Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for scanning. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of scanning are checked below.

L'Institut a numérisé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de numérisation sont indiqués ci-dessous.

- ☐ Coloured covers / Couverture de couleur
- ☐ Covers damaged / Couverture endommagée
- ☐ Covers restored and/or laminated / Couverture restaurée et/ou pelliculée
- ☐ Cover title missing / Le titre de couverture manque
- ☐ Coloured maps / Cartes géographiques en couleur
- ☐ Coloured ink (i.e. other than blue or black) / Encre de couleur (i.e. autre que bleue ou noire)
- ☐ Coloured plates and/or illustrations / Planches et/ou illustrations en couleur
- ☐ Bound with other material / Relié avec d'autres documents
- ☐ Only edition available / Seule édition disponible
- ☐ Tight binding may cause shadows or distortion along interior margin / La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure.

- ☐ Coloured pages / Pages de couleur
- ☐ Pages damaged / Pages endommagées
- ☐ Pages restored and/or laminated / Pages restaurées et/ou pelliculées
- ☑ Pages discoloured, stained or foxed/ Pages décolorées, tachetées ou piquées
- ☐ Pages detached / Pages détachées
- ☑ Showthrough / Transparence
- ☑ Quality of print varies / Qualité inégale de l'impression
- ☐ Includes supplementary materials / Comprend du matériel supplémentaire
- ☐ Blank leaves added during restorations may appear within the text. Whenever possible, these have been omitted from scanning / Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été numérisées.

☑ Additional comments / Commentaires supplémentaires: Continuous pagination.

THE
MONTREAL MEDICAL JOURNAL.

VOL. XXXV. JUNE, 1906. No. 6

HUMIDITY AND VENTILATION.

BY

ALLAN G. McAVITY, S.B.
Montreal.

In the design of any system of heating the engineer should plan to furnish sufficient heat to maintain a comfortable temperature, sufficient moisture to keep the humidity normal, and sufficient fresh air to dilute the gases of respired air to a point where they become harmless. While it is beyond the scope of this article to give much space to heating and ventilation, humidity is considered in some detail, as it is of more consequence than is usually supposed. The remarks concerning humidity apply in general to all buildings artificially heated, though the equipment described would be only suitable for hospitals, and similar institutions—not for private houses or small buildings.

It must be noted that from the effects of deficient humidity the rich suffer more than the poor. Among the poorer classes the kitchen stove is often the only source of heat; and a boiling kettle keeps the humidity normal. In flats heated by a hall stove, a water pan helps to moisten the air, and similarly houses heated by hot air furnaces have a tank from which water evaporates. It is therefore, chiefly with steam and hot water heating that we find too dry an atmosphere and its consequent effects, overheating and stuffiness.

Watery vapour exists in the atmosphere and mixes with it just as does any other gas. It is a common fallacy to consider that water is absorbed by the air, though a vapour will form whether air is present or not. Water exists in three states, solid, liquid, and gaseous, being the boiling point at atmosphere pressure 212°F. Below the boiling point a vapour will form, but there is a limit fixed by the temperature and pressure to the amount of vapour which a cubic foot of space may contain. When this limit is reached evaporation ceases, and the vapour is said

to be saturated. If the temperature is increased further evaporation may take place, and if decreased some of the vapour will be forced back into the liquid state. The saturation point is often called the dew point. The following table gives the weight of the unit volume of saturated vapour at atmospheric pressure for various temperatures.

0°	.553
12°	.910
22°	1.414
32°	2.128
42°	3.080
52°	4.389
62°	6.167
65°	6.965
72°	8.547

The above table shows that at 70° if saturated a cubic foot will contain 8 grains of moisture, at 32° a little more than 2 grains, and at 0° about ½ grain. Normal air has a humidity varying from 50 to 70 per cent, saturation being 100 per cent, and if much above or below these limits uncomfortable sensations result. If a saturated mixture of air and vapour at 0° is heated to 70° without adding moisture the humidity at the higher temperature will be but 6 per cent or eight times dryer than the lower limit stated above. This is the condition during the winter months, and while the air is not quite so dry as six per cent it is not uncommon to find an average indoor humidity of 28 per cent to 30 per cent during the entire period from December 1st to March 1st. In other words in severe weather so much moisture is precipitated by the low temperatures that when heated, the air is practically devoid of watery vapour, and there is an abnormal tendency for evaporation of moisture from any available source.

With the humidity as low as 30 per cent the effects of dryness are very noticeable. A thermometer registering 70° will drop, if the bulb is covered by a damp cloth, to 53°. Moreover, a temperature of 70° in an atmosphere so dry will not be comfortable, some people demanding from 74° to 76°, and others as high as 78°. The temperature recorded by the wet bulb thermometer is the temperature one would feel if ones clothes were saturated with moisture as after emerging from an accidental bath. Since the body is always kept moist, however, by excretions from the pores of the skin, the wet bulb temperature, plus a few degrees, is the temperature one always feels. On the other hand 70° with a normal relative humidity of 60 per cent would be universally

declared too warm. It is apparent, therefore, that to accept the readings of a dry bulb thermometer as a gauge of the sensible temperature is clearly unscientific, inadequate and misleading.

Moisture evaporating from the body produces a sensation of chilliness, which is not in accord with the temperature, for evaporation invariably abstracts heat. The cooling effect of evaporation is well demonstrated by dropping on the skin a little ether, alchol, or any other liquid which volatilizes at ordinary temperatures. With the humidity normal the evaporation is so slow as to produce no sensible effect, for as the vapour approaches the saturation point the tendency to evaporate is not so strong. With the humidity at 30 per cent, however, the rate of evaporation is very rapid, making it necessary to maintain high temperatures in order to offset the chill of evaporation. Moreover, since different constitutions keep the skin differently moistened, a temperature satisfactory to one person may be too hot or too cold to suit another, if the air is dry enough to make the cooling effect of vaporization an important factor.

In describing a series of tests, Dr. Henry Mitchell Smith states, "In the first place, it was observed that with a proper percentage of moisture 70°F was uncomfortably hot, 68°F warm, and 65° comfortable. By proper percentage of moisture is meant one which is never below 50 per cent or above 70 per cent average about 60 per cent. It was determined by repeated experiments that a temperature of from 65° to 68° and a relative humidity of 60 per cent produced the most comfortable conditions which were in marked contrast to a temperature of 72°F with a relative humidity of 30 per cent. The former felt warm and balmy, the latter notwithstanding the higher temperature, chilly and dry, and the slightest motion of the air suggested a search for the source of suspected drafts. Moreover, properly moistened indoor atmosphere lacks all the oppressive dry feeling so characteristic of the average artifically heated room, seeming more like the corridor of a well ventilated hotel. The quieting effect of such an atmosphere is striking. There is an indescribable sense of relaxation and "poise" contrasting strongly with the feeling of nervous tension so frequently experienced in overheated dry rooms."

In speaking of the effects of dryness Dr. Smith says, "The skin and the mucous membrane of the respiratory passages are the principle sufferers, since these tissues are always kept moist with their own secretions, and from them water is freely abstracted to satisfy this large

Henry Mitchell Smith, M.D., in a paper before Brooklyn Medical Society, May 15th, 1903.

saturation deficit, such air passing with every inspiration over the moistening surfaces nature has provided in the mucous membranes calls for an enormous output of the fluid elements of these tissues. This leads to glandular overactivity, and its consequent evils, the elaboration of which subject the scope of this paper does not permit."

The saturation deficit mentioned by Dr. Smith is the amount of moisture required to bring the vapour to saturation point, and is perhaps a better figure for comparison than the relative humidities. The following table gives statistics for various climates:—

CLIMATES ON AN AVERAGE FROM OCTOBER TO APRIL INCLUSIVE.

Location	Average Temp. of	Ave. Rel. Hdty. of 100 p. c. being saturation	Absolute Gr. per cu. ft. at rel. Humidity Col. 3	Humidities Satn. Gr. per cu. ft.	Satn. Deft. Gr. per cu. ft.
New York	44	73	2.404	3.294	.860
Montreal	24	78	1.199	1.550	.351
Denver	51	50 (ap'rox.)	2.111	4.222	2.111
Common indoor conditions	72	30 "	2.564	8.547	5.983
Satisfactory indoor conditions	65	60% "	4.179	6.965	2.786

Column 6 of the above table shows that the indoor air in Montreal has a capacity to absorb about 14 times as much moisture as the outdoor air during the same period. It also shows the indoor air almost twice as dry as the atmosphere at Denver, Col., and if the figures were available we should find the indoor air actually dryer than the atmosphere of any desert.

To improve conditions the apparatus illustrated in figures I and II have been successfully applied. The apparatus illustrated in Figure I is designed to supply fresh air warmed to the temperature of the room, and to moisten the air supplied to maintain a constant humidity. In Figure II more heating coils are added, which raise the temperature above that of the rooms, the sprays being used as before to regulate the humidity. With this equipment, however, no radiators are required in the building for a comfortable temperature may be mantained by the surplus heat of the entering air.

The apparatus in Figure I will be recognized as an indirect ventilating system. It is called indirect because the coils are located in the base-

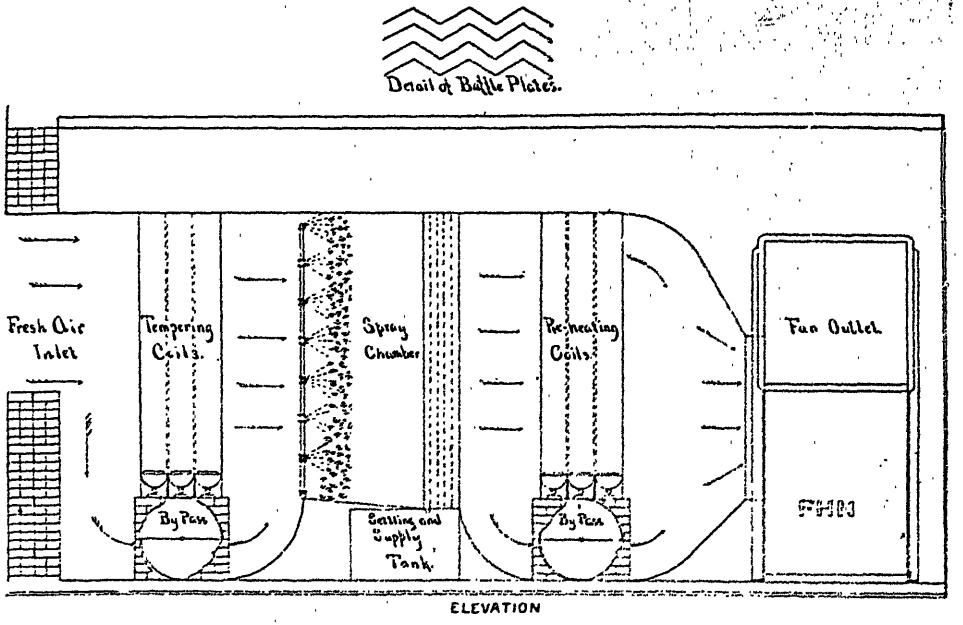

Detail of Baffle Plates.
Fresh Air Inlet
Tempering Coils.
Spray Chamber
Reheating Coils
Fan Outlet
By Pass
Settling and Supply Tank.
By Pass
ELEVATION

FIG. I.

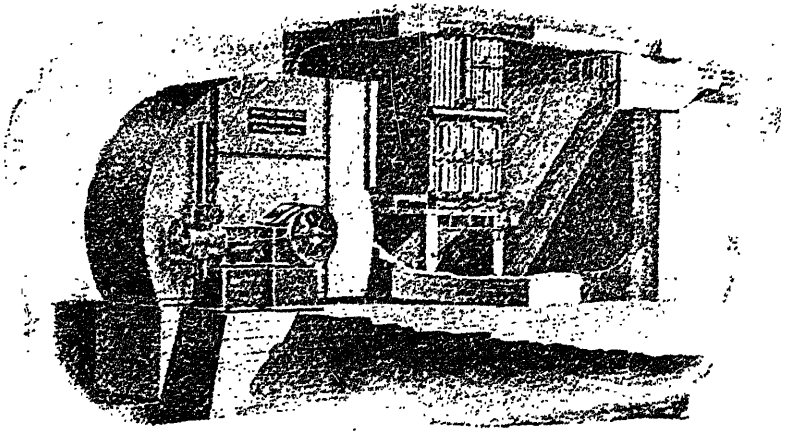


FIG. II.

ment, and air drawn through by a fan is distributed by means of ducts to the various rooms. Following the course of air in Figure I the fresh air inlet will be found at the left. The air entering passes through the first coils called the tempering coils, which heat it to 56°. In the chamber just beyond the tempering coils the temperature is never more than 57° or less than 55° for a thermostat is placed there, which when the temperature gets to 57° opens the damper below the coils thus admitting only the heated air. In this chamber 200 or 300 very small nozzles deliver water in a fine invisible mist. There is then a series of baffle plates through which the air must pass to remove the water carried along mechanically for the velocity in this chamber is about 600 feet per minute. Beyond the baffle plates is another heating coil with a passage below and the air beyond this coil is kept at 65° by automatic regulation of the damper as explained before. A fan and distributing ducts completes this system, which is used only to furnish fresh air warmed to 65° and properly moistened. With this arrangement heat must be provided by radiators in each room.

In Figure I a detail is shown of the baffle plates to separate the water carried mechanically with the air. The object of these plates is partly to remove water and partly to remove dust and other impurities mixed with the air. The first four bends are rounded so that a film of water forms which makes a surface very efficient in taking from the air both moisture and dust. The last plates have a slight projection which prevent this film of water from being blown through, and water and dust runs down along these edges to a tank below where the water is filtered and returned again by a centrifugal pump to the sprays. There is no waste of water for what is not absorbed is kept in circulation and only enough is added to keep the suction tank constantly at the same level.

In schools it is customary to allow 200 cubic feet of air per hour for each pupil, and thus for a school with 100 pupils 200,000 cubic feet of air should be supplied per hour. In hospitals an allowance of 4,000 cubic feet of air per hour for each person is not too much, and on this basis the same amount of air would be required for fifty patients. If the thermometer outdoors registered zero, and a temperature of 65° were to be maintained indoors with a relative humidity of 65°, it is an easy matter to calculate the amount of moisture required to bring the air at the indoor temperature to the proper relative humidity. Referring to the table given we find that the indoor atmosphere will contain 553 grains of moisture per cubic foot and 4.4 grains are needed to give a relative humidity of 65 per cent at 65°. We will need therefore to

supply 4.4—.553=3.847 grains of water with each cubic foot of air making a total of about 110 lbs. of water per hour or about 13 gals. per hour.

This moisture is supplied automatically, the amount being controlled by the temperature of the spray chamber. Leaving the spray chamber we have a saturated mixture of air and vapour no matter how dry the entering air. At 56° and 100 per cent humidity each cubic foot carries 4 grains of moisture, which, as we have already seen is approximately the amount required.

When the apparatus is both to heat and ventilate a building there will be the same arrangement as before up to the inlet of the fan, and beyond the outlet other coils are placed to raise the temperature from 65° to 85°. A passage is left below these coils so that there are two ducts, one carrying the air at 85°, the other air at 65°. This arrangement is shown in figure II, and the ducts are marked hot air and cool air These ducts are kept separate until the mixing dampers are reached, which are placed in both ducts joined together by a rod so that one will operate with the other. They are so placed, however, that when the damper from the hot air duct is closed the damper from the tempered air duct is open, and vice-versa. These dampers are operated from the rooms either by a chain pull marked, "open" and "shut," or by thermostats to give automatic temperature regulation. The illustration shows the dampers operating by thermostats. The duct beyond the damper marked "mixed air" is carried to the room from which the dampter is controlled. When the room is warm enough the hot air damper is closed, and all the air enters at 65°. If too cold, part of the air enters from the warm air duct, both being half open. If still cold the warm air duct is open wide and air enters at about 85°. It will be seen that a certain volume of fresh air is thus supplied at a temperature varying to suit the demands.

The advantages of such a system are first, all of the heating apparatus is placed in the basement in charge of the janitor; second, a more even temperature may be maintained in the rooms; third, ventilation is supplied in positive quantities; fourth, humidity is kept constant and the air is well moistened; fifth, repairs are seldom required, and when needed do not necessitate expensive destruction and replacement of plaster, woodwork and flooring.

The disavantages are, first, that power is required to run the fan: second, it must be designed and installed by engineers experienced in this class of work; third, space must be allowed for the apparatus and flues.

The cost of ventilation, is, in severe weather, a considerable item for when fresh air is admitted it must be heated to the temperature of the rooms it is to enter. On the contrary when moistening the air, while considerable heat is necessarily absorbed by the moisture, lower room temperatures are made possible which will show a net decrease in fuel consumption.

EPHITHELIOMA OF THE SCROTUM.

