a few minutes with gas anesthesia without much shock or traumatism. More extensive operative treatment would tend to do more damage than good.

2. Pelvic inflammatory exudates. Incision and drainage of non-suppurative exudates can be of no value. The incision opens up fresh areas for absorption and a secondary infection is very apt to occur in the incision and to prolong and complicate recovery.

The non-gonorrhoeal pelvic exudates that do not suppurate are practically certain to disappear by absorption. One, however, should not expect much absorption until they become sterile. That is, until immunity develops. These cases are allowed to get out of bed as soon as they desire, but are cautioned against fatigue.

Pelvic abscesses.—The presence of pus is no longer an indication for operation. The presence of the pus does no good, but the mental disturbance, the shock and traumatism are very likely to do more injury than the pus. The puerperal suppuration is often in small quantities and in multiple places, so that incision and drainage may invade none or only a few of the suppurative areas. One should remember that the pus in pelvic abscess without secondary colon bacillus infection

soon becomes sterile. If the abscess is large, points in the vagina or under the skin in the lower abdomen it should be opened. These cases are nearly, if not always, cases of secondary colon bacillus infection. The presence of the secondary colon bacillus infection can probably always be determined by a rapid increase in the size of the exudate.

Abdominal section.—Abdominal section is probably never indicated during the acute period of the disease except in very rare cases. It may be indicated by an intestinal obstruction. A secondary appendicitis may develop and require it. There are some cases of phlebitis like those reported recently by Whitbridge Williams which indicate an abdominal section.

Hysterectomy.—Our present knowledge of infection, immunity and wound repair tends to interest us in hysterectomy for cases of severe puerperal infection, only as a historical consideration.

**STENOSIS OF THE FOREGUT—The Value of
Immediate Introduction of Nourishment during Operations.**

By ERNEST A. HALL, L.R.C.S. Ed., Fellow of Royal Society of Medicine,
London, Vancouver, B.C.

The death following a rapidly executed gastro-enterostomy for congenital pyloric stenosis in an infant of three months has led me to consider the question of nutrition as one of the greatest importance in all operative procedures in which there has been a deficiency of food.

In these cases the condition to be feared is that described under the term of "shock," which is but the extreme exhaustion of the system and its inability to continue the vital processes in the presence of the additional traumatism. In cases of extreme severity, a primary enterotomy—a Witzel's operation upon the jejunum—is indicated where the patient is much exhausted, but in the great majority of cases the insertion of food into the bowel immediately upon the opening of the abdomen will give all that is necessary to nourish the patient and carry him safely through the operative crisis.

It is now my practice in all cases of stenosis of the upper alimentary tract to adopt immediate feeding by inserting from one-half to one pint of peptonized milk into the jejunum before proceeding to do whatever surgical procedure has been decided upon.

After the abdomen is opened, the jejunum is located and the nourishment passed in through a hollow needle, trochar, or glass nozzle attached to an irrigator. While the fluid is entering, the bowel being held by the assistant, the operator can best utilize the few minutes required by examining the condition and deciding upon his subsequent course of procedure. The opening in the bowel is closed with a few linen stitches, and with this "internal splint" the patient is nourished and thereby fortified against surgical shock. Peristalsis and absorption are so active that in performing gastro-enterostomy without clamps no regurgitation of the milk was apparent.

Four cases have lately come under my care in which the immediate introduction of food appeared to be of the greatest service, there being a complete absence of any depression of the vital forces following the operations.

The first case was one of pylorotomy for cancer in a woman of fifty, very much emaciated. There was no more systemic disturbance than after the amputation of a finger, and convalescence was uninterrupted. Death followed from cancer of the stomach thirteen months after.

In the second case, an oesophageal cancer in a woman of forty-nine who had taken very little food for two weeks, a Witzel's operation was performed on the stomach, there being absolutely no shock.

The third was a patient of Dr. Hogle's of Vancouver, a man aged sixty-five, extremely emaciated, who had been considered too weak for operation. His pulse was intermittent. Posterior gastro-enterostomy was done, and while on table the condition of the patient improved. There was no shock, and convalescence was normal.