BY

J. ALEX. HUTCHISON, M.D.
Montreal.

Chimney sweep's cancer is a well recognized condition, and has been seen from time to time among chimney sweeps in England for a great many years. It was thought at first to be a disease peculiar to those working in soot, but it has been shown to be a disease liable to develop among those working in coal tar products, and is sometimes spoken of as Paraffin Worker's Cancer.

The disease is due to the direct irritant action of coal tar products, acting in the presence of moist skin surfaces, and is invariably preceded by a condition of subacute or chronic eczema. It affects a very small proportion of workers, however, and is very slow to develop, as in the case under consideration, after many years of regular employment in a tar paper factory. After the disease makes its appearance its progress is exceedingly slow, frequently covering several years, and in this regard is somewhat different from epithelioma in other parts of the body.

Glandular involvement is also late, and it has been known to appear several years after the removal of the disease. The glandular system once being involved, however, the disease is usually fatal.

The only treatment at present known is prophylactic and radical. By prophylactic measures much has been done to protect workmen in this kind of occupation; by their being taught to frequently change their inner garments and by attention to personal hygiene, actively treating in the early stages any development of eczema. The radical treatment consists in wide excision.

The following case entered the Montreal General Hospital on February 28th, 1906. The patient, M.F., aged 40, married, was occupied as a worker in a tar paper factory. He was born in the Province of Quebec, and has lived for the past twenty years in Montreal. The family history is negative.

The present complaint dates back some two years ago, when he suffered from an irritation on the back of the left wrist which dis-

appeared in about a week. From time to time similar conditions occurred on different parts of the body, especially on the arms and legs. It is no doubt that this was a condition of acute eczema. He has never since been entirely free from the eczema, it being present continuously upon the scrotum.

In this region small wart-like excrescences developed, and have been gradually getting larger, more numerous, and during the past month a number of them have coalesced forming a large, heaped-up irregular ulceration from which a thin, ichorous discharge is seen to cover the surface. About a month before admission he had a somewhat severe eczema involving the upper parts of the arms and backs of the hands. He has in addition a double inguinal hernia. There are no enlarged glands to be felt.

The diagnosis of epithelioma of the scrotum known as Chimney Sweep's Cancer being made, operation was advised and the patient consented. This was done on the first of March.

The operation consisted of a wide excision which practically removed the greater part of the integument of the scrotum. In addition a number of small papilomata were removed in the neighbouring skin. The ulceration at no point had invaded the dartos, and I was able by plastic operation to cover the scrotal contents. The wound healed kindly. The right inguinal region was then explored, but no glands were found. The patient was in residence about three weeks.

THE SURGERY OF THE STOMACH IN NON-MALIGNANT CONDITIONS.

BY

GEO. E. ARMSTRONG, M.D.,

Surgeon to the Montreal General Hospital.

Mr. President and Gentlemen:—

One of the fields of surgery largely extended during the past few years is that of the stomach and duodenum. We now deal not only with conditions which may be called strictly surgical, such as perforations, malignant disease and pyloric stenosis, but are sometimes able to render valuable aid to the physician in cases of persistent and frequently recurring small, and large alarming hæmorrhages, as well as in chronic ulcer and its sequelæ.

Perforation of the stomach or duodenum from ulcer calls for surgical aid, as peremptorily as from traumatism. I have closed five perfora-

(Read before the Canadian Medical Association, 1905.)

tions of the stomach and one of the duodenum. They all recovered but one, a mortality of 16 2-3 per cent. Three of the stomach cases occurred in women and two in men. Their ages were from 21 to 40 years. The perforation was closed in one eight hours, in one 11½ hours, in one 24 hours, in one the time of perforation could not be definitely determined, as the man had had attacks of sharp pain in the epigastric region occurring at intervals for four days. In the fatal case the patient was admitted to the surgical side of the Montreal General Hospital 32 hours after perforation had occurred. The hole was closed at once and the pelvis drained through a second small incision. The patient died four days later of peritonitis. They all gave a history of indigestion and in most of them a diagnosis of gastric ulcer had been made at some time previously.

In four of the six cases the perforation followed a period of from 30 days to one year, during which time they had been quite well and free from their old symptoms.

In the five cases the perforation was on the anterior wall. In one nearer the great curvature, in one about the centre of the anterior wall, and in three, nearer the lesser curvature from ¼ in. to four inches from the pylorus.

The duodenal perforation was just outside the pylorus.

Mr. Moynahan divides perforations into three classes, acute, subacute, and chronic. Two of my cases might be classed as chronic. In one, and it was my first, I readily found the small perforation. It was about a quarter of an inch in diameter, surrounded by a thick layer of fibrine, and when this thick layer of fibrine was stripped off, I had an opening in the anterior wall of the stomach, three inches long. The edges were smooth and rounded.

In another case, an apparently small perforation came to admit three fingers when all the fibrine had been removed. Both of these cases did well. It would seem that in these cases an adhesive peritonitis, joining in my cases, the anterior wall of the stomach to the under surface of the liver, occurred before actual perforation took place. Finally owing to failure of the reparative process, extension of the ulceration and probably distension of the stomach, an opening formed and stomach contents escaped.

Another case illustrates what may be called the subacute perforation. A young man 25 years of age gave the following history. On a Monday about four or five o'clock in the afternoon he felt sick, but continued to work until six o'clock. That evening he took no supper, not because of pain, but because he had no appetite. He retched two

or three times, but slept well that night. On Tuesday and Wednesday he worked as usual and took his meals, which caused him no pain or nausea. On Thursday he took no supper, and during the evening retched two or three times. On Friday at four p.m. he was suddenly seized with severe epigastric pain which radiated along left costal border. He vomited three or four times; no blood in vomitus. He stopped work and went home. He took no supper. During the Friday night the pain was very severe. He was admitted to the hospital at 11 a.m. on Saturday. His temperature on admission was 98 and his pulse 96. His board-like abdomen did not move during the respiration. At 12 noon his temperature had gone up to 101 1-5 and his pulse to 104. I operated at one o'clock, found the perforation and closed it.

In another case when the abdomen was opened the little perforation was found temporarily closed by a firmly adherent layer of lymph, and I found no evidence of gas or stomach contents in the peritoneal cavity.

This and the two cases of chronic perforation already mentioned teach us how, under favourable conditions, such as an empty stomach, and good reparative power, a minute perforation may be temporarily closed by lymph, omentum or adhesions.

The prognosis in perforations of the stomach is much better than in perforations of the small intestine, or vermiform appendix. The infection is less virulent, and possibly as suggested by Treves, the peritoneum here has greater resisting power. In the stomach cases quantities of sero-purulent matter and jelly-like substance may be removed during the operation for closure and the patient recover. Abdominal rigidity occurs earlier and is more general and board-like. In operating a search for other ulcers should be made. In one case after closing the perforation of the anterior wall, I infolded the thin base of a second ulcer on the posterior wall. Closure was effected by a double row of continuous Lembert's or Halsted's sutures; the first row of catgut, the second of fine silk.

If evidences of other ulceration were present, or the perforation was at the pylorus, I think a gastro-enterostomy would be indicated. I have not done it in any of my cases. The results have been satisfactory and there has not been any relapse so far as I know.

In the case of duodenal perforation, a gastro-enterostomy was indicated, as a preventative of recurrence, duodenal ulcers being ascribed to contact with irritating stomach contents, but the man's condition did not warrant it.

If evidence of a generalized spread of infection is present, the pelvis should be drained through a small incision in the median line just above the symphysis pubes.

Hæmorrhage: — Accumulating experience is gradually developing better defined views as to the time and method of attempting to control hæmorrhage from the stomach and duodenum. As Mr. Moynihan has well said, hæmorrhage may be the earliest and perhaps for a time, the only symptom of gastric disturbance, or it may be the last in a long and tedious course of symptoms.

Of the six cases four recovered. One died suddenly on the eighth day after operation. At the autopsy there was found a double pulmonary thrombosis. The abdominal condition being quite satisfactory; and one died a month after operation of double suppurative parotitis. There had been no further hæmorrhages and the stomach and abdominal incisions were perfectly healed.

In small recurring hæmorrhages from chronic ulcer, there is a pretty general unanimity of opinion that surgical methods should be adopted, when rest and dieting faithfully carried out by patient and physician have failed to arrest the bleeding; when the patient is losing more blood than is being made and a hazardous degree of anæmia is threatening. It goes without saying that aneurism, leukæmia, and hepatic cirrhosis with portal obstruction, should be carefully excluded.

It is much more difficult to decide when to interfere in recurring large, copious hæmorrhages. That as a rule there is a natural tendency to limitation of the recurrence is generally recognized, and taught. That they may go on to a fatal issue in spite of rest, abstinence from food, ice, opium, supra-renal capsule, etc., has been demonstrated many times over. When then can we stand by, and when should we advise action?

It is said that in cases without a previous history of gastric derangement, there is less likelihood of the hæmorrhages proving lethal. This may be true, I have not had a sufficiently large experience to form an opinion on this point, but I may say that in one of my cases the patient had never had any stomach trouble whatever until the hæmorrhage started. In spite of all that an accomplished and resourceful physician could do these hæmorrhages continued to recur at comparatively short intervals seven days. The patient was then almost exsanguenated, and in his opinion, with which I fully concurred, would certainly have died had not the stomach been opened and the bleeding arrested. Further experience may demonstrate that we can afford to wait longer when the bleeding is from an acute than when it is from a chronic ulcer, but in my opinion we must judge of the urgency and danger in each case by the quantity of blood lost, and the frequency with which the bleeding recours. A hæmorrhage of seven, eight or ten ounces, recurring at intervals of five or six days or a week, would not be as alarming as hæmorrhage of eight or 10 oz. recurring every eight or 12 hours.

Another important point in judging of the advisibility of immediate operation is the character of treatment, if any at all, that has been tried.

I am suspicious of copious haæmorrhage 7, 6, 8 or 10 oz., recurring every 8 or 12 hours, after the patient has been put to bed, the stomach emptied by vomiting and all food witheld, together with ice locally, and perhaps morphia hypodermically. A correct decision must depend upon careful correlation of the different factors and individual judgment in each case. I cannot better express my own view than by saying that after two or three hæmorrhages recurring at intervals 7, 8 or 12 hours, and after the third or fourth hæmorrhage recurring at intervals of 12 to 24 hours, surgical resources are advisible, are less hazardous, and more conservative than these included under the term "medical." Anything, however, more than a suggestive working rule is impossible at present.

Somewhat more crystalized is opinion regarding the particular surgical method to be adopted

The autopsy reports of the Montreal General Hospital show that fatal gastric hæmorrhage takes place under varied conditions. Sometimes the opening in the artery is large enough to admit a silver probe, sometimes water or milk injected into the hepatic artery, flowed in a stream into the stomach. In some instances the opening in the artery is in the thickened wall of an old chronic ulcer, not permitting of closure by contraction. In other cases the source of the bleeding could not be found at all.

In the morbid anatomy of the fatal unoperated cases are suggestions as to the surgical method. Open the stomach, find the bleeding point and arrest the hæmorrhage by ligature, cautery, excision or suture, if possible. If the source of the hæmorrhage cannot be found, do as Mr. Moynihan has done with such uniform success, do a gastro-enterostomy. The search for the bleeding point in the first instance is indicated by autopsy findings, and is based on sound surgical principle, and although Mr. Moynihan has not had a recurrence of hæmorrhage after gastro-enterostomy, in any of his cases, others have not always been so fortunate and the reason is obvious.

CHRONIC ULCERATION OF THE STOMACH AND SEQUELAE.

Not less interesting and for the most part satisfactory are the results obtained by surgical methods in the chronic invalidism and indigestion secondary to gastric and duodenal ulceration.

Among the more common sequelæ are adhesions and bands, pyloric stenosis, hourglass contraction. A good example of displacement by

a band was seen in a woman transferred from Dr. Finley's ward. There were present a demonstrable dilatation of the stomach, indigestion, pain after eating and on two occasions a mild degree of jaundice. She was unable to take care of her house and children. An exploratory incision revealed the pylorus hitched up to the neighbourhood of the neck of the gall bladder by a strong thick band 1 inch long and ½ inch wide. When this was divided the pylorus became normally mobile. It was not cicatricial nor narrowed. The symptoms were relieved, and the patient for a year or more, when heard from was quite well. The band was probably secondary to an ulcer about the lesser curvature, just outside the pyloric ring. Then developed an adhesive peritonitis and later the stretching of the adhesion into a band.

Another most interesting case was that of a young woman in whom there was demonstrable considerable gastric dilatation and indigestion, and imperfect nutrition. A palpable and visible tumour the size of an orange was observed in the pyloric region. It moved up and down during respiration. The diagnosis was gastric dilatation, secondary to gastric ulcer in the neighbourhood of the pylorus, and the accumulation of an unusual quantity of inflammatory and fibrous tissue.

On opening the abdomen I found that the tumour was a clear, thin wall serous cyst projecting from lower border of liver, and not attached in any way to the stomach or pylorus. The pylorus, however, was held closely up by short dense adhesions to the under surface of the liver, near the gall-bladder the cyst was easily enucleated and the pylorus separated and lowered to its normal position. The opening not being narrowed, no gastro-enterostomy was done. Patient made an uninterrupted recovery.

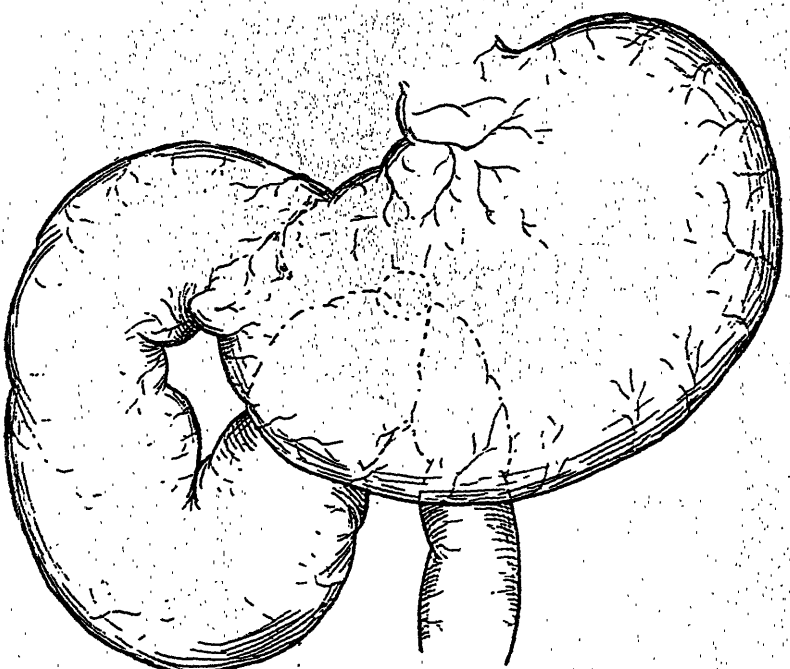
More frequently the chronic ulceration is followed by the development of a mass of cicatricial tissue that narrows the pylorus to the extent of causing an obstruction to the escape of stomach contents, or if situated at a distance from the pylorus, may cause by its contraction and cicatrization, the deformity generally named "hour-glass stomach."

The pyloric stenosis is followed sooner or later by gastrectasis, muscular weakness, motor insufficiency and gastroptosis. A careful analysis of stomach contents is of the greatest value in determining the degree and nature of the altered conditions present. In this group of cases gastro-enterostomy is followed by the most happy and satisfactory results. Patients who had been chronic dyspeptics for years, weak, thin in flesh, living on a spare diet and slops, after the pyloric obstruction is short circuited, gradually increase their diet list, their digestion and assimilation improve, and in a few months have exchanged a condition of chronic

invalidism for one of comparative good health. They regain their strength, and their weight generally comes up to their old standard.

In this group I have performed, when practicable, a posterior gastro-enterostomy. The stomach returns to a more nearly normal condition. The gastroptosis and ectasy gradually lessen and somtimes disappear altogether.

The difficulty of determining definitely after the abdomen is opened whether the mass is malignant or benign has been noted by many operators.



CHRONIC ULCER OF STOMACH WITH ADHESIONS CONSTRICTING DUODENUM.

In two cases I felt quite sure that I had to deal with an inoperable carcinoma. The masses were so hard, there was visible such a degree of puckering and the glandular involvement so general that gastro-enterostomy was performed under the impression that it was the only thing possible. In one of these cases four, and in the other two years have passed and they are still in perfect health. The question of malignancy has been eliminated by time.

A most interesting case was found in the case of an old man 75 years of age, referred to me by Dr. Lafleur. A man of large frame, his general

appearance as he walked in was good. His stomach was largely dilated, its outline visible on inspection. There was no mass to be felt. He said that he had vomited almost everything taken during the past week, the vomitus on one occasion containing food taken 36 hours before. Hydrochloric acid was present in normal quantity, lactic acid was also present. The diagnosis was pyloric ulcer, probably benign with cicatricial narowing. I found a very small hard contracted pylorus. The opening seemed to be almost occluded. The pylorus was altogether I think a third less in size than the normal. Several isolated glands in the gastro-hepatic, and gastro-colic omenta were enlarged.

The question of malignancy was here of the utmost importance. If malignant the condition was early and suitable for a radical operation. If benign a gastro-enterostomy would be sufficient and much safer. I decided to regard it as malignant because of the narrowing and contracting of the pylorus as a whole. In the simple ulcerations I have found the pylorus normal in size, or thickened locally or enlarged to variable sizes by the building up of fibrous tissue. The man's age was that at which we look for malignant growth. I excised ½ inches of duodenum together with about 6 inches of the stomach, closed the stomach and inserted the cut end of the duodenum into a new opening made for the purpose in the posterior wall. The man made a very smooth recovery. There was no vomiting and when he left the hospital he was on full diet, eating 3 good meals a day. Now the point in this case of greatest interest in the Pathologist's report. He found the hard cicatricial mass malignant and in the excised portion of the stomach near the pylorus were 6 or 8 simple gastric ulcers. It seems fair to assume that in this specimen we have an instance of a benign gastric ulcer changing its character and becoming malignant. When last heard from about a year after operation the man was quite well.

GASTRIC SYPHILIS.

Gastric syphilis is a rare condition and its diagnosis exceeding difficult, possibly always doubtful. The following case is of exceptional interest because it was observed intra-vitam and because the patient made a perfect and lasting recovery.

The man was thirty-nine years of age, single and had indisputable clinical evidence of antecedent luetic infection.

The case was reported before the Association of American Physicians by Dr. Lafleur, with whom I saw the case several times before operating For a full report I refer you to the Transactions of the Association of

American Physicians, and will give you only a synopsis of the findings. Operation was undertaken for the relief of gastric distress, nausea, occasional vomiting and diarrhœa, not alleviated by restriction of diet, lavage or drugs.

The stomach wall thick, about 1 c.m., in places 1½ c.m.; very little bleeding, muscular tissue showed complete denudation of the mucosa over an area extending completely around the stomach at the pyloric end of the incision. The same condition extended along the interior and anterior aspect of the stomach toward the cardiac end of the organ fully four inches. Here and there, especially toward the margin of the bared surface, there were small islets of mucous membrane having a rough cockscomb appearance and a purplish tint. The edges of the ulcerated area are well defined, serpigenous in outline and abrupt. The edge was slightly heaped up and undermined and just in the undermining angle was a whitish line. The surface of the ulcerated and denuded area was was rather smooth (neither caseous nor necrosing) of a pinkish red colour and almost bloodless. In the thickened area some cicatrization and contracture had occurred, producing a certain degree of hour-glass contracture, two or three inches from the pylorus. A slice of mucous membrane, a section through the muscular wall and mucosa and a stripping from the edge of the ulcer were taken for microscopical examination. After extending the wound to give sufficient space the exuberant edges of the ulcer were pared, the base was curetted, and the thermo-cautery lightly applied to as much of the ulcerated surface as could be reached, the very slight bleeding following curettage being easily checked by the same means. The gastric and abdominal wounds were then closed by suture.

The tissues removed were examined by Dr. P. G .Wooley, who reported as follows:—"The tissue from the base suggested malignancy, for there were small masses of epithelial cells surrounded by a fibrous stroma; but the edges of the ulcer were simply fibrous tissue and muscle, the former in excess and there was no marked infiltration. The base was markedly inflammatory and not malignant."

That the condition was not one of *ulcus simplex* of unusual dimensions such as have been reported in medical literature, from time to time may be difficult to prove. Dr. Lafleur, however, reports that the man was not a chronic dyspeptic and that anacidity and not hyperacidity existed from the onset of the illness. The chief argument is drawn from the anatomic character of the lesion. Histologically the tissue removed bore a close resemblance to those in the case reported by Dr.

Flaxner as gastric syphilis, in Vol. XIII of the Transactions of the Association of American Physicians.

It is over three years since the operation was performed. During this period he has been in perfect health, weight up to his standard and no indigestion.

This diagram (see page 383) is intended to show you the result of ulcer of the posterior wall of the stomach with adhesion of the duodenum.

The patient a male, aet. 53 was transferred from Dr. Finley's ward in the Montreal General Hospital on the 25th of February, 1905. His stomach symptoms began 10 years before. The pain and vomiting after meals had gradually increased in frequency and severity. During the past 14 years has lost 51 lbs. in weight, 25 of which were lost during the past year. Has ocasionally suffered from what he calls distension, which would be somewhat relieved by belching gas.

Heart normal, pulse regular and of low tension; arteries palpable and sclerosed.

Blood cells.	Red cells	5,810,000
	White	12,800
	H. globin	65

Examination of stomach contents after a test meal: no free Hcl., lactic and butyric present and retention of solids and fluids.

Right kidney freely moveable and easily palpated.

On opening the abdomen I at first thought that I had to deal with an hour-glass stomach. On examination I found, however, that the central constriction was the pylorus considerably dilated, and that distal to the pylorus was the duodenum dilated to fully the size of a normal transverse colon. Below the meso-colon the jejunum appeared normal. Nothing unusual could be seen or felt on the anterior wall of the stomach, but on depressing the anterior wall I came upon a deep, cup-like round, smooth depression on the posterior wall, into which I could easily insert the end of my thumb. It was the size of a child's teacup. It lay apparently right over the aorta. An obstruction at the end of the third or fourth part of the duodenum was evident. That the obstruction was due to the involvement of the duodenum in the mass of cicatricial tissue behind the stomach and secondary to the gastric ulcer seemed equally obvious. The remedy clearly lay in a gastro-jejunostomy. I opened the meso-colon but found that so nearly the whole posterior wall of the stomach was involved in the cicatrical mass that a posterior G. E. was out of the question. I therefore closed the opening in the meso-colon and did an anterior gastro-jejunostomy and an entero-enteros-

tomy. The patient made a perfect recovery. He left the hospital on the 24th May, having gained 34 lbs. in weight since the operation. He could take full meals without any pain, nausea or distension. An enlarged mesenteric gland removed for examination showed very slight inflammatory change, and no evidence of malignancy.

These different groups of cases illustrate the variety of benign lesions requiring surgical relief, and the variety of surgical procedure indicated.

There was no death in the series.

LATERAL CURVATURE OF THE SPINE.

BY

F. W. HARVEY, B.A., M.D.

Medical Director of Physical Training, McGill University.

Lateral Curvature of the Spine is one of the commonest and most neglected of the acquired deformities. If the uncovered back of growing children were systematically examined a much larger percentage of cases of scoliosis would be found than is generally supposed. In looking over the examination records of college students, I found 39 cases of lateral curvature among a total of 1046 or about 4 per cent. Only those students who took part in athletic contests were examined. No doubt if all students were examined a higher percentage of cases of curvature would be found.

For the sake of convenience lateral curvature has been divided clinically into three classes. First is the so-called Curvature, when one may observe a one-sided bearing, undue elevation of a shoulder, or prominence of one hip, causing a lack of symmetry in the waist out-line. Often a distinct lateral curve of the spine is not apparent. In this class of curvature the spine is easily made straight in lying and hanging position. In curvatures of the second class there is a second compensatory curve added, so that the spine becomes S shaped. Here the spine can only be partially straightened. In the third class extension bony change has taken place. The curvature becomes fixed, and little or no improvement can be expected by treatment.

The prognosis then depends on the degree of the curvature. Success in treatment is determined largely by the degree of mobility of the spine. In scoliosis of the first degree we may expect a cure; in the second class improvement, whilst in the third our treatment must be largely directed to relieve symptoms.

As one can never predict in a given case whether the curve will progress or remain stationary it is of the greatest importance to undertake treatment as early as possible.

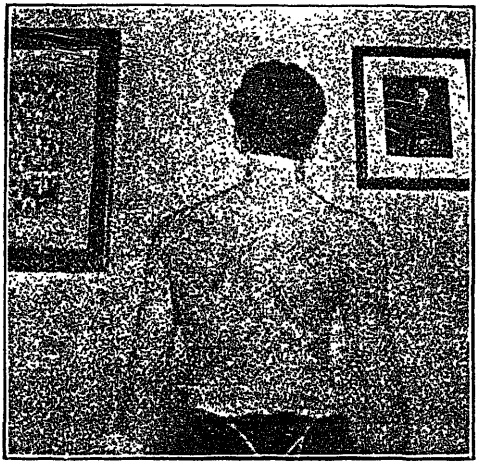


FIG. I.

The first case which I wish to report is that of a youth of 17 who came to me in August 1905, with lateral curvature, first noticed one year previous. (Figure I.) Since that time until I saw him the curvature had

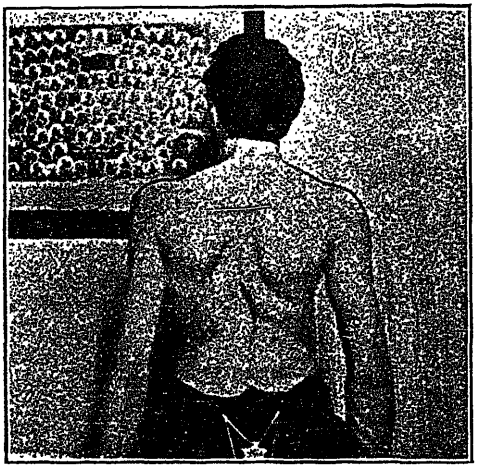


FIG. II.

rapidly progressed, so that even without removal of his clothing deformity was quite apparent, a well marked hump being observed in the region of the scapula. As a child he was delicate, poorly nourished and under-

sized, but during the last few years he has grown rapidly, and at the time of the examination was found to be well-developed for his age, well nourished, and fairly muscular. He presented a very faulty standing and sitting posture, the head drooping forward with round shoulders, left scapula winged and higher than the right. The spine presented a well marked S curve, the primary curve being in the dorsal region with its convexity to the left, this being an unusual form of curvature, as we generally find the dorsal convexity of the curve directed to the right. A secondary curve was seen in the lumbar region with convexity to the right.

The lateral deviation of the spine measured at the level of the 7th dorsal spinous process was 1⅞ inches. The measurement was taken by measuring from the tip of the 7th dorsal spine, horizontally, to a straight line joining the 1st dorsal and last lumber spinous processes. Marked rotation of the vertibræ was noticed by increased convexity of the ribs in the region of the left scapula, whilst on the concave side of the curve the ribs were flattened. Thus we have here a case of scoliosis pretty well advanced, in which a considerable amount of bony change has taken place, with not only a crooked spine but deformity of the chest as well. No effort of the patient with or without assistance with pressure, counter pressure and suspension could overcome the deformity, although in certain positions with pressure over the gibbosity the curve was somewhat diminished.

In undertaking treatment of a case so far advanced as this one I could at least hope to arrest the progress of the disease, and possibly obtain some improvement.

During the first month of treatment there was no perceptable change in the patient's condition apart from increased development of the dorsal muscles. Then for a period of three months there was noticed a gradual improvement. The spine became straighter and more flexible. Measurements after four months of treatment showed the lateral deviation of the spine to have diminished by one inch. Since then the measurements have varied from three-quarters to an inch and a quarter, and it is doubtful if much more can be done than to maintain the benefit already gained. I have given an account of this case with some detail as I think it illustrates fairly well the conditions that are found in a case of scoliosis that is allowed to progress to a state where marked alteration of bone tissue has taken place.

In the photographs we can get only an approximate idea of the extent of the deformity. Photography is by no means satisfactory but when

taken along with measurements is probably as suitable as any other method for recording cases.

The second case is a young lady of nineteen years, who had complained

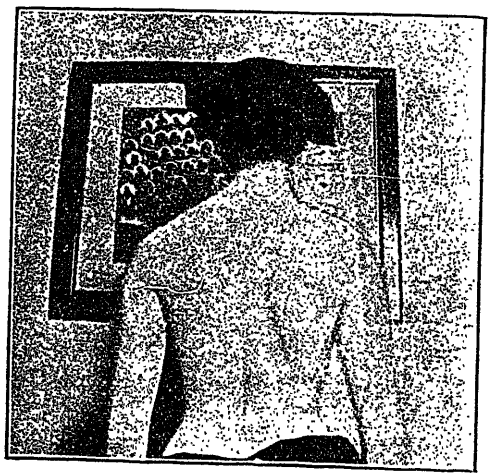


FIG. III.

of pain in the back and over the right hip for upwards of a year. Examination revealed a curve of the spine in the lumbar region with convexity to the left, with a slight compusating or secondary curve in the

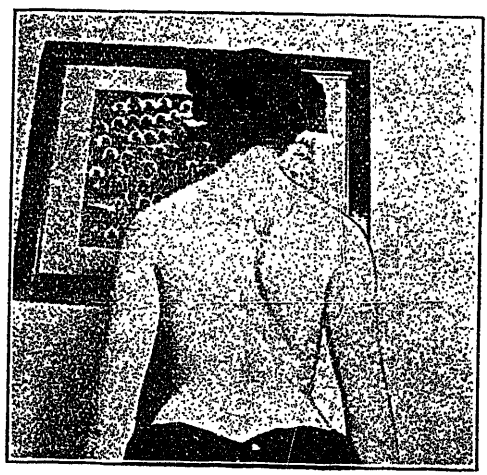


FIG. IV.

dorsal region with convexity to the right. There was marked prominence of the right hip, and the right iliac crest was found on measurement to be 1¾ inches higher than the left. Here we have an

illustration of a static scoliosis, and the treatment of such cases is satisfactory and simple. The sole of the left shoe was built up, so as to make the hip level, and after appropriate exercises had been carried out for a short period the lateral curve in the spine disappeared. With the correction of the curvature the pain in the back and over the right hip ceased, and the outline of the waist and hips became symmetrical.

Treatment by gymnastic methods with little or no apparatus was carried out in these cases. The gymnastic treatment of scoliosis has been employed for a long time but never before, has its value been as much recognized as at the present day. To obtain the best results daily exercises should be given which may be necessary to extend over a period of several months. By a proper gymnastic course of treatment the muscles which support and move the spine are acted upon in such a way that the curvature gradually disappears. The contracted muscles on the concave side of the curvature become stretched and lengthened, whilst those on the side of the convexity are strengthened and shortened. After a careful examination one may determine what group of muscles are to be acted upon, and what movements are best suited to overcome the curvature.

Powerful groups of muscles may be brought into action in our attempt to straighten the spine such as the erector spinæ latissimus dorsi, the psoas, the spino-humeral group and the abdominal muscles.

In many cases of lateral curvatures there is a general weakened state of the constitution, when other hygienic measures should be combined with the gymnastics,—so that in our treatment of a case of scoliosis we may obtain not only a correction of the spinal deformity, but a marked improvement in the patient's general health.

HYPERÄMIE ALS HEILMITTEL.

BY

PROFESSOR DR. AUGUST BIER, in Bonn.

As described in a letter from F S. Patch, M.A., M.D. Formerly Resident Medical Officer in the Montreal General Hospital.

Tuberculosis was the first disease which Bier treated by hyperæmia For it passive hyperæmia is especially adapted (i.e. stauungsbinde compression bandage); indeed, active hyperæmia is injurious.

Bier was directed to the use of hyperæmia as an agent against tuberculosis by the observations of Farre and Travers (1815), Louis (1826), and Frerichs (1853), on the noticeable coincidence of pulmonary stenosis and pulmonary tuberculosis, and the presumption that the latter was due to the pulmonary anæmia resulting from the lesion.

The contrary proposition was stated by Rokitansky (1838) namely, the absence of tuberculosis, and especially of pulmonary tuberculosis in heart lesions and in spinal curvatures (?), in both of which a hyperæmia of the lungs is persent.

These assertions have been confirmed and disputed by a great number of writers then and since, the majority being in full accord, however. They gave Bier the impetus to adopt the principle in a single disease, i.e. local tuberculosis, and his results have been so successful as to make him extend the practice to other diseases.

Bier's first communication was made in 1892, 1894 and again in 1895. From that time on, up to the appearance of the first edition in 1903 of his "Hyperämie als Heilmittel" and he busied himself with the perfection and simplification of the stauung hyperämie technique, for its improper use can do great harm. During this time his methods underwent great changes and he states at some length the development of his present technique.