The last case, that of a man aged thirty-eight, was cancer involving two-thirds of stomach. I removed the pylorus and the greater part of the stomach, leaving but enough of the cardiac end to attach to the jejunum (sub-total gastrectomy). Time of operation, one and one-half hours. There was a complete absence of shock. Six hours after the operation the patient's temperature was 98.8°, pulse 100, respiration 30. Next morning the temperature was 98.8°, pulse 88, respiration 28, patient quite comfortable. Two weeks after the operation the patient was sitting up in bed and taking nourishment regularly. He is still under treatment.

The condition of these patients immediately following these relatively severe manipulations, the complete absence of shock, comparative freedom from pain, and easy convalescence enables me to recommend, as routine practice in all cases of stricture of the fore-gut with deficient nutrition where operation is decided upon, the immediate injection of nourishment into the bowel as the surgeon's first duty after opening the abdomen.

THE RELATIONSHIP OF OPHTHALMOLOGY TO GENERAL MEDICINE AND SURGERY.

A Clinical Lecture

By J. H. WOODWARD, B.S., M.D.

Professor of Ophthalmology in the New York Post-Graduate Medical
School and Hospital.

Physicians and surgeons, and oculists as well, are too prone to think of ophthalmology as that department of medicine and surgery that deals only with the eyeballs and the orbital contents. Ophthalmology has a much wider scope, a scope that brings it into the closest clinical relationship to every-day experience in general practice.

Anatomically, the visual apparatus comprises the eyeballs, the extra-ocular muscles and other intra-orbital structures. Through the optic nerves, the sensory and the motor nerves, and the sympathetic system, it is indissolubly associated with the basal ganglia of the brain, the cerebral cortex, the medulla, and the spinal cord. The optic nerves and the retinae are processes of the cerebro-spinal system.

The optic nerve and its distribution, the retina, is the only living nerve that may be seen by the observer. Changes in those structures, whether local in origin, or whether they be manifestations of disorders in the central nervous system, or in the circulatory system, or in the abdominal viscera, may be seen in their incipient stages and followed to their conclusion.

The retinal vessels are the only living blood vessels that are visible, and changes in them, both functional and organic changes, are readily distinguished by ophthalmoscopic examination. Such observations may reveal the state of the circulatory system at large, although a normal condition of the retinal vessels and circulation does not signify a normal state of the general circulatory apparatus. On the other hand, an abnormal state of the retinal vessels and circulation does indicate that there is a corresponding condition elsewhere, and, especially, in the cerebro-spinal distribution.

Again, by virtue of the facilities afforded in measuring weakness and paralysis of the ocular muscles through the symptom diplopia, ophthalmology affords a means of careful testing of certain important muscle changes that does not exist in any other branch of medical science.

It is evident, therefore, that the visual apparatus is closely bound physiologically and pathologically to the cerebrospinal and the sympathetic systems; it is similarly associated with the circulatory system; and, by virtue of these two relationships, it is likewise related to the abdominal viscera.

Functional changes in the visual apparatus are concomitant phenomena of organic derangements of other apparatus of the general system. A noteworthy example of this is the early occurrence of the Argyll-Robertson pupil in posterior spinal sclerosis and in dementia paralytica. Associated with the Argyll-Robertson pupil, diplopia, due to paresis or paralysis of one or more of the extra-ocular muscles, is a symptom of frequent occurrence. Double-vision is always an important sign, so important that it should be assumed to indicate some functional or organic derangement of the central nervous system until the contrary may be proven to be the fact. Moreover, inasmuch as diplopia, the Argyll-Robertson pupil, and other changes in the motility of the muscles of the iris are often the earliest premonitions of serious nervous affections, intelligent examination of the pupillary reflexes, routine measurements of the power of the ciliary muscles and systematic search for the presence of diplopia are essential steps in a competent investigation of every case of nervous disease. Inequality of the pupils, abnormalities of the light and the convergence-accommodation reflexes, whether they belong to the Argyll-Robertson type or not, ptosis, ectropion, lagophthalmus, exophthalmus, enophthalmus, nystagmus are symptoms of central disease, and correct interpretation of their presence materially assists in the diagnosis and the treatment.

Functional derangements of the visual organs, as observed in functional derangements of the general system, are exemplified by attacks of obscuration of sight, sometimes noted

in acute indigestion, and by the common phenomena of pain in the eyeballs and specks before the eyes that often accompany functional disturbances of the liver.