Although at first he had used the stauungsbinde only one or several hours daily, he soon went to the opposite extreme and made the hyperæmia a continous one, changing the position of the band once or twice daily, in order to avoid pressure sores, and removing the band weekly to remove resulting œdema and to make comparisons on progress of treatment. The results were very variable; successes and failures alternating. In most of the cases he was able to report conspicuous cures. But he was forced to note some very unpleasant results. The most frequent complication was the rapid formation of cold abscesses. These he treated with puncture and iodoform injections and thought the combination of stauung and iodoform injection a happy one. Since then he has changed his mind completely. Secondly, he noted the formation of exuberant masses of granulation tissue, in abscesses and fistulas or sinuses, and under the skin in cases of unbroken tuberculosis. Sometimes this granulation tissue disappeared under the stauung, but more often necessitated surgical operation. The worst result was the occurrence of acute inflammations, "hot" abscesses, lymphangitis and adenitis, erysipelas and dermatitis and even general septis and death; these, however, in cases of severe tuberculosis. While such occurrences could at times be attributed to faulty technique, further observation showed the long continued stauung to be at fault.

A review of his cases showed his best results to be attained in tuberculosis of shoulder joint and testicle where the stauung was of necessity of short duration, at the most of 12 hours daily, on account of danger of pressure and inability to change the place of stauung. A further

comparison of cases showed his best results to have been attained in his earliest years when the stauung was daily of short duration.

He further noted that chronic œdema hinders the attaining of hyperæmia and favours acute inflammation.

So then the stauung was used for shorter periods and with longer pauses, and as the cases improved thereby, the pauses lengthened till in conclusion only one hour daily of stauung hyperämie was needed. His observations caused him to give the following advice:

1. The stauung *must never cause pain,* else it is falsely used, or the case is not suitable for this treatment.

2. The stauung *must never be cold,* i.e. it must not make the skin temperature appreciably lower than that of the other limb.

For the first the patient's word must be taken, and for the second constant foresight is necessary.

(Here may I be allowed to interpolate. Bier states on every possible ocasion, and it is drilled into his assistants, etc., that a stauungsbinde is improperly applied if it causes the least pain or paræsthetic sensation. Bier, not a little indignant at the apathy which surgeons and medical men in general have shown towards his method, attributes the bad results where it was used to the fact that the stauungsbinde was too tightly applied. "If it causes pain it is wrong and must be loosened."

So he came to use the stauung at first 7 to 12 hours daily, gradually decreasing this till after some weeks or months, only one hour daily. Oedema occurred only at first, removed in pauses by elevation of the limb. Under this treatment he obtained good results and found that cold abscesses were not more frequent than in other forms of treatment. With time, he came to adopt his present course, that is, one hour daily stauung.

This briefly consists in the application above the joint of a flexible rubber bandage (such as our football men wear round sprained joints) put on in several layers, so that peripherally to it a strong venous hyperæmia ensues. It need not be put on immediately above the joint, as in foot or wrist, but may be applied on thigh or upper arm, if this be required. "The 'Binde' shall under no circumstances cause pain." The skin must remain warm and red and the pulse peripherally must be plainly felt. It is not necessary to bandage the part of the limb peripheral to the joint. The Binde shall remain applied daily one hour, at the most three hours. Always avoid a chronic œdema; if present, combat this by elevation of the limb in the intervals. In cases of "broken out" tuberculosis loosen the bandages over sinuses, etc., so as to allow the hyperæmia space to work in.

Complicated bandages in broken out tuberculosis he does not use, and antiseptics never; tamponade is injurious. If cold abscess form as they frequently do in the process of stauung hyperæmia open with a small incision and squeeze out the pus. He never uses iodoform injections here. He advises rigid asepsis and local anæsthesia in this operation of puncture of cold abscesses. Lately, as he describes later, and as I have noticed, the use of his cupping apparatus (saugapparate) Schroppkopfe and Saugapparate is more popular in his clinic. With these pus and caseous matter are drawn out of the incisions and fistulas. If these cupping glasses are not used, the opening must not be allowed to close up and the pus when it recollects must be squeezed out. He holds that curetting and probing of sinuses is unnecessary, leading to secondary infections. "Cold abscesses must early be recognized and early opened."

No distinction is made between closed and open tuberculosis and they are both handled at first, conservatively, i.e. with stauung hyperämie. The contra-indications are:

1. Beginning amyloid disease and severe phthisis, which call for amputation.

2. Cases where the whole joint cavity is filled with pus or cold abscesses.

3. Faulty positions of the joint.

The last two are met with especially in the knee joint. (The knee joint he finds difficult, and he speaks of his good results in hand, foot, elbow and shoulder joint tuberculosis. The hip I do not remember having seen mentioned, and I judge is not amenable to the stauung treatment.

He holds it wrong to divide cases into those to be treated conservatively, resection and amputation cases, as often the former go badly and the latter well under conservative treatment.

He treats all ages alike and has seen excellent results in open tuberculosis in frail old people.

The formation of cold abscess is not an aggravation of the disease but only a necessary phase in the course of tuberculosis and does not necessitate interruption of stauung.

Iodoform is only used now in Hydrops Tuberculosis, and where the whole joint cavity is filled with a cold abscess. When this has lessened he uses stauung which is not suited for the case at first.

Bier does not practice immobilization of the joint but allows the patient with hand, elbow, or shoulder tuberculosis, to carry hand or arm in a sling and to perform all the little requirements of daily life that pain permits. He carefully also begins passive and active movements.

Under the stauung hyperämie, the pain is usually so greatly lessened as to permit such movements. He keeps always in view the attainment of a functioning joint; holds it a bad result when a stiff joint is the end of tedious and immobilizing treatment. He agrees with Thomas of Liverpool that dorsal flexion of the wrist is better than palmar flexion.

In the case of knee or foot tuberculosis he uses a plaster or leather splint in two pieces, removable, which is worn whenever the patient stands on the leg. Passive and active movements are daily frequently performed, whenever the patient lies down. When splints or apparatus are worn, they are given up entirely very gradually, by crutch, stick, etc. Great precautions are taken to guard against injuries of the joint and children are not allowed to fall.

Severe foot tuberculosis is treated at first in bed and precautions are taken to avoid foot-drop, etc. by the use of splints. Splints or extension apparatus are used in the case of tuberculosis of the upper extremity where bad positions of the joint are present, but care must be taken not to leave splints on continuously in order to avoid stiffening of the joint.

Great use is made of the polyclinic treatment of tuberculosis. The great feature in Bonn is the ambulatory treatment. This is of great advantage to general physicians who can treat these patients in office hours so as to observe progress or can instruct patients or parents how to carry out the stauung at home, but great care must be taken as to any change, e.g. cold abscess formation.

Bier gives statistics of cases which he treated in Bonn, from April 1st, 1903 to August 1st, 1904. During this time the technique was practically uniform. Previously he had had successes but the treatment was not then uniformly stauung. The cases were not selected, except in the case of the knee joint; only those cases where the treatment lasted at least nine months were noted (except those I presume which healed earlier.) The cases were treated only with stauung hyperämie except for the aid of apparatus in the case of the lower extremity.

Hand and wrist: 17 case were treated; four had from the beginning sinuses; in five abscesses had to be evacuated, and 15 healed with free movement; two improved. The average length of treatment was twelve months.

Elbow:—Treated 11 cases; five had sinuses at the beginning; abscesses were opened in eight; eight cases healed including two of the sinus cases. Absolutely normal movement was attained in no case, but fairly free movement in all; three were improved. The average length of treatment was nine months.

Foot:—13 cases were treated, eight with sinuses; abscesses were opened

in six; eight healed, including four of the sinus cases, three improved; one uninfluenced; one amputated later outside the clinic. Full movement was attained in three cases, satisfactory in the remainder. The average treatment was ten months.

Shoulder:—One case was treated which healed with free movement.

Knee:—Treated five cases; three had sinuses, two at the beginning and one developed; three were healed, two with good movement one with stiffening in good position; two cases were improved, both ankylosed. In eight other cases resection was almost immediately performed.

The knee joint is somewhat refactory to stauung and frequently heal with ankylosis. "A good function is, however, the chiefest object of conservative treatment."

Healing ensued in,

the hand in.	88	per cent.	of cases (not selected)
elbow	72.7	"	" "
foot.	61.5	"	" "

In these joints not a single resection was carried out.

Till very lately Bier's results have not been confirmed by other surgeons, the reason he finds chiefly in the improper use of the method. He goes on to remark (and rightly) that Klapp has had such success with the saugtherapy (the production of more or less vaccuum by cupping glasses) which Bier had given up, that now practically all tuberculous cases with abscess and sinuses are treated solely by saugtherapy.

Technique:—Small or large saug glasses are applied to the part and the air slightly and gently exhausted, by rubber ball or pump. The treatment lasts daily for three quarters of an hour, five minutes on and three minutes pause. The glasses must be treated antiseptically, the part washed or sponged with benzine (cheaper than ether). Should new abscesses form they should be opened antiseptically with a small incision and sauged. Do not probe, curette, drain, or tampon. An antiseptic bandage is applied. This applies to all forms of tuberculosis, joint, gland and bone.

Secondary infection is not seen (this is striking). As in the stauung joints are moved and not immobilized. Pain is apparently not present from the treatment, resulting from the Analgesic action of the hyperæmia. (I have seen in the last three days two cases of elbow tuberculosis with abscess discharged cured, with almost perfect movement.)

At present, this being in the experimental stage, saug glasses are used alone. Bier asks whether or not its use along with stauung would be better?

The forms of saug glasses are two:

Saug or cupping glasses of various shapes and forms modified to suit various parts.

2. A larger apparatus with a rubber cup exhausted with a pump and a cuff. (Especially useful in spina ventosa.)

The cuff is of leather or cloth and is bound to the arm loosely with stauungsbinde, but should not cause stauung. This latter form is used where cupping glasses could not be applied.

TREATMENT OF OTHER FORMS OF TUBERCULOSIS.

Testicle:—Stauung hyperämie. Soft rubber tube, wool underneath one to three hours daily. Rather strong hyperæmia but should not cause pain.

One or both testicles may be treated at the same time. In the interval, they should be supported in a roomy suspensory bandage.

Cold abscesses should be opened through a small incision. The results are good in early cases, but not so satisfactory when the seminal vesicles are involved.

BONE, TENDON SHEATHS, GLANDS, SKIN, LUPUS.

Hygromata:—Through a small incision, the fluid and rice bodies, should be evacuated, and then the stauungsbinde applied one to two hours daily. (Better results may be obtained with Klapp's saug therapy; have seen two or three cases of these chronic tuberculous teno-synovitis cases heal. Saug daily for three quarters of an hour).

Bone:—Where function will not be impaired advises operative interference. (Spina ventosa of children gives excellent results with saug-therapy as Klapp shows with numerous cases).

Gland:—The cubital gland is the only one suited for stauung (Klapp treats it with sauging; which is quickly followed by softening. A small incision is then made and the saug glass applied. He uses small saug glasses three quarters of an hour daily.

The method does not seem to be adapted to lupus, although the Finsen rays act by hyperæmization).

TREATMENT OF ACUTE INFLAMMATIONS AND PUS INFILTRATIONS OF EXTREMITIES WITH STAUUNG.

Stauung in acute infections is used contrary to the rule in tuberculosis, 20 to 22 hours daily. During the two to four hour pauses, œdema

is lessened by elevation of the part; it is generally shown that a shorter period is insufficient.

If possible apply the stauungsbinde in a different place each time. Where this is impossible make short pauses, and wash part with alcohol.

The stauung should never cause pain; it ought to still pain if that be previously present. If the pain is increased loosen the stauungsbinde.

Abscesses should be opened through a small incision.

The presence of lymphangitis is not prohibitive. The band may be placed without fear over the lymphangitis streaks.

Change the place of application of the stauungsbinde frequently to avoid undue pressure.

To avoid mistakes and bad results which will occur when one is unskilled in the method treat only at first the cases with good prognoses, for there are and will be cases so severe as to lead to a fatal result or amputation, even under stauung's hyperämie, and people are only too willing to attribute such bad results to a new method. The following conditions are adapted to this form of treatment: (1) All fresh cases of acute inflammation; (2) Subacute and mild inflammations; and (3) Gonorrhœal, pyæmic and acute pus joints. Results have been especially good in suppurative tendon sheath inflammations. The pain is removed and returns in the pauses.

In acute arthritides and in the acute suppurative teno-synovitides, thorough movements of the parts are to be carried out as soon as lessening of pain permits. This gives a good function the attainment of which we have previously neglected in our wish to save limb and life.

In tuberculosis the treatment should be of short duration and without œdema.

In acute inflammations the treatments are longer (but during the pauses, the œdema is lessened by elevation of the part.

Bier cites cases of suppression of beginning suppuration by stauung hyperämie, changing of hot abscesses into cold, disappearance of abscesses, etc.

In regard to the last point it is not the rule to wait for such an event, on the contrary, *abscesses are under all circumstances to be opened.*

Bier advises small incisions as less disfiguring and scar forming, but a long incision is not incompatible with the treatment.

Abscesses are only exceptionally drained and never tamponed. Pus must be carefully pressed or stroked out. The result, especially in acute suppurative teno-synovitis, is striking. Death of the tendon does not ensue.

Bier cites a number of acute inflammatory cases where temperature subsided immediately after applying the stauungsbinde.

TREATMENT OF ACUTE AND SUBACUTE INFLAMED JOINTS WITH STAUUNGSBINDE.

The pain is considerably lessened, and allows, to the great astonishment of the patient, careful passive movements to be carried out, and allows sleep (this is the chief thing if we wish to avoid ankylosis.)

It is especially useful in gonorrhœal inflammations. To avoid ankylosis "*Begin at once with active and passive movements as soon as pain allows.*"

Chronic gonorrhœal stiffened joints are best treated with hot air.

Excellent results are being attained, in mastitis especially; the pain stilling action of the hyperæmia is marked.

Hot air is used extensively in the clinic.

One of the charges against the method is that it causes, especially in tuberculosis, a diffusion of the disease. This, Mosetig claimed recently in a discussion in Vienna. Von Eiselsberg and all the other surgeons who spoke were strongly in favour of stauung, etc., and Bier denies the truth of the assertion. Time will tell who is right.

MONTREAL DISPENSARY.

The total number of applicants during the past twelve months was 19,195, sub-divided as follows, according to diseases:—General diseases, 9,077; diseases of eye and ear, 2,366; diseases of women, 1,333; diseases of nose and throat, 671; diseases of skin, 2,771; diseases of children, 2,827; dentistry cases, 210.

MONTREAL GENERAL HOSPITAL.

During the three months ended March 31, 751 patients had been treated to a conclusion. There were 52 deaths, of which 15 occurred within three days of admission, making the mortality for ordinary hospital cases 4.92 per cent. The aggregate number of hospital days was 18,610, an aggregate detention per patient of 24.78 day, the average number of patients per day being 206. In the outdoor department there were 11,928 consultations, as compared with 11,256 for the corresponding quarter of last year. During the three months the ambulance responded to 327 calls.

THE

Montreal Medical Journal.

A Monthly Record of the Progress of Medical and Surgical Science.

Remittances advertisements or business communications are to be addressed to the Montreal Medical Journal Co., Box 273; all others to the Managing Editor, 216 Peel Street, Montreal. All communications intended for insertion in this Journal are received with the understanding that they are contributed exclusively to this Journal. A limited number of reprints of articles will be furnished to authors at cost price, if a request to that effect accompany the manuscript.

VOL. XXXV. JUNE, 1906. No. 6

EHRLICH'S RESULTS IN CANCER RESEARCH.

It is gratifying that the first actual step of magnitude in the discovery of a means of obtaining immunity against cancer and perhaps of curing early cases of the disease has been published to the medical world through other means than the lay press. Ehrlich has been able to immunise animals against inoculation with cancerous material of so great virulence that practically all non-immunised animals inoculated, contracted the disease. The cure of cancer in these animals is all but in his grasp; and we can by analogy, expect speedily an application of his method to human beings. In a matter like this, we must guard against too great a measure of hopefulness, but we can truthfully say that this seems the most important result yet obtained in the world in cancer research.

Professor Adami, now in Germany, has kindly put at our disposal a resumé of Ehrlich's article, which we publish with the belief that it will prove most acceptable to our readers.

SUBSTITUTION AT EXAMINATIONS.

The last meeting of the College of physicians and surgeons of the province of Quebec was held on September 27th, 1905. The report of the proceedings of that meeting reached the members in May, 1906. The attendance appears to have been large, as the names of forty delegates are given as having answered "the nominal call." If this large representation was only nominally present, we think the fact should have been stated more explicitly. The copy of the report which is before us is in English; but the translator has been led into error by relying too absolutely upon the dictionary. The committee on credentials, called the "trust committee," appear to have had more than the usual trouble with applicants for examination at irregular times, and we are glad to read the curt comment "refused; he will have to wait till the ordinary epock."

That portion of the report which deals with substitution at examinations makes painful reading, but the College is resolute to put a stop to the practice, as "the Committee recommends that the Medical Board gives instruction to the President and Registrary to make all legal researches to bring before the Courts of Justice all persons who, at the last examination or at previous ones, are found guilty of a fraudulous conduct." Mr. Laflamme, for the examiners, in the report which he made, took a gloomy view of the situation, and confirms the evidence adduced before the police magistrate. We quote from his report. "It will show you, that some candidates, at the last examination seem to have acted dishonestly. There has certainly been an attempt to fraud. Is it possible to believe that the same thing will again take place at the future examinations? It is to be feared, so far as the remedy is hard to find. This time, we have been able to find out some one guilty of substitution of persons. But the manner we proceeded is actually known and the pupils will be skilful enough to elude it in the future. At least, we will not give to M.A. a license that M.B. will have won, for money received. If the Governors' Board does not find a remedy to this evil, in the future, the preliminary examination will be regarded as a farce for the simple only. In this case, it would be better to suppress it. We, examiners, we exercise the most careful watch; we do our best to get all possible information, but we must confess we will be unable to discover certain irregularities if the past way of doing is not changed."

Then follows a specific account of the offence which had been attempted. "A candidate was noticed clearly to be disguised. False mustache and imperial; false *rouge*, etc. He met one of the examiners in the street later (without the disguise), admitted the fact, and gave an account of his antecedent (which probably was not true); that he did it this time because of his need of money."

No measures can be too strong for eliminating this pernicious practice. Unless the examinations are above reproach they will in truth come to be "regarded as a farce for the simple only."

PRACTICE IN MONTREAL.

The unloveliness of Montreal in its seasons of squalor—late winter, early spring, midsummer and late autumn—falls with especial hardship upon the members of the medical profession. In common with all other members of the community they suffer from the unpleasantness of their surroundings, and in addition their livelihood is taken away. With increasing wealth and facilities for transportation it has become easy for the average citizen to change his environment, and he will not endure discomfort when escape is so easy. The result is that the well-to-do population of Montreal is continually on the move.

Late in June the migration to the mountains and the sea has begun. The ships which leave the docks in increasing numbers are provided with comforts and luxuries unthought of ten years ago, and help the exodus forward to Europe. During July and August the resident district of Montreal is a deserted city of houses closed by day and lightless by night. With September there is a return to home and school; but by November the population is on the move again, to the South or to Europe from which many persons neglect to return till the following summer. Next there is the Christmas exodus, and again at Easter, when the railways are hard put to it to provide transport for those who desire to escape.

People do not travel for pleasure. Within certain limits they would rather endure the ills they have, than fly to others which are equally certain, the train's delay, the black man's contumely, and all the usual discomfort which are experienced away from home. They make choice of two evils and leave Montreal.

The physicians are left behind without patients, or at least with only those of their *clientelage* who are in the like situation with themselves, and unable to get away. The result is that, with increasing wealth, Montreal is becoming a less desirable place for practice. In time this will tell upon the hospitals and medical schools as well as in private life. Physicians are like other human beings. They will not forever submit to starvation, and discomfort at the same time.

This state of affairs is unnecessary. There is probably no city in America which in itself is so good to live in for twelve months in the year as Montreal. With mountains, rivers and lakes it has advantages which no other city can claim, and yet it is deserted by its own citizens

and avoided by strangers. It is true that the habit of migration is growing generally, but the movement in Montreal is not reciprocal. People are forever going, but others do not come to take their places. The loss to the community, as well as to the physicians, is incalculable, and millions which are spent in foreign capitals might as well be spent at home.

It is the condition of the streets alone which makes Montreal a less desirable place of residence than it should be. The first business of a civilized government is to make life and property secure, to provide water and roads. A man may refrain from drinking water. He may endure being robbed or murdered. What makes life unendurable here or anywhere else is to get dust in his eyes and mud upon his boots. One of these two evils at a time he could bear. Both at once are contrary to nature and intolerable.

It is not lack of money which has brought about this condition. One has only to look at the civic debt to know how much has already been spent. What has become of the "permanent pavements" upon the cost of which citizens are yet paying interest? Many of them have floated away in the spring rains. It is because money has been spent and spent ignorantly that the streets are so bad. It would be better to leave them in a state of nature, than heap them up with material which soon blows away in dust or is carried away as mud.

When the residents of Peel street, in foolish desperation, bound themselves legally to pay for one half the cost of a roadway, the city officials were candid enough to confess that the money would be wasted, as they did not know how to construct a roadway which would endure. Before succumbing to the blind force of nature, it would be well to seek further advice, even if one had to consult the authorities at Ottawa or Longueuil.

It is the business of the medical profession to provide for the health and comfort of the citizens, to do for "business men" what they will not do for themselves. We have rid the world of many pestilences. The time has come to take other matters in hand. The streets of Montreal have been too long a bad jest. They have driven away our patients, and with us all others who minister to the public are bound to suffer.

The *New York Medical Journal* conducts a series of discussions by readers upon subjects of interest. Prizes are given for the best answers to such questions as: How do you treat lumbago? What is the best form of tent for tubercular patients? How do you treat prolapse of the umbilical cord? Over fifty subjects have already been dealt with

and many new views have been obtained. There is a standing notice that "no importance whatever will be attached to literary style." If by "literary style" is meant hifalutin language, we can well understand the resolution of the editors, as there are many persons who are incapable of composition in that form. Our own impression is that, if a person has a thing in mind which is worth saying, and he writes it down clearly in fitting words, then he is writing in good style. It is a pity that such composition should be put under the ban.

The correspondent of the Canada Lancet writes that some important changes in the by-laws governing the Sherbrooke Protestant Hospital have come into force. Henceforth any physician in the city or district may take patients to the hospital and treat and attend them, with the liberty of using the operating room, if operation is necessary. Hitherto patients, taken to the institution by physicians, not on the attending staff, had to be handed over to one of the staff physicians. This staff has been increased from six to eight, and, in case of major operations, a member of this staff must always be present. Other changes have been made in relation to government, and the control of all matters in connexion with the hospital is placed entirely in the hands of the executive and governors.

The third Congress of the French-speaking physicians of North America will be held on June 26-28 at Three Rivers. The invitations already extended for the meeting state that special attention will be paid to alcoholism, the hygiene of the infant, and tuberculosis. The programme indicates that arrangements have been made to entertain the visiting physicians, not only at Three Rivers, but also by a trip to Shawinigan Falls, and a large attendance is expected. Dr. J. E. Dubé, of Montreal, is a vice-president of the Executive Committee, the president is Dr. L. P. Normand, of Three Rivers, and the secretary, Dr. Charles DeBlois, of Three Rivers.

In the obituary notices of medical men in Ontario, which are all too common, we read habitually that the decreased was an ardent Liberal, or a life-long Conservative. In an address to the medical students of Toronto, Dr. Fotheringham advised them "to join some political party." We do not think this the best advice, especially if we can believe all we read of the political parties which are found in Ontario.

Members of the medical profession will learn with regret that Dr. E. P. Lachapelle has seen his way clear to resign from the superintendency of the Notre Dame Hospital, a position which he has occupied ever since the foundation of the hospital twenty-five years ago. The new building on Sherbrooke street will always remain as a monument to his zeal and tactfulness and to his capacity for organization.

IMMUNISATION AGAINST MALIGNANT GROWTHS.

Ehrlich P. Experimentelle Karzinomstudien an Mäusen: *Zeitschr f. arztl. Fortbildung* 3, 1906, No. 7.

At last after all these years of intense study of the cancer problem we are able to chronicle the advance which, all must hope, heralds eventual victory. Much, it is true, remains still to be accomplished, but no one acquainted with modern methods, cytolytic and hæmolytic, and their results, after reading this paper can be otherwise than convinced that Ehrlich has laid the foundations for a successful preventative treatment of cancer, and that, along the same lines, cure of this dread disease, at least in its early stages, is only a matter of time. Many as are the debts which medical science owes to Ehrlich, from his studies upon the chemistry of the cell in relation to staining, and establishment of histological methods upon a sure foundation, through his recognition and classification of the different forms of leucocytes and methods of standardising antitoxins, to the establishment of the side chain theory of immunity with the marvellous impetus this has given to investigation, these last studies impress us as the greatest of all. Briefly Ehrlich has now clearly established a method of immunising against malignant growths in the animals of the laboratory, and that by a natural evolution and application of the principles which have dominated all his previous work. His results are the logical outcome of his studies upon the nature of metabolism and of the side chain theory. There remains now to apply this method to the human being, and to expand it to the arrest of the disease when it has already shown itself, and, by analogy, this is possible. We heard rumour, indeed, in December that certain workers in New York inbued with the same ideas had already achieved a definite measure of success in the treatment of malignant disease. If so, theirs will be the great service and the honour of definitely solving the cancer problem: but the results have still to be published. And in the meantime the experimental basis of the method has been established by Ehrlich.

In the lecture before us, Ehrlich details the stages that have led him to his results. It was evident, judging from bacteriological experience that only by animal research, by the study of the mode of growth and properties of malignant disease in the lowest animals could sure results be obtained, for, in this way in the laboratory, disturbing factors could be largely eliminated, and of animals, as demonstrated by Hanau, Moran, Leo Loeb, Jensen, as again by Borrel and Michaelis, mice and to a less extent rats, offered the best material for study, for in them the growths can be transplanted from generation to generation. The British Committee it will be recalled are working upon exactly the same basis

But affected rodents are not easy to obtain. Out of 30,000 mice Bashford only gained 12 with tumours, and for a year Ehrlich could not encounter a single case. Eventually, however, during the last year no less than 230 individual cases have been received at the Frankfurt laboratory, an amount far in excess of that at the service of all other investigators combined. It is interesting to note that all the primary developments are in the female mice and originate in the mammary gland. Of these 230 tumours the majority were of the non-malignant adenomatous type, the minority of carcinomatous nature. And what is more, only a small proportion yield positive results on implantation: of 94 implanted, only 11 gave new growths, and that in by no means all the animals inoculated. If from one primary tumour, according to its size, 20 to 30 other mice were inoculated it might be that only one or two, rarely six or seven, gave results.

But once such transplanted material showed growth it was possible in a certain number of cases by successive transplantations through a series of mice to gain a most remarkable augmentation of virulence,—and here was Ehrlich's first important step forward—in this establishment of increased virulence by passage, so that he gained a 'virus' of assured activity. Eventually, with such material, the positive results were close upon 100 per cent, the growth became rapid so that in 10 days he could remove and transplant; the extraordinary mass thus at his disposal may be realized when one mouse in eight days afforded cancer tissue sufficient for the development of tumours in 10 other mice and these in turn were used to set up cancer each in 10 to 15 more mice. In short Ehrlich has already been able to transplant one tumour through 70 generations.

A remarkable side issue has been noted in 3 cases, namely the appearance of sarcoma which in one series of transplantations completely overgrew the orignal cancer, forming a pure spindle cell sarcoma. We have seen the specimens, and no one can doubt their nature: the second

transplantations still remain mixed, with polymorph cells and indications of epithelial elements, in a third there is definite combination of carcinomatous acini with sarcoma elements. The only explanation so far possible is that in these cases the stroma (provided by the host) in one of the series of animals inoculated, has taken on malignant growth, and these secondary malignant cells are capable of continued growth.

It is evident, however, from Professor Ehrlich's figures that there is a very considerable natural resistance of the mouse at all ages, to what we term natural carcinoma—to first transplantation. Of the last 21 tumours obtained out of 282 mice inoculated, only 2 gave positive results, whereas the results were positive with his material of augmented virulence whether he employed old mice or young, male or female.

We constantly encounter like phenomena with bacteria. Leaving aside the question of primary origin of cancer cells, *what are the conditions* which favour proliferation? In the first place it is established that tumours are only capable of transplantation into the same or a closely allied species. Thus Ehrlich was able to inoculate rats successfully with his augmented material from the mouse. Here, however, differences show themselves: the cancer only grew for a week or so and then underwent absorption. If replanted into a mouse at the end of the week it again gave positive results, into a rat negative. Just as a smear of hæmorrhagic sputum upon plain agar will give results of the influenza bacillus but further transfers upon like medium are negative, the bacillus only growing where blood is added, so according to Ehrlich is it with these cancer cells: the growth in the rat is due to food material brought with them. Indeed only the outer cells of the inoculated mass grow, the more internal from the first show evidence of necrosis. It is not that the rat's organism contains primarily an antibody, merely that some specific food material is absent.

While this appears to be established, an antibody *is* developed in the rat by the presence and absorption of the mouse cancer. Inoculate a rat a second time with the same tumour material and from the first all the cells show not a sign of growth, but on the contrary a necrosis. Here we have the first indication of the possibility of gaining immunity.

A similar order of immunity is to be noted *in the mouse*. It is not a little remarkable in these cases that where the primary growth shows such enormous and rapid development, metastatic growths are rare or if present small and inconsiderable. So also *if a second inoculation of the same order of tumour material be made into a mouse, this second tumour does not develop*. Ehrlich ascribes this to a like using up of the specific nutritive matter by the very active primary growth. We confess

we doubt the validity of the explanation. To us the conditions appear to be parallel with those we notice in syphilis and in tuberculosis, and as there, so here, are best explained by a coincident exaltation of resisting powers and development of antibodies by the tissues away from the growth and not directly involved.

(Vide Adami: "Adaptation and Tuberculosis," *British Medical Journal*, April 29th 1905.)

Ehrlich would explain the active growth of the tumour cells at the beginning as due to the avidity of the cancer cells for certain food stuffs with coincident lowered assimilative capacity of the other cells of the organism for the same, later—very much along the lines of our theory of the habit of growth—he recognizes that there is an increase of avidity and assimilative power to a maximum. If, he suggests, we can find a means of increasing the avidity of the rest of the tissues for these specific food stuffs of the cancer cells and thereby withdraw their source of nutrition then it will be possible to arrest the growth of cancer.

Now already there are, along with many negative, certain positive results upon record regarding immunization against cancer. Thus, notably, Jensen inoculating mice with dead cancer material, saw that small tumours obtained through inoculation underwent atrophy and resorption, and Clowes has noted that mice whose tumours underwent spontaneous resorption afforded an anti-cancerous serum. But the results have not been constant. Ehrlich attributes this to the fact that observers have not been dealing with tumour material of maximal virulence. As Pasteur in the case of bacterial immunity, so in this matter of cancer, Ehrlich emphasizes the fact that no constant results can be obtained until toxic material of maximum virulence has been gained. Such material of maximal virulence he now possesses, able when inoculated to cause cancer in close upon 100 per cent of the cases. His important announcement is that mice inoculated with non-virulent material —with tumour matter, that is, which underwent absorption and not growth, and it will be recalled that the majority of his animals used for primary inoculation come under this category—*are in the majority of cases completely immune to subsequent inoculation of material of maximum virulence, and in all cases, a powerful immunizing or retarding effect is observable.* He employed animals already in the laboratory at various periods after primary inoculation and has no doubt that subsequent, more precise treatment will afford perfect results.

The immunity shows itself rapidly—in from 7 to 14 days after the primary inoculation and is maintained for weeks and months. He has obtained it repeatedly, "*immer und immer*," during the last year and

with him we must regard the result as "ausserordentlich erfreuliches." He has obtained his most perfect results with mice which did not react with the first inoculation of the cancer tissue from which originated eventually his virulent material.

What is important is that he found that one mouse cancer immunised against all other mouse cancers and, what is more, against mouse sarcoma. The reaction, thus, is not narrowly specific—though evidently from the statement just received, just as we note in bacteriolysis and cytolysis, the most powerful result is obtained against the particular strain affording the immunising material. To a moderate extent the animals so immunised were also protected against a mouse chondroma of extreme local malignancy or active growth which Ehrlich is transplanting through a series of animals. Ehrlich correlates this with the frequent presence in the same individual of different forms of tumour to which Albrecht of Munich has called attention, and in Montreal has been emphasized by Nicholls and Woolley. We shall not, however, discuss the subject, interesting as it is, nor yet the explanation of those facts in the terms of the side chain theory, which here gains further corroboration. The all-important point is that active immunity against cancer is shown not merely to be possible but to be gained with precision by a specific method of procedure and that against cancer of maximum virulence. The application of these results in human medicine can only be a matter of time. We see the dawn.

J. G. ADAMI.

Reviews and Notices of Books.

INTERNATIONAL CLINICS.—Edited by A. O. J. KELLY, M.D. Vol I. Sixteenth series, 1906. J. B. Lippincott Company, Philadelphia, 1906.

This volume of the "clinics" is enriched by a review of the progress of medicine during the past year. There are eight coloured plates, 20 plates in black and white with numerous figures. There are seventeen distinct studies upon subjects of vital importance with which all physicians and surgeons should be acquainted. The "clinics" include a body of sound opinion upon medicine, surgery and their various subdivisions.

HANDBOOK OF SURGERY by GEORGE BURNSIDE BUCHANAN, M.D., Glasgow. John Currie, Edinburgh, 1906.