Migraine presents a variety of ocular phenomena of great interest in this connection. The scotomata, the clouds, the flimmering, the zigzags of light, the hemianopsia and the diplopia, as well as the pain, the nausea, and the vomiting, observed in migraine seizures, are commonly transient symptoms. The pain and the ocular-motor paralysis of the ophthalmoplegic type of migraine, however, are not transient symptoms; they may persist days, weeks or months; so that, in this category of cases, what appeared at the outset to be a functional disease will prove to have had an organic basis. Again, the common symptoms of any and every type of migraine may occur and recur in diseases of the cerebral vessels, notably in the endarteritis of tertiary syphilis.

It is evident, therefore, that this symptom-complex may be correctly interpreted only by competent investigation of the entire organism, comprising examinations of the visual apparatus, the cerebrospinal and the sympathetic systems, the circulatory system, the abdominal viscera, and the genito-urinary organs. The generality of cases may be regarded as examples of a true neurosis, in which heredity plays a role. There are other cases, presenting the same symptomatology, which are due to anomalies of the organs of sight. And there are still others, that are based upon pathological changes elsewhere than in the visual apparatus. The differentiation of these cases is a problem of manifold perplexities, a problem in fact that in a very typical manner reveals the relationship of ophthalmology to general medicine.

Pathologic changes in the structures of the eyeball are concomitant phenomena of pathologic changes in other regions. Thus ophthalmoscopic examination discloses an early symptom of cerebral tumor and cerebral abscess.

Choked disc often precedes the localizing symptoms of tumor. Double choked disc associated with headache, not

associated with albuminuria or casts, is pathognomonic of an intra-cranial neoplasm, or abscess.

It has been stated that the vessels of the retina are the only blood vessels of the human organism that are visible. It is easy to examine these vessels, to note their characteristics, to note the rhythm of the blood current through them, to investigate the condition of their walls. We are able to state whether the walls of the arteries and veins are healthy, or sclerosed, or even whether they are atheromatous.

Atheroma and sclerosis of the retinal vessels are commonly associated with similar states of the cerebral vessels. Inasmuch as arteriosclerosis and atheroma play an important part, especially in the chronic and the subacute diseases of advanced life, the significance of the probability of revealing the existence of such arterial and venous changes by examination of the visual apparatus need not be emphasized.

Many times have I been able to predict an early apoplexy on the evidence revealed by the ophthalmoscope; and I have been able to avert such a catastrophe through the knowledge gained by similar means.

Albuminuria in pregnancy is a symptom the gravity of which is everywhere recognized. Associated with it, dimness of vision and specks floating before the eyes are of common occurrence. Whether dimness of vision, or other subjective ocular phenomena are noted or not, in every case of pregnancy in which albuminuria has been detected, an examination of the visual organs by an expert should be made. For it is by such examinations only that the existence of optic neuritis, or the presence of retinal hemorrhages, may be detected. Such changes in the optic nerve or in the retina, whether associated or not, are portentous symptoms. They declare with no uncertain warning the impending danger of eclampsia. Moreover, a prolonged optic neuritis endangers the patient's vision; for prolonged neuritis terminates in more or less complete atrophy of the optic nerve, and, therefore, more or less complete blindness that is permanent.

The nephritis of scarlatina and diphtheria causes inflammation of the optic nerves and retinae, and such inflammations are followed by atrophy of the optic nerves and blindness, unless prompt and efficient treatment be applied. In the early stages, there may be no indication in the sight that such a grave condition exists. The onset is insidious, its termination is grave in the highest degree. Unfortunately the condition is revealed only by ophthalmoscopic examination, which must be conducted under unfavorable conditions.

Inflammation of the optic nerve, inflammation of the optic nerve and retina, retinal hemorrhages, with and without inflammation of the optic nerve and retina, are observed in acute, subacute, and chronic nephritis. Such inflammation and hemorrhages are accompanied by dimness of vision, which may be a slight blurring of objects, or a marked failure of sight. Weakness of vision may be the first observed indication of the serious underlying malady. It occurs even in cases of nephritis, which, judged by the findings of urinalysis, would be regarded as examples of mild invasion of the kidney. They are, however, very serious attacks. And while it is certain that some patients have made a complete recovery from the ocular and from the kidney lesions as well, the great majority either die within a few years, or they live to suffer from a permanent dimness of sight, or from complete blindness. In the early stages of the malady a timely diagnosis, followed by persistent and intelligent treatment may do much for these patients.