This book aims to do for surgery what Walsham's book has done for

medicine; that is to include in small compass sound information well arranged and reasonably complete. We think that it does so, and that it will have a corresponding usefulness to students.

THE INTERNATIONAL MEDICAL ANNUAL, 1906. Thirty-fourth year. E. B. Treat and Company, New York. Price $3.00.

We should first make note of the difficulties with which the publishers have had to contend in the issue of the present volume. Their offices were destroyed by fire at a time when the most of the matter was in type and the official who was mainly concerned with issuing the work lost his life in a railway accident. Yet there is no evidence in the book of these difficulties which happily have been surmounted. There are 32 plates and 70 diagrams. Thirty-one contributors have colaborated towards the volume and amongst them are some of the names best known in medicine. The book opens with a review of therapeutic progress for the year, including organo-therapy in which all new drugs and precedures are considered. Radio-activity and electro- therapeutics complete Part 1. The main body of the book is occupied with a dictionary of new treatment alphabetically arranged. The references are singularly copious. The high reputation of the "medical annual" will be enhanced by this volume.

TRANSACTIONS OF THE AMERICAN CLIMATOLOGICAL ASSOCIATION, 1905. Vol XXI.

The object of this Association is the study of Climatology and hydrology and of diseases of the respiratory and circulatory organs. The present volume contains 18 important papers, and an index of the 21 volumes which the Association has published. Amongst the papers we note one upon the Climatology of the Laurentides by A. D. Blackader. The meeting with which this volume deals was held in Detroit. The next meeting will be in Boston concurrently with that of the American Medical Association.

UNITED STATES PUBLIC HEALTH AND MARINE HOSPITAL SERVICE. 1905.

During the year 57,013 seamen were treated at the various stations of the Service. Of these, 14,661 were treated in hospital and 42,352 were treated as out-patients. The number of days' hospital relief furnished seamen was 431,623, an excess of 16,331 over the number for the previous year. This volume deals with the service in which the above is only a partial indication of the work done.

MANUAL OF CHEMISTRY. By W. Simon, Ph.D., M.D., Eighth edition, 66 illustrations and coloured plates. Lea Brothers and Company. Philadelphia and New York, 1905.

As an example of condensation this book deserves notice. In a space of 600 pages the author covers the subjects of chemical physics, inorganic chemistry, analysis, organic chemistry, and physiological chemistry. In consequence the treatment of the individual subjects is fragmentary. The section on Physics is particularly so, neither giving an insight into the general subject nor treating sufficiently the parts especially interesting to a medical man.

In the section on inorganic chemistry the author does not follow the experimental method of teaching the theoretical part of the subject; the theory is all gathered in the first few pages of the section and is not led up by any extended discussion of particular experiments. In a book of reference this may be justifiable but except possibly in the form of a summary at the close of the discussion is not advisable in an introductory text-book. Students are altogether too apt to neglect the dependence of theory on experiment, for them to be separated in this way. It is not easy to appreciate the reasons for postponing the discussion of the halogens till all the other non-metallic elements have been treated. The discussion of the metals and their compounds is good and the sections on analysis, qualitative, gravimetric, and volumetric, is more complete than is usual in text-books on inorganic chemistry, as the book is intended for use as a laboratory guide. There is a novelty in the use of printing in colours to represent the colours of precipitates, indicators *et. cet* and the colours are well done. The section on physiological chemistry, while necessarily short, is yet satisfactory for an elementary text-book. All the well recognized substances and reactions receive notice.

For those who are already familiar with the book it should be added that this edition (the eighth) differs from the previous one in changes to harmonize with the new Pharmacopœia and in more attention to dental metallurgy. The book is well printed in clear type on good paper.

A Treatise on the Nervous Diseases of Children. By B. SACHS, M.D. Second Ed. revised. New York: William Wood & Co., 1905.

The first edition of this book was received with favour both in America and Europe. It has been translated into German and Italian, and a French translation is now in preparation. The present edition

has been reduced in size by condensation and by the omission of the chapters on anatomy and physiology, while new matter has been introduced whenever required to bring the subject up to date. The general practitioner will find many valuable suggestions in this book, and may have some time honoured traditions rudely upset. For example, the hot bath in convulsions, which is popularly considered indispensable, is deprecated as being a loss of valuable time, and the author says that if a convulsion ends while the child is in the hot bath, it is because the convulsion has run its course. He advocates the inhalation of a few drops of chloroform or equal parts of chloroform and nitrite of amyl, followed by small doses of opium or morphia when the acute stage is over, and the next day by the bromides or chloral. Dr. Sachs has given us a treatise which is both concise and practical.

A Reference Handbook of the Diseases of Children. For Students and Practitioners. By Prof. Ferdinand Fruhwald, of Vienna. Edited, with additions, by Thompson S. Westcott, M.D., Associate Professor of Diseases of Children in the University of Pennsylvania. Octavo volume of 553 pages, with 176 illustrations. Philadelphia and London: W. B. Saunders Company, 1906. Cloth, $4.50 net; Half Morocco, $5.50 net. Canadian Agents, J. A. Carveth & Co., Toronto.

The *Kompendium der Kinderkrankheiten* of Prof. Frühwald, of Vienna, gives a faithful picture of the pediatric therapeutics as practised and taught in that great medical centre. The present work is an excellent translation of the original with such additions and annotations as serve to adapt it to the differences of practice in America. The illustrations are printed from the original German plates, and a few extra plates from American sources have been added. The novelty and at the same time the special value of this treatise are to be found in the alphabetical arrangement, with numerous cross references.

In convulsions the author considers chloral to be the sovereign remedy, administered in doses of 4-8-15 grains according to the age of child, in ½ oz. of a mucilaginous mixture (a decoction of starch is recommended). The bowel is cleared out by means of an enema of pure water, before the chloral is administered. In order to save valuable time, the physician is advised to carry with him the drugs and appliances necessary for giving the chloral enema, whenever called to see a child in convulsions. The section on artificial feeding is interesting as indicating that less attention is paid on the continent to percentages than in this country. Liebig's malt-milk soup is highly recommended in follicular enteritis and simple atrophy (marasmus). The method of preparing this soup is described.

STUDIES ON THE TREATMENT OF FRACTURES OF THE LIMBS. By PROF. GUERMONPREZ, of Lille, France. Notes collected and set in order by Drs. Guilloux, Eissendeck, Faidherbe, David, Merveille and Platel. Paris, 1906, J. Rousset, Editor. Price 25 francs.

This stately volume of 1550 pages in 8 vo. represents something quite out of the ordinary. That so much could be written upon the details of treatment of fractures of the limbs without materially touching upon etiology, diagnosis, or pathology, is in itself remarkable. At first sight the impression given is that the book suffers from a great deal of repetition, one might almost say padding. This impression, however, is soon corrected by a careful perusal. The book is really a monument to the scientific labours of one man upon one branch of medicine and upon a small part of that branch; a man who, it seems, has founded a true school. The book is a real book, not a manual or a textbook of current ideas. The leading idea in the whole work is the avoidance of any routine treatment of fractures and the necessity of individualizing in each case. Well known and approved methods by means of fixed dressings are upon the whole given a smaller space in the treatment than the newer ideas of massage and mobilization, associated here so particularly with the name of Lucas-Championniere; nevertheless faddism is not apparent. Clinical accuracy is set first and foremost. The older ideas concerning the necessity of making an exact clinical diagnosis before using modern laboratory methods, especially, of course, in this instance the X-rays, is insisted upon. As a surgical school of thought it may be, perhaps, best compared with the school of clinical medicine associated with the name of Trousseau.

The twenty-two chapters are very unequal; many are short and discuss points that are fairly well agreed upon; others are quite extensive and discuss the new questions of massage and mobilization, while remodelling old question in accordance with the author's convictions. Certain chapters are purely historical, but acquire an important practical interest from their connexion with modern observations. There are long chapters upon thermo-therapeutics and mechano-therapeutics in the treatment of arthropathies following fractures. The two last chapters are quite new and refer to the re-education of movement, especially the restoration of walking in those who have been crippled by accidents. It would be impossible to give a complete review of all the chapters, of which there are 22, but some idea of the scope of the work may be got by citing a few of them: Upon the movements practised during consolidation of fractures; massage and mobilization; Amédée Bonnet and his contemporaries; discussions upon mobilization; contraindications of

massage; juxta-fractural arthropathies, their anatomy and symptomatology, etc.

The book is decidedly not one for the student; he, however, who desires a full discussion of principles and details of this branch of surgical therapeutics will find here a great deal of interest and of profit, though perhaps at the expense of considerable time.

E. W. A.

SURGICAL DIAGNOSIS. A Manual for Students and Practitioners, by ALBERT A. BERG, M.D., Adjunct Attending Surgeon to the Mount Sinai Hospital, New York. Lea Brothers Company, New York and Philadelphia, 1905.

A really exhaustive and scientific book upon surgical diagnosis, comparable with those which we possess upon medical diagnosis, such as Sahli, Musser, and others, is still sadly lacking. The present book decidedly does not fill the want; and having said this we have said most of that which can be urged against it. Taken as a textbook for students, it is on the whole one that can be recommended. One fault it shares in common with most textbooks upon the subject, in that one finds too many isolated facts and too few general principles; it is too much a strain upon the student's memory and too little a help to his reason. Nearly the whole range of surgery is reviewed from the aspect of diagnosis. The information given seems quite up to date and one is pleased to find a description of the newer things combined with a conservative estimation of their value. Especially is this so in the discussion of the more recent methods of estimating the functioning power of the kidneys. In the chapter upon fractures and dislocations there are a series of good X-ray plates and tracings. In the chapters upon injuries to the head one notices lack of discussion of the basal physiological principles upon which so much light has been thrown lately by Harvey Cushing and others. The new work also upon localization in the Rolandic area, especially connected with the name of Sherrington and Krause, is not set forth, the older plates of Starr and others being used. Cerebral localization in general is rather insufficiently treated. It would take too long to review each chapter in detail; suffice it to say that they are upon the whole well written, and that the teaching is greatly assisted by a large series of illustrations.

E. W. A.

FOOD AND THE PRINCIPLES OF DIETETICS. By ROBERT HUTCHISON, M.D., F.R.C.P., London Hospital. Revised (second) Edition.

New York, William Wood and Company, 1906. 582 pages. Price $3.00.

The importance of dietetics in medicine finds expression in this book The subject is considered from every standpoint, and it is pervaded by a scientific spirit. The record of analysis of the various foods is very complete; and, most important, there is no confusion between the results of chemical analysis and those in which vital processes have a part. The researches of Pawlow have demonstrated that digestion in a warm oven is an entirely different affair from digestion in the organism. The author makes full recognition of the fact that digestion is largely dependent upon "appetite." An important section of the book is that which is devoted to patent and proprietary foods. Dr. Hutchison makes short work of them, and shows that many are false in principle and fallacious in practice. The "extracts of beef," however fortified by proteids or be-devilled with drugs, receive the rough handling they deserve. The treatment of alcohol is done with acuteness and good sense. Its value is summed up in the expression that, when properly used, it lends an agreeableness to life. This book is a fine example of the scientific method checked by common sense and presented with literary taste. It is good to read.

ANATOMY DESCRIPTIVE AND SURGICAL. By HENRY GRAY, F.R.S. Edited by T. Pickering Pick and Robert Hunter. New American Edition thoroughly revised and re-edited with additions by John Chalmers DaCosta, M.D., Lea Bros & Co., Philadelphia, 1905.

It is needless to say anything in praise of Gray's anatomy which has for so many years been the student's friend and its illustrations have been so often referred to in after life when there was no opportunity of studying the actual subject. This American edition has eliminated many things which were in the last edition of Gray and made many additions. Some of these are valuable and others questionably of value. Other modern works have been largely drawn on for new material, Cunningham, Testut, Morris, Poirier and Carpy, etc. There are 500 new illustrations in this edition and many of them in colours. Histology and embryology have been left out entirely. The leaving out of embryology is in our opinion a mistake. We think it aids the student greatly, especially if it is incorporated in the body of the work as an appendix to each section, but so much new material is added that anatomies of the present day are huge volumes which tax not only the student's brains but his physical powers. Dr. DaCosta has done his work well, and has spared no time or pains to make this edition fully up to date.

PROGRESSIVE MEDICINE, a Quarterly Digest: Edited by HOBART AMORY HARE, M.D., March 1, 1906, Vol. VIII, No. 1. Lea Bros. & Co., Philadelphia and New York.

The contents of this volume are: Surgery of the Head, Neck and Thorax, by Charles H. Frazier, M.D.; Infectious Diseases, including Acute Rheumatism, Croupous Pneumonia and Influenza, by Robert R. Preble, M.D.; The Diseases of Children, by Floyd M. Crandell, M.D; Rhinology and Laryngology, by D. Braden Kyle, M. D.; Otology, by B. Alexander, M.D. We note mention of the case of tumour of the upper jaw reported by Dr. Donald Hingston in this Journal in July, 1905.

NURSING: ITS PRINCIPLES AND PRACTICE. By ISABEL HAMPTON ROBB, late Superintendent of Nurses, John Hopkins Hospital. Third Edition, E. C. Koeckert, Cleveland, 1906.

This book, of considerably over 500 pages, is designed to cover the range of work laid out for a nurse for a period of three years. The author writes from her own experience, and has a large store of knowledge to draw from. A nurse who knows all which this book contains would be qualified for a physician. It is the most exhaustive book upon the subject which we have seen. The directions to nurses are sensible and are given with good taste. The author and the book are deserving of the thanks of the profession. On a previous occasion we mentioned a book by Miss Robb on "The Ethics of Nursing."

Medical News.

FRENCH-SPEAKING PHYSICIANS.

The following is the programme of the Third Congress of the Association of French-Speaking Physicians of North America, which will be held at Three Rivers, June 26th—28th, 1906.

Executive Committee of the Congress:—President, Dr. L. P. Normand, Three Rivers; vice-presidents: Dr. J. O. Carmirand, Sherbrooke; Dr. J. E. Dubé, Montreal; Dr. G. A. Boucher, Brockton, Mass., U.S.; general-secretary, Dr. Charles DeBlois, Three Rivers; secretary, Dr. Eug. St. Jaques and Dr. F. X. Dorion, Quebec; treasurer, Dr. Alex. St. Pierre, Three Rivers.

Local Committee:—Hon.President, Dr. E. F. Panneton; president, Dr. L. P. Normand, general secretary, Dr. C. N. DeBlois; treasurer, Dr. A. St. Pierre.

Correspondents:—The secretaries of the different Medical Societies of Canada and the United States are ex-officio correspondents of the Executive Committee of the Third Congress of Medicine for their respective city or district.

The Executive Committee of the Congress has also named a certain number of correspondents for the French centres and the different States of the neighbouring Republic. Undoubtedly all will unite their efforts together, to the end that this next Congress of Three Rivers should be a decisive affirmation of the vitality and force of our Franco-American Association.

The following communication has been sent to the members.

Three Rivers, February 26th, 1906.

Sir and Confrère,—We have the honour to inform you that the opening of the Third Congress of the Association of the French-Speaking Physicians of North America is definitely fixed for Tuesday, June 26th next, and will take place at 2.00 p.m., in the City Hall, Three Rivers.

For the third time since its foundation our Society will meet officially and our re-union will coincide with the National French Canadian festival celebrated this year at Three Rivers.

You will recall the success and importance that our two other Congresses at Quebec and Montreal have had.

Everything goes to assure an equal success for the coming Congress at Three Rivers.

The principal questions which will be undertaken at the meeting are:

1. Alcoholism; prophylaxis, treatment and prevention by education of children. 2. Infantile hygiene. 3. Tuberculosis.

You are cordially invited to contribute in some form to the success of this Congress, either in making a communication on one or other of these questions, or, if you wish, by a paper on some work upon a subject of your choice.

For this purpose we send you a form of application as a participating member. We hope you will consider it a duty to fill it and return it to the General Secretary by the 26th May, if it is possible.

Preliminary Programme:—The regular meetings of the Congress will continue from the 26th to the 28th of June, inclusive, in the order briefly indicated below:—

Tuesday, 26th, 2.00 p.m. Official opening of the Congress of Three Rivers by Dr. L. P. Normand, president. Report of the General Secretary.

3.00 p. m. Reading of and discussion upon general reports. 8.00 p.m. Special meeting. 9.00 p.m. General illumination of the Town and concert.

Wednesday, 27th. 9.30 a.m. Further general reports. 2.00 p.m. Scientific communications. Visit to the Hospital. Special meeting.

Thursday 28th, 9.30 a.m. Communications of scientific works upon professional subjects. Elections of officers of the Association, date and place of reunion of the next Congress. Closing exercises.

An excursion to Grand Mere and Shawinigan Falls will be given to the members of the Congress.