As an *etiological* factor in certain functional diseases, eyestrain maintains an important position. There has been much quibbling over the definition of eyestrain, but to all intents and purposes eyestrain is muscle strain; that is to say, eyestrain is strain of the muscles of accommodation, or of the extraocular muscles, or of both. Eyestrain is observed in normal eyes by virtue of over-use of the eyes, by virtue of over-use of the eyes in insufficient light, by studying long hours in badly ventilated rooms. In a sense, this sort of eyestrain is nerve strain, but fundamentally it is muscle strain.

No man can tell why the muscles of certain individuals possess a greater quality of endurance than those of other apparently as vigorous individuals. That such difference exists in the general musculature of individuals is well known. We do not attempt to explain why one strong man can lift a certain weight that another apparently equally strong man cannot move. We accept the fact. And it is quite equally futile to attempt to explain why one individual can compensate for a higher degree of strain in order to see clearly; whereas another individual, apparently as vigorous, will succumb to a measurably lesser strain of the same muscular system. That, in the one example, symptoms of eyestrain do not exist, whereas in the other example, those symptoms are persistent and severe, is a fact so frequently repeated that one may well hesitate to discuss the point at all.

In this connection we are interested in symptoms of eyestrain that are not localized in the eyeballs, or other intra-orbital structures. Among them, in the first place, must be mentioned chronic recurrent headaches. Headaches of that type, which are not due to organic lesions, or to toxemia, or to reflex sympathetic derangements, are pretty certainly caused by eyestrain. Even in cases of migraine that are not of the ophthalmic variety, there are attacks of headache that must not be classified as migraine headache. They are headaches of another type, and one may be very confident of success when assuring migraine patients that such headaches may be dispelled by ophthalmological measures, although the major seizures may not be mitigated in the least by such treatment.

The headache of eyestrain may be localized in any part of the cranium. The most frequent location of such headaches is, first, in the frontal region; secondly, in the region of the temples; thirdly, in the region behind the eyeballs. Less frequently, the headaches of eyestrain are localized in the occipital region.

Eyestrain headaches may extend from the region of their incipiency to other regions, and they may develop into a general headache. In a certain ratio to the intensity of the

seizure there may be added to the symptomatology a relative general malaise and a relative degree of nausea and vomiting.

Occurrence of nausea and vomiting in attacks of cephalgia has given rise to the practice of calling such cases "sick headaches." They are "sick headaches," but they are not attacks of migraine. And herein lies the reason for much confusion of thought and inaccuracy of statement. For it has been tacitly assumed in discussion that migraine means "sick headache" and that "sick headache" means migraine. The term "sick headache" is properly an expression meaning that the pain in the head is attended with nausea and vomiting. In this sense, any headache in which nausea and vomiting occur is "sick headache." But as a matter of common observation it follows, that, not all cases of migraine are cases of "sick headache," and not all cases of "sick headache" are migraine.

Vertigo, insomnia, drowsiness while reading by artificial light, are symptoms dependent for their presence upon eyestrain, in a certain number of cases. Gastralgia, nausea and vomiting, functional derangements of the liver and intestines are also caused from time to time by eyestrain. If it be true, and it is true, that abnormal conditions of the abdominal viscera may cause derangement of the visual apparatus, it is equally true that eyestrain may produce functional derangements of the abdominal viscera.

THE SASKATCHEWAN MEDICAL JOURNAL

HARRY MORELL, M.D., C.M., *Chairman of Publication Committee*

All communications relating to this publication should be sent to the Saskatchewan
Medical Journal, Regina, Saskatchewan, Canada.
Box 1106.

Editorial Notes

The leading editorial in the July issue of the St. Paul Medical Journal contains so many good thoughts that we reproduce it in full:

The Compensation for Medical Services. Whatever may be the true explanation of the present high cost of living, and newspaper and magazine writers have discussed and defended every possible theory to account for it, the fact remains and is forcibly brought to our attention every day that it takes about \$1.75 to buy what ought to be bought and what a few years ago could be bought for \$1.00. There are perhaps none in the community, with the possible exception of the small salaried men, who suffer more from this increase in the cost of the necessities of life than do physicians. The wage earner has seen his wages steadily increase with the increased cost of living; the shopkeeper makes the same margin of profit, or a larger one, than before; the capitalist and the man of large investments sees his wealth accumulate more rapidly than ever, but the medical man who is facing a steadily growing competition, not only from the constant increase in the number of educated physicians in all communities, but also from the many new forms of quackery and therapeutic fads which attract large numbers of those who should be his patients, the medical man, we repeat, sees his income steadily diminishing and at the same time sees his dollars shrink in size. In addition to the

increased competition in the practice of medicine, new methods of prophylaxis and treatment, which physicians themselves have discovered and introduced, are constantly reducing the number of cases of sickness and shortening their duration, so that the physician sees fewer patients than formerly, makes fewer calls than before on those he does see, receives as a rule smaller fees and can purchase much less with the fees which he does receive. He must keep about the same standard of living as before, the cost of the equipment of his profession, like everything else is higher than ever, and so the financial problem of his life becomes more pressing every year. What of the future?

We are not prepared of course to solve the problem in all its phases, perhaps not in any of them, but there is one point of view which we would like to call attention to and to emphasize. We stated above that there is less sickness than formerly and that very many diseases run a shorter course than used to be the case. This means that the cost of sickness, both to the community and to the individual has been much lessened. This reduction in the cost of sickness has been brought about by the medical profession and thereby the world has incurred a debt to our profession which we believe should, after some fashion, be paid. It cannot of course be paid directly, but there must be some kind of readjustment in regard to the compensation of physicians for their services which shall correspond in some degree to the changed conditions of medical practice. The general practitioner is the hardest hit, for his cases of typhoid, of diphtheria, of scarlet fever and of infantile diarrhœa are becoming fewer and fewer and he makes fewer calls upon those he does see.

Now we are not for a moment deploring the triumph of medicine over disease; we boast of it and glory in it, but we also feel that the increased value of our services is deserving of increased compensation. This can be brought about by a general increase in our charges to those who can afford to pay it and it can be brought about for the general practitioner, the family physician, by adopting a method we have long felt

ought to be adopted by him. Why not abolish entirely the old-fashioned plan of charging so much a visit and carefully recording the number of visits made and charge as the surgeon does, a lump sum for the whole period of each service? It is certainly not adequate compensation for having cared for a well-to-do patient through a case, for instance, of typhoid fever which has entailed say fifty visits, to charge exactly three dollars a visit. We believe that such a service is worth twice or perhaps three times that amount. *We believe that the time has come to give up our so-called fee bills which established a fixed price for each visit and for each service and have a general understanding that it is impossible to itemize our accounts at all. Let each physician when he has completed his attendance upon a patient render his bill for such an amount as in his opinion his services have been worth to the patient, taking into consideration not only the amount of time he has given to the case, but also the circumstances of the patient, and his ability to pay.** If this plan were generally adopted it would not only materially simplify the physician's bookkeeping, but it would result in a much fairer compensation for his services.

With the caption "An Impertinent Request," the Montreal Medical Journal in its July number has this to say:

An Impertinent Request. We have received a communication from the Superintendent of Immigration informing us that much unfavorable comment has appeared in English papers upon the present rules which apply to immigrants entering Canada.

The comment, we are informed, applies chiefly to two regulations; the first, requiring immigrants coming to employment other than farm work, or, in the case of females, to domestic service, to have in their possession at time of landing the sum of twenty-five dollars, in addition to railway transportation to ultimate destination; the second, providing that

*Italics our own.

the consent to emigrate to Canada, required by law to be granted by the Assistant Superintendent of Emigration for Canada in London, to such charity aided emigrants as he considers suited to this country, shall be given only to such as are suited for, willing to accept, and have assured employment at farm work.