A more detailed account of the programme will be addressed to you a little later, as well as to each of the members of the medical profession. Louis Philippe Normand, President. Charles DeBlois, General Secretary, 23 Laviolette Avenue, Three Rivers, Que.

The following have been elected from the Société Medicale of Montreal to the various sections of the Congress of French-speaking Physicians at Three Rivers, June 26—28th.

Section of Medicine:—President, M. Hervieux. Secretary, M. Laramee. *Section of Opthalmology*:—President, M. le prof. L. E. Desjardins; secretary, M. Lasalle. *Section of Mental Medicine*:—Vice-President, M. Chagnon; secretary, M. Dion. *Section of Surgery*:—Vice-President, M. Marien. *Section of Hygiene*:—Vice-President, M. Pelletier. *Section of Gynaecology*:—Secretary, M. Ethier.

QUEEN'S UNIVERSITY.

On April 9th, degrees in medicine were conferred upon 47 graduates. A. E. Baker, Black Falls, Sask.; W. H. Ballantyne, Kingston; J. A. Barnes, Kingston, Jamaica; A. M. Bell, Moscow; E. Bolton, Phillipsville; F. J. Brandock, Northport, N.S.; H. Cochrane, Sudbury; G. L. Cockburn, Sturgeon Falls; C. B. Dean, Bridgetown, Barbadoes; D. G. Dingwall, W. F. Gavin, Lancaster; G. D. Gordon, C. W. Graham, B.A., Kingston; J. Johnston, B.A., Combermere; W. G. Leadley, C. A. Lawlor, Kingston; S. L. Lucas, Kingston, Jamaica; F. E. Lowe, Adelphi, Jamaica; S. McCallum, M.A., Brewer's Mills; J. P. McCormick, Ottawa; D. J. McDonald, Whycocomagh, N.S.; A. G. McKinley, Chapelton, Jamaica; D. McLellan, Forester's Falls; F. R. Nicoll, B.A., Kingston; F. J. O'Connor, Long Point; W. M. R. Palmer, Northcote; R. K. Paterson, Renfrew; W. E. Patterson, Newburgh; W. R. Patterson, L. L. Playfair, C. A. Publow, Kingston; H. O. Redden, Ernestown; J. Reid, Renfrew; A. D. C. Robb, Nashville, Tenn.; B. A. Sandwith,

Whitstable, Eng.; F. F. Saunders, Rhinebeck, N.Y.; S. S. Shannon, Kingston; S. H. Smith, Chambers; J. B. Snyder, Lancaster; W. E. Spankie, Wolfe Island; J. R. Stewart, B.A., Waba; E. M. Sutherland, B.Sc., B. C. Sutherland, Montreal; W. J. Taugher, Beachburg; C. P. Templeton, Napance; J. J. Wade, Balderson; D. M. Young, Bristol, Que.

ROYAL VICTORIA HOSPITAL.

Monthly report for April:—Patients admitted, 270; discharged, 254; died, 17. Medical, 89; surgical, 117; ophthalmological, 18; gynæcological, 33; laryngological, 13. Outdoor:—Medical, 778; surgical, 709; eye and ear, 312; diseases of women, 137; nose and throat, 373; total, 2,309. Ambulance calls, 76.

Dr. Alexander Allan Henderson, of Ottawa, died on May 3rd, 1906, after an illness of six months. Dr. Henderson was born in Scotland in 1845 and came to Canada in 1849. He was educated at McGill University, where he graduated in medicine with honors in 1870 winning the Holmes gold medal, and the special prize in clinical surgery. His son, Mr. Smith Henderson, is a student of medicine in the fourth year at McGill.

Dr. Charles Holden died in St. John, N.B., on May 2nd, 1906. He was a graduate of Edinburgh University and had practised in St. John since 1869.

Dr. Daniel Cram died in Ottawa, at St. Luke's Hospital, in the 66th year of his age. Dr. Cram was a graduate of McGill University.

Dr. George D. Turnbull, of Yarmouth, N.S., died in Calgary in the 40th year of his age.

Dr. John R. Mitchell, of Perth, died in the Royal Victoria Hospital as the result of appendicitis on April 23rd, 1906.

The new addition to the Portage la Prairie hospital was opened on April 24th with appropriate ceremony. In Moose Jaw also a new general hospital was opened on April 17th.

BRITISH MEDICAL ASSOCIATION.

Amongst the members who will attend the meeting of the British Medical Association at Toronto are:

Allbutt, Prof. Clifford, F.R.S., St. Radegund's, Cambridge, Regius

Professor of Medicine, Cambridge; Armour, Donald, Esq., F.R.C.S., 89 Harley st., W., Cambridge; Ashby, Dr. Henry, 13 St. John st., Manchester; Barbour Dr. A. H. F., 4 Charlotte Sq., Edinburgh; Barlow, Sir Thomas, Bart., K.C.V.O., M.D., 10 Wimpole, st. W.; Barnes, Dr. Henry, LL.D., 6 Portland Place, Carlisle; Barr, Sir James, M.D., 72 Rodney st., Liverpool; Bradford, Prof. J. Rose, M.D., F.R.S., 8 Manchester Sq., W.; Broadbent, Sir William, Bart., K.C.V.O., M.D., 84 Brook st., W.; Browne, Dr. Langely, Moore House, West Bromwich; Buzzard, Dr. E. Farquar, National Hospital, Queen Sq., W.C.; Cameron, Sir Hector Clare, M.D., 200 Bath st., Glasgow; Gibson, Dr. G. A., 3 Drumsheugh Gardens, Edinburgh; Griffith, Dr. W. S. A., 96 Harley st., W.; Halliburton, Prof. W. Dobinson, M.D., F.R.S., 17 Marlebone Road, N.W.; Horsley, Sir Victor, F.R.S. 25 Cavendish Sq., W.; Lawford, Dr. J. B. 99 Harley st., W.; MasAlister, Dr. Donald, D.C.L., Barrmore, Lady Margaret Road, Cambridge; Manby, Sir Alan Reeve, M.V.O., M.D., East Rudham, Norfolk; Mickle, Dr. W. J., Grove Hall Asylum, Bow E.; Osler, Prof. W., M.D., F.R.S., 7 Norham Gardens, Oxford; Roaf, Dr. Herbert E., Bio-Chemical Dept., The University, Liverpool; Sherrington, Prof. C. S., M.D., F.R.S., Physiological Laboratory, The University Liverpool; Woodhead, Prof. G. Sims, M.D., F.R.C.S.E., 6 Scroops Terace, Cambridge; M. le Docteur Delezenne, Directeur du Laboratorie de Physiologie de l'Institut Pasteur, 25 Rue Dutot, 15E Arrondissement, Paris; M. le Dosteur L. Lapicque, 6 Rue Dante, 5E Arrondissement, Paris; M. le Docteur M. Nicloux, 107 Rue Mouge, Paris; Professor Justus Gaule, University of Zurich; Professor Max v. Frey, University of Würzburg.

Retrospect of Current Literature.

SURGERY.

UNDER THE CHARGE OF GEORGE E. ARMSTRONG.

FRACTURE OF THE BASE OF THE SKULL, AND LUMBAR PUNCTURE: DISCUSSION. Reviewed in the *Bull. et Mem. de la Soc. de Chirur. de Paris*, 8th November, 1905.

Potherat reports a case of fracture of the base, by a fall from a bicycle upon the head, followed by incomplete loss of consciousness. Patient was able to walk without help; answered questions very slowly and inaccurately; pulse 70; vomiting a few hours later, pulse 56; patient apparently comatose. During the following days there was fever; pulse

down to 48, persistent semi-coma; general condition poor, severe headache. Lumbar puncture gave several cc. of a reddish tinged fluid. No material change until subsidence of headache. Lumbar puncture was done every third day. Cured in 24 days with gradual improvement in the general condition. The author concludes that lumbar puncture demonstrates the presence of blood in the cerebro-spinal fluid, and thereby the existence of a fracture of the base. He thinks that the punctures exercise a favourable effect upon the symptoms of cerebral pressure.

Terrier has observed in one case a very decided improvement in the pain and the headache from repeated lumbar punctures.

Guinard had observed a case in which the diagnosis of basal fracture could be established. Patient became delirious on the third day and after a lumbar puncture with the withdrawal of 40 cc. of reddish fluid complete disappearance of the delirium was brought about. The same evening the delirium returned and was again relieved by the evacuation of 40 cc. under pressure. During the next afternoon there was sudden death. At the post mortem no fracture was found; a considerable amount of blood was in the subarachnoid space; no bleeding into the ventricles.

Rochard does lumbar puncture in all cases, even if only to relieve headache.

Tuffier remarked that he had never maintained that the presence of blood in the puncture fluid was a proof of basal fracture; the only thing it did show was that a cerebral contusion was present. He held that the emptying of fluid under pressure from the cerebro-spinal spaces was dangerous inasmuch as the sudden relief of pressure in the 4th ventricle could easily cause syncope. Terrier also remarked upon the danger of emptying spinal fluid under pressure.

Potherat did puncture of the lateral ventricle removing 30 cc. in a case of cerebral tumour in which the symptoms were supposed to be due to secondary hydrocephalus. After the puncture the temperature ran up to 41°C. and 24 hours later death occurred. At the autopsy a small tumour was found in the roof of the 4th ventricle which was separated from the floor of the ventricle by cerebro-spinal fluid, which was not present in such an amount as has been believed. Raymond explained death in this case by compression of the 4th ventricle by the tumour after evacuation of the fluid.

Broca also had frequently observed death with hyperthermia following quickly upon emptying of hydrocephalus sacs, and believed that the cause of death in such cases was the rapid fall of pressure *per se*.

E. W. A.

WILLIAM J. MAYO, "Gastric Cancer," *Journal A. M. A.*, April 7th.

Dr. Mayo points out that there is no medical side to cancer of the stomach, and reviews the literature, showing what enormous strides have been taken in gastric surgery of late years. He reviews the statistics of several leading surgeons as well as his own, and shows that not only in the direct mortality of the operation, but also in its later results, it compares favorably with the surgery of cancer of other parts of the body. The only way in which an early diagnosis can be made is by exploratory incision, but clinical symptoms, especially if associated with a history of old or recent ulceration, may arouse suspicion and justify exploration. He gives in detail his steps in performing the radical operation for cancer of the stomach, and remarks that the results of palliative operations are relatively unsatisfactory, the mortality being comparatively high and the average prolongation of life not very great. In 140 of his cases of gastroenterostomy the mortality was 15 per cent., and the average prolongation of life so far as known was less than five montths. The figures given by Kronlein and Mikulicz are even worse. The operation merely prolongs a chronic invalidism by a few hopeless weary months. For cancerous obstruction of the cardiac orifice, however, gastrostomy is the only resource, and is frequently demanded by the patient. He has had 18 cases with three deaths, a mortality of 16 per cent. The duration of life was about the same as after gastroenterostomy. Of explorations with discovery of hopeless gastric cancer he had 72, with one death in the hospital. The average stay of such patients in the hospital is less than five days, the deep wounds being closed with catgut, and the strong aponeurotic structures braced with buried mattress sutures of linen, silk or silver. The patients are thus enabled to get about at once and spend the remainder of their lives with their families. In conclusion, Mayo urges on the profession the merits of the radical operation in suitable cases of gastric cancer. The article is elaborately illustrated, showing the steps of the operation.

FREDERIC EVE, F.R.C.S. "The Surgical Treatment of Gastroptosis." *Brit. Med. Journ.*, April 7th, 1906.

Attention is drawn to the frequency of this condition, Glenard himself having observed it 400 times among 1300 patients. The clinical picture of such a case is that of chronic severe atonic dyspepsia with neurasthenia and increasing emaciation. In a large number of cases Bovea's operation is the best; but as frequently happens, the gastric-hepatic omentum is so thin that it scarcely bears handling and much less suturing. In

such cases the writer advocates utilizing the structure to which the gastrio-heptic omentum is attached, namely, the liver and the stronger portion of the omentum forming its upper root of attachment. In such cases the lower sutures must be placed through the serous and muscular coats of the stomach and the anterior attachment of the omentum in order to avoid the gastric and pyloric arteries. Such a procedure gives a firm hold to the sutures, and at the same time is not likely to interfere with the mobility of the stomach, as is the case when the lesser curvature of the stomach is attached to the anterior abdominal wall, according to Duret's operation. It is only fair, however, to state that of the reported cases so operated upon all were improved and some gained weight. In cases associated with chronic ulcer, or where as a result of the altered functioning of the gastric glands hydrochlic acid is absent, mere elevation of the stomach fails to effect a cure and in such cases a posterior gastro-enterostomy is to be performed.

Joseph Ransohoff, M.D., F.R.C.S., Eng. "Discission of the Pleura in the Treatment of Chronic Empyema." *Annals of Surg.*, April, 1906.

The operation of Estlander and its modifications by Schede, Lenu, Jaboulay, and others were undertaken with the idea that the lung tissue had lost its elasticity and that in order to obliterate the space the chest wall would have to be permitted to to fall in and so fill up the space. As a result of research work this has been shown to be a wrong view, and that the lung tissue, if freed from the binding down influence of the visceral layer of pleura, still retained its power to expand. The credit of first performing the operation of dissecting of this parietal layer is given to Fowler, who in 1893 operated upon a case of two years' standing. The operation here described is not that of decortiation as performed by Fowler, but of making gridiron incisions through the visceral pleura. These incisions are carried down through the entire thickness of the pleura to the lung tissue. A very important incision is that which frees the pleura at its reflexion with the parietal portion. If this incision be limited to the costal part of the gutter and carried towards the chest wall, there is no danger of wounding large vessels or of opening the sound pleura above. This operation is not sufficient of itself to obliterate the space but must be preceded by one after Estlander's or Schede's procedure. It is, however, a much less time consuming operation and one attended with much less risk to the pateint. Should the cavity be large repeated operations are necessary for the safety of the patient. Four cases are reported in which this method was employed, all with most gratifying results.

H. M. W. Gray, M.B.C.M. Aberd., F.R.C.S. Edin. "Vaccine Treatment in Surgery."

The writer has endeavoured to test the efficacy of this treatment during the past 18 months. He has found that in cases of enlarged tuberculous glands that they disappear after a very few injections. It is not always possible beforehand to know whether caseation is present or not, but he believes that if the glands are not markedly decreased in size in from six to eight weeks' treatment it is a sign of the presence of caseation. When such has occurred removal by operation is necessary. If abscess formation exists it should be evacuated, the wall gently scraped, and cavity loosely patched. If the caseated glands be isolated gently scooping out of the focus is all that is required. Periadenitis disappears under vaccine treatment. Where a mixed infection is present injections of staphylococcus or streptococcus should be given. Post operative healing is without doubt promoted by giving one or two injections of T. R. ing. The operation here described is not that of decortication as perbefore operation, which should take place about the time the third injection is due. In that large class of tuberculous joint affections we have a much brighter prospect. Early diagnosis and the addition of T. R. to these well proved and approved lines of treatment usually employed will give us ultimate complete success in restoring full healthy function. He is against the long immobilising of the joint and advises that, if not contra-indicated by the general progress of the case, passive movements be attempted and the patient be allowed well governed movements from two to four weeks after all tenderness on palpation of the joint has disappeared. Such a plan will shorten the course of treatment by about half. If abscess, sinus formation and compound infection have occurred the mixed vaccine must be employed along with operation. In psoas abscess he prefers incision so as to thoroughly evacuate all caseous material and pieces of dead bone to simple aspiration. Two cases under such treatment combined with the mixed vaccines have made excellent recoveries. In genito-urinary tuberculosis he has not had the same constant as the others report. Mixed injection takes place early in this class and it is most necessary and advantageous to obtain information as to the nature of the complicating organisms and then make and use the suitable vaccine. He strongly supports Mr. G. L. Cheatle's suggestion of giving the mixed vaccine prior to operations for malignant disease of the mouth as a guard against subsequent sloughing and septic pneumonia. Many other interesting topics are suggested as showing the advance in our therapeutic measures. For dosage and guidance in administration the reader is referred to the article.

W. S. B.

MEDICINE.

UNDER THE CHARGE OF JAMES STEWART, F. G. FINLEY, H. A. LAFLEUR AND W. F. HAMILTON.

AN ANALYTICAL STUDY OF ACUTE LOBAR PNEUMONIA IN THE JOHNS HOPKINS HOSPITAL FROM MAY, 1889, TO MAY, 1905, by J. A. CHATARD, M.D. *Maryland Medical Journal*, May, 1906.

The following statistics were gathered from the records of the hospital for the past 16 years, during which time there were 658 patients for pneumonia, excluding ether pneumonias. Of this number 200 died, a percentage of 30.39, though if terminal pneumonias are excluded the number of deaths is 165, or 25.07 per cent.