We are asked to offer an opinion upon these regulations, so that it may be placed before the reading public of the British Islands, or "Isles," as the dominions of England, Scotland and Ireland are described. We fail to see the necessity for this additional light, as we are told somewhat gratuitously, that "practically every Canadian paper irrespective of political connexion, which has so far dealt with the subject, has upheld the regulations, and insisted upon Canada being the sole judge as to who shall or shall not be allowed to enter this country."

We shall set aside at once the truculent suggestion, that any serious person has denied that Canada is "the sole judge as to who shall or shall not be allowed to enter this country;" and we shall content ourselves by making the equally obvious statement, that the immigration authorities and the labor unions do not constitute the people of Canada by any large majority.

The movement to keep British artisans out of Canada is instigated by those who desire to see labor scarce, wages high, and the product of craftsmanship dear, and we fail to see why farmers are not equally entitled to demand the exclusion of farm labour so that food will cost even more than it actually does at the present moment.

If the regulations were designed to keep out of this country only the diseased, the vicious, and those who are likely to become a charge upon the community, it would be difficult to controvert them with any chance of being understood; though it could be urged with perfect truthfulness that not all of us are perfectly callous to the situation of our more miserable brethren in the Old Country who have done so much for us in laying the foundations of Canada, and in protecting us all these years, whilst we have been growing big, and sleek, and

fat. We cannot refrain from adding that, if this regulation compelling immigrants to be in possession of five pounds had always been in force, many of those now in Canada would not be here or anywhere else.

In this attempt to manufacture expression which it is proposed to place before the reading public of England as "the consensus of Canadian opinion," we hope the immigration authorities will not omit to include this opinion which is expressed by the Montreal Medical Journal, even if they are disappointed in our response to their lead, or do not like this dance to their piping. If they do forget, we shall take the proper steps to remedy the omission.

(We agree with the writer, and compliment him on the stand taken.—*Editor.*)

The Month

Bulletin No. 4 of the Carnegie Foundation contains "Medical Education in United States and Canada." The report on the Halifax Medical College inspection which was made October, 1908, by Dr. Abraham Flexner has not been very well received by the college authorities, and in the July issue of the "Maritime Medical News" Dr. D. A. Campbell takes up "Medical Education in Nova Scotia" which was read before the annual meeting of the Medical Society of Nova Scotia. Dr. Campbell takes issue with the report made to the "Foundation," which says this of the laboratory:

"Laboratory facilities: This disposition of funds is reflected in the condition of the medical college; it possesses an ordinary, ill-smelling dissecting-room and a single utterly wretched laboratory for pathology, bacteriology and histology. A microscope is provided for each student. Though this same 'laboratory' serves for the provincial board of health, no animals are used. There is no museum worthy of the name and no laboratory work in physiology or pharmacology. The laboratory sciences have been starved that small dividends might be paid to generally prosperous practitioners."

The discussion following Dr. Campbell's paper resulted in the passing of these resolutions which were unanimously adopted:

"The Medical Society of Nova Scotia, in session at Yarmouth, July 6th and 7th, 1910, having considered Dr. Campbell's criticism of the report of the Carnegie Foundation on the standing of the Halifax Medical College, finds that the report is prejudiced, inaccurate and misleading.

"The Society considers that the best answer to the report is furnished by the good standing and success of the practitioners who received their education in Halifax.

"The Society believes that the Halifax Medical College has proved its efficiency and that it serves a useful purpose in the Maritime Provinces and Newfoundland, and it strongly

recommends that every effort should be made to insure the continuance of a medical school in Halifax."

It is with very much regret that we receive the announcement of Miss Chalmers' resignation as Superintendent of the Regina General Hospital. Miss Elizabeth Chalmers has been connected with this hospital for about six years, and in charge of it during the past four. Miss Chalmers obtained her first professional training in the Holyoke City Hospital, being the gold medallist for her year, for nearly two years her work was devoted to the surgical wards and operating room of the Heaton Hospital, Montpelier (Vt.), coming to Regina after a short appointment in Western Canada. In giving up the work of the institution which engaged her activities, Miss Chalmers will have the profound satisfaction of knowing that she leaves behind her many friends (including those who were her pupils in the training department of which she had jurisdiction) who have appreciated her work and kindness. Those who have been in touch with the daily work of the institution during Miss Chalmers' administration can vouch for good discipline, absolute impartiality and general courtesy.

We believe that the Board of Governors will find it hard to replace this important executive position, which has been so ably held by the late incumbent.

The Editor of this publication does not necessarily hold the views expressed by any of its contributors; however, we are in accord with the stand taken by "Medico" which appears elsewhere in this issue, and hope to see some united action taken on the question.

It seems that some information should be given out as to the date of the annual meeting of the Saskatchewan Medical Association for the year 1910.

Correspondence

July 21st, 1910.

*To the Editor,
Saskatchewan Medical Journal,
Regina.*

SIR,—

I have read with interest your remarks following my letter in your issue for May, but will ask, if you investigate still further, you will find the condition as I have stated, viz.: That Doctor Hendricks from Chicago still continues doing work absolutely nothing to do with the Public Health Office (except, perhaps, by being extolled and recommended by the Commissioner of Health and the Department).

As one of the practitioners stated in my presence, "if the Commissioner of Health was so alive to the health and interests of the people of Saskatchewan, why did he not select a Canadian or at least one who was versed in public health work?"

By concerted action the Provincial Government ought to be approached and shown how practitioners of the province are being disgracefully treated by the Department of Health and its Commissioner.

I beg to be, yours truly,

MEDICO.

Personals

Dr. R. H. Mason, lately of Stetler, Sask., has removed to Carlstadt, Alta., where he will practice.

Capt. T. Douglas, C.A.M.C., has returned to his home in Moose Jaw after serving with his regiment. The Doctor recently qualified and will be gazetted major in due time.

Dr. Harry Morell of Regina has been gazetted to the rank of lieutenant (provisional), Royal Army Medical Corps.

Dr. and Mrs. Wheeler, Moose Jaw, have been spending their holidays on the Pacific Coast.

The following have been granted a license to practice, after passing the examination, by the Council of the College of Physicians and Surgeons of Saskatchewan: W. A. Clarke, G. W. Beaver, L. A. B. Grier, J. E. Hutton, Charles McArthur, A. T. W. Myers, T. W. Walker, C. W. Hurlburt, A. McDonald, F. R. Chapman, M. I. Humphries, L. E. Downing, D. C. Hart, R. G. Scott, William Oliver, F. C. Clarke, D. W. Graham, P. J. McCue, R. P. Mulholland, L. A. Patton, R. N. Shay, J. D. Neville, R. A. Donahue, R. J. McEwen, J. W. Eede, A. T. Malloy, W. A. Robertson, J. B. Scott, H. B. Moore, S. C. Moore, L. A. Douglas, J. E. Galbraith and T. B. Underhill.

Mr. Murray, representing the Wingate Chemical Company of Montreal, was recently in Regina.

Book Reviews

RONTGEN RAYS AND ELECTRO-THERAPEUTICS, with chapter on RADIUM AND PHOTOTHERAPY. By *Mihran Krikor Kassabian, M.D., etc.* Second edition, 575 pages of text and over 260 illustrations in black and color. J. B. Lippincott Company, Philadelphia, London and Montreal.

The fact of a second edition of this book being called for within a comparatively short time is praiseworthy to the author and it shows very plainly that this branch of science is rapidly developing. The publishers are to be congratulated on their part, as the mechanical make-up is of the first order. The colored plates are superb. The photo plates are also first class. This book in the second edition is now considered a standard on electro-therapeutics.

It is with regret that we learn of the untimely death of the gifted author, almost at the time of the publication of this second edition.

Anyone interested or contemplating taking up this branch should procure a copy of this work.

INTERNATIONAL CLINICS. Quarterly, Vol. 2. Twentieth Series. These are illustrated lectures on all subjects of medical and allied sciences by leading members of the medical profession throughout the world. Edited by *Henry W. Cattell*, Philadelphia. Published by J. B. Lippincott Company, Philadelphia, London and Montreal.

This volume contains many good articles. We may mention two memoirs on Eclampsia, one by Dr. J. W. Ballantyne, the other by Robert Jardine, M.D. The former Lecturer on Obstetrics, Edinburgh, the latter Professor on Midwifery, Glasgow.

A very interesting article, well illustrated, entitled "The Book-Plates of Physicians," by Roland G. Curtin, M.D., of Philadelphia.

HARRY MORELL.