The number of cases increased up to 1899, but in 1900 and 1901 there was a sharp rise in the number, followed by a large drop during 1902 and 1903, followed again by a rise in the number during 1904 and 1905. During 1904 there was a general increase in the cases as ascertained by comparing other records.

Age—The greatest number of cases occurred in young adults 20 to 40 years old—55 per cent. In patients from 20 to 30 years old 22 per cent of the cases occurred, and 18 per cent of the cases occurred in patients younger than 20 years. A comparison of the mortality with this age table is interesting. In early adolescence the mortality is low —4 per cent; during the period of greatest frequency, 20 to 30 years, it is 44 per cent, and after that period we find a steady rise to about 80 per cent of deaths.

Sex.—The male patients far outnumber the female patients, being 533, with 154 deaths, compared with 125 females, with 46 deaths. The death-rate in the females far outnumbered that in the males—males about 28 per cent, but females about 36 per cent.

Race.—White, 238 cases, with a mortality of 30 per cent; foreign, 170 cases, with a mortality of 29.4 per cent; black, 250 cases, with a mortality of 31.2 per cent.

Seasonal Variation.—From January to March there is a rise in the number of cases, when the greatest number occur; while during the summer months there is a great diminution in the number of cases, although the mortality is increased.

Occupation.—Outdoor occupations, 347 cases, with 34 per cent mortality; patients with indoor occupations, 274 cases, with 26.6 per cent mortality. Alcohol was admitted by 426 patients, 30.9 per cent mortality.

Previous Attacks.—One previous attack of pneumonia was stated by 88 patients, two previous attacks by eight, three previous attacks by three patients, and one patient claimed to have had four attacks.

One hundred and twenty-one of the patients were exposed to bad weather, eight to extremes of temperature; there were eight cases in nurses and orderlies, and three cases among doctors. As regards family history, there was a history of tuberculosis in the family in 11.3 per cent of the patients. All tuberculous pneumonias were excluded from these statistics.

Symptoms.—The most frequent symptoms were pain in the side, chill and cough. Abdominal pain was present in 51 of the cases, or 7.7 per cent. The pulse was considered slow when it registered below 90 beats per minute, and of the patients exhibiting this pulse-rate 31.6 per cent died. Patients with a medium pulse-rate, below 125, showed a death-rate of 14.9 per cent, this medium pulse-rate occurring in 50.7 per cent of the cases. Patients with a rapid pulse, over 125 per minute, showed a death-rate of 49.4 per cent.

Temperature.—This was subnormal, below 98.5° in five cases, with two deaths; between 100-102° in 39 cases, with 13 deaths; between 102-104° in 49 cases, with six deaths, and between 104-106° in 384 patients, with about 27.7 per cent mortality. The temperature was above 106° in 49 patients, with 55 per c ent of deaths. The admission temperature was generally between 102° and 104°, though in one-sixth of the patients it was below 100°.

Respiration.—The respiratory rate was rapid in the majority of the cases, those patients exhibiting laboured respiration and cyanosis having a high mortality, about 43.2 per cent.

Sputum.—The sputum in the majority of the cases was mucopurulent, tenacious, and rusty. In 93 cases the pneumococci were found in the sputum.

Involvement.—In 354 cases the right side alone was involved, with a mortality of 26.5 per cent; the right lower 139 times. The left side was involved alone 168 times, with a mortality of 20.2 per cent. In double pneumonia the mortality was about 54 per cent.

Pneumococci were isolated from the blood in 25.2 per cent of the cases, and of these 69.1 per cent died. The joints were aspirated in three cases and the cocci obtained in one case.

Complications.—There were 338 cases of pleurisy, with a mortality of 51.2 per cent, empyema occurring in 27 cases. Pericarditis was present in 35 cases, mortality 76.9 per cent, and jaundice in 76 cases, with 21 deaths. This latter complication—jaundice—varied in frequency with the years, in 1901 there were the greatest number of cases during the latter year. There were 13 cases of meningitis, all fatal.

The greatest number of cases showed a leucocyte count of between 25,000 and 30,000, with the lowest mortality—19 per cent. The highest

mortality occurred among the cases with the lowest leucocyte counts (below 10,000). Albumen was present in the urine of 541 cases, casts in 107 cases, and the diazo reaction in 16.8 per cent. Bile was present in 34.3 per cent.

Peritonitis, tonsilitis, and arthritis occurred each three times. There were eight cases of septicemia, 149 cases of delirium, with about 47 per cent mortality, 12 cases being admitted with delirium. Herpes was noted in 180 cases and not noted in 265. Where a note was made herpes occurred on the lips in 87 patients, on the nose in 43, on the ears in 3.

Among the special features, delayed resolution was noted in 35 cases, and relapses occurred in 5 patients. The average blood pressure was between 125 and 155 mm. of mercury. Terminal pneumonia occurred 35 times.

Defervescence was considered as a "*true* crisis" when occurring in 12 hours or less; "protracted" occurring in from 12 to 24 hours. True crisis occurred in 21.6 per cent, and it was protracted in 15.5 per cent; there were 17 cases of pseudocrisis. The crisis was usually associated with a fall in the number of leucocytes. The crisis usually occurred from the seventh to the ninth day, though there was one case occurring as early as the third day and one as late as the fifteenth.

For treatment, stimulants were used in 536 cases and symptomatic treatment was employed in 460 cases. Measures employed were the ice bag, poultices, sponges, exygen, and in a few cases the antipneumococcus serum. The serum gave little, if any, good results.

Typhoid fever occurred in 24 cases as an associated condition, nephritis 18 times, and heart lesions occurred next in order of frequency.

ROBERT T. MORRIS, M.D. "A Case of Heteroplastic Ovarian Grafting, Followed by Pregnancy, and the Delivery of a Living Child." *Medical Record,* May 5th, 1906.

Dr. Morris reports this case. The patient was a married woman, twenty-one years old. Menstruation began when she was 15 years old and stopped in four years. The last two years the patient had suffered from the common symptoms of the menopause. The writer made a diagnosis of cirrhotic ovaritis and decided to do ovarian grafting. Four months after the operation the patient menstruated. The period lasted for five days. It was five months before menstruation again took place, lasting but one day. In the following month it lasted four days, and after that it appeared at normal intervals. Four years after the grafting the patient was delivered of a child weighing 7½ pounds. The writer states that the present case of heteroplastic grafting renews the hope that certain women who have reached the menopause through

disease, surgical operation, or possibly after the normal menopause, may be made fertile.

"The Milk Supply of Richmond, Virginia," from a Sanitary Standpoint—A Preliminary Study. By Ernest C. Levy, M.D. *The Virginia Medical Semi-Monthly.* April 27th 1906.

Dr. Levy in an exhaustive study of this subject publishes a series of tables which are of great interest. Table I. Shows the number of bacteria per cubic centimeter in samples of milk collected from soda fountains, restauransts, small dealers. Table II. Shows the number of bacteria per cubic centimeter in samples of milk collected from delivery wagon. Table III. Shows the number of bacteria per cubic centimeter in samples of milk as received at the dairies—samples collected from cans brought in by the producers. Table IV. [V. in the series]. Shows contrast between milk obtained from the cow before and after washing udder of cow and hands of milker, and also the effect of keeping milk cool.

As the milk came from the cow, the clean sample had only 200 bacteria per cubic centimeter, while the one collected without any precautions had 11,000. Further determinations were made after 14, 19 and 43 hours. From this experiment it is evident that the milk which was carefully collected and kept cold was far better at the end of nearly two days than the average sample taken from the waggons about town, having only 200,000 bacteria per c.c. at the end of 43 hours, while at the other extreme, the sample which was not clean at the start and not kept cold had 1,000,000,000 bacteria per c.c. after the same interval. This sample had passed the limit of the Boston standard after only 14 hours, having at that time 730,000. The difference in the keeping quality between clean, cold milk and unclean warm milk is forcibly demonstrated.

"Rheumatic Manifestations in Children." By M. H. Sicard. *Medical Record.* May 5th, 1906.

Teh author gives the following résumé: Rheumatism in nursing infants is very rare; in childhood the disease is atypical, the joint signs being but little marked; the so-called complications are in children rather types of the disease, for they may occur without joint symptoms,, either alone or associated with each other. The whole attack, while seemingly mild and subacute, is capable of causing severe damage to other structures, notably the endocardium, pericardium, and the nervous system. Relapses occur and patients are often left invalids for life.

"The Parasitism of the Tubercle Baccillus." By Theobald Smith, M.D. *Journal A. M. A.*, April 28th and May 5th, 1906.

Dr. Smith finds from his studies on cattle that there are three main portals of entry of the tubercle bacillus into the system, the upper air passages, the lungs and the small intestines. Infection by other routes, such as the skin, is very exceptional. The lodgment in the lymph nodes is accomplished without any apparent lesion whatever, and the nodes act as temporary barriers to the progress of the infection. The tendency is to the formation of a quiescent focus—the tubercle. There is probably some element in the blood that, together with the stimulating influence of the bacilli, provokes the protective cell proliferation. The bacilli, when set free from a discharging focus are provided with an inert protective envelope, which is destroyed by the normal tissue fluids. When this happens they are able to multiply, but this multiplication stimulates cell proliferation and, according to the activity of this process, multiplication is checked. The bacilli are destroyed in part; the rest, through the protecting influence of caseation, remain, latent, provide themselves with the protective envelope, and if discharged outward are able to infect another individual. The question of the possibility of producing a specific artificial immunity toward the tubercle bacilli is discussed at length by Smith, who thinks the best results in protective inoculation will be obtained with the use of bacilli killed at a low temperature and from fresh cultures, which can be made at any hospital or sanitarium. These can be injected locally, each injection forming a new radiating focus of immunity, and the fresh culture insuring a more effective preparation. The tendency of infectious diseases, he holds, is toward a balanced parasitism, with reduced mortality, but not necessarily a reduced morbidity. This is due to selective adaptation of both the host and parasite, and this selection will, he believes, go much farther, and we may yet have a type of tubercle bacilli producing only a bronchitis. There are already some indications of this. The effect of a possible immunization of the human race is open to question. Immunization, Smith says, would be an admission that the germ has come to stay, and merely increasing our resistance to the prevailing type would lead eventually to the selective production of more virulent types and a slackening of the usual preventive measures that might eventually cause disastrous effects from the newly-developed more virulent organisms.

"The Pharmacopeia and the Physician." Chapter II, *Journal A. M. A.*

Chapter XIII in the number of March 24, begins with the subject of metallic astringents, bismuth being first noticed. It is useful in its in-

soluble forms, and, while some of the soluble salts are astringent there are safer astringents that can better be used in their stead. The proprietary preparations intended to combine the antiseptic properties of the benzine derivatives are not approved. It is better to use the simple astringents and antiseptics separately; subsalycilate and subgallate of bismuth, however, are official. The official lead salts are also noted. The principle one for internal use is the acetate and this is usually combined with opium in the treatment of diarrhœa. For dysentery it is not nearly so useful, and it should always be employed with caution for fear of chronic lead poisoning. The local treatment of mucous membranes may also call for the use of mild astringents, though the use of hydrogen dioxid has greatly lessened their employment. Zinc salts are considerably used in certain situations, and the sulphate is probably the best of the astringents when used for emetic purposes. The copper and iron salts are also discussed and nitrate of silver, the internal use of which as an astringent is largely empirical, as the actual action of silver nitrate in contact with organic matter must be rather complex. The chapter concludes with a notice of the vasoconstrictors, the most useful of which are hydrastinin, a derivative of hydrastin, and the alkaloid of the suprarenal gland. The desiccated suprarenal gland itself is inferior to the alkaloid, though it is official. In view of the numerous trade names under which the solution of the alkaloid passes it is regretted that in the revision of the pharmacopeia, the alkaloidal substance was not recognized and made official in some way.

Stomachics, including bitters and aromatics, are discussed in the special article, March 31st. Little is known of their mode of action, and it is possible that their psychic effects may have some part. It is possible that these preparations excite the digestive secretions in a reflex way and similarly the gastric movements. Bitter substances in the stomach have been found to increase the number of leucocytes in the blood, and if these are concerned in the transportation of the digestive proteids they may also have an effect in this way. Out of a considerable number of official preparations it has been thought necessary to enumerate only a few of the more important and popular, such as gentian, calumba and quassia, to illustrate the variety and uses of these drugs. Aromatics, which are next taken up, owe their flavour, and slightly irritant action on the mucous membranes to the contained volatile oils. It is possible, owing to their generally agreeable flavour, that they exercise a reflex action on the gastric secretion. It is claimed also that they reflexly excite the pancreatic secretion, and that they have an antiferment action and may lessen gastric fermentation. Their slightly irritant and hyperemic effect is probably the main factor in affecting

digestion after their reflex action. Bitters, and especially the aromatic bitters, are indicated in loss of appetite not due to severe gastric disturbances. In gastric hyperacidity they probably increase the trouble. Of the official aromatic bitters are mentioned only calamus and bitter orange peal and their preparation. A number of astringent bitters are enumerated, including some drugs that have been mentioned already in other connections, such as hydrastis, cinchona, nux vomica and cimicifuga. Carminatives are agents producing a sense of warmth and well-being; they act as antispasmodics and expel gases from the intestinal canal. They are indicated in pain in the stomach or bowels when this is due to simple indegestion or to distension, but not in case of inflammation, when they would augment the trouble. Many carminatives are household remedies, and the preparations noted here are zingiber, the official mints, asafetida, chloroform and ethers, and cloves.

Chapter XVIII of the special article, April 28th, begins with the definition of tonics and a statement that the term implies to a certain extent an inexact knowledge of the real action of the drugs. With better knowledge the importance of the term will decrease. Among tonics we may include stomachics hematinics, or agents that aid in the regeneration of the blood, and alternatives, the mode of action of which is unknown. Of the hermatinics, iron is the first to be considered. The question of its absorbability and the methods by which it may be absorbed are first discussed, and the diversity of opinion as to the actual precursor of the hemoglobin of the blood is shown. As bearing in the value of certain widely advertised hematinic proprietaries, it is stated that, as we can nearly always supply sufficient iron in the food, the so-called "organic" iron preparations are really seldom required. Inorganic iron, on the other hand, according to Bunge, does stimulate the functions concerned in the assimilation of iron when it is abundant in the food, when organic iron added to the food or to organic iron combines with the hydrogen sulphid in the intestine and spares the organic iron precipatation. After an enumeration of the many official preparations of iron, the indications for the drug are taken up. Hematinics are indicated when the amount of the blood or of any of its essential constitutents have been greatly reduced. If the patient is able to take an abundance of food, inorganic iron, or both, should be used. The proper selection of food is of the first importance, and a table showing the iron content of a number of common articles of diet, taken from Bunge, is given. Bunge distinctly warns the using of high-priced pharmaceutical iron preparations and calls attention to the value of beef, blood sausage and blood. The last-named seems, however, to be very often ill-borne

and hematin appears to be equally serviceable in any case. The use of a proper diet, together with suitable doses of inorganic iron in most cases, or of organic and inorganic iron in the few cases where they are needed, will usually be found all that is necessary in the treatment of anemias. A number of prescriptions suitable for the conditions that may be met are given.

"Tuberculosis and Railway Travel." By Charles B. Dudley. *Railway Age,* Oct. 13th, 1905, and *Yale Medical Journal,* March 1906.

Dr. Dudley, chemist of the Pennsylvania Railroad, thinks that the dangers to the public as regards the spread of tuberculosis in railway travel have been greatly exaggerated. He puts forward the following points to sustain this view:

1st. The average railroad journey does not entail a sufficiently long exposure necessary to infection. We know that ordinarily, tuberculosis is probably acquired by prolonged and rather intimate exposure to the material.

2nd. Tuberculosis sputum is difficult to dry and pulverize. The statements made heretofore that one has merely to rub with the foot on the dry sputum to raise immediately a cloud of dust of infectious germs are absolutely false, and even sputum artificially dried, beaten and rubbed into a dust, readily falls to the ground, where it is, of course, less dangerous.

3rd. The construction of railway coaches, namely, long and narrow, and containing many windows, affords the best possible opportunity to the action of sunlight and air in diminishing the vitality of the bacilli.

In fourteen examinations of carpet dust from cars, many of which were known to have carried tuberculous people, none showed the presence of tubercle bacillus. Out of sixty-four examinations of dust collected by means of swabs from the interior surfaces of similar cars, including seats, bedding, curtains and woodwork, only one showed bacillus tuberculosis, and this was doubtful.

Out of ninety-six examinations of air from similar cars, only one showed bacillus tuberculosis, and out of twenty-one bacterial examinations of material obtained from drinking cups, none showed this bacillus.

4th. He shows by statistics that conductors, brakemen and porters, who would naturally be more largely exposed to the infection, suffer considerably less from consumption, than the average. On the contrary, conductors and brakemen of freight trains more frequently acquire this disease than those in the passenger service.

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The fourteenth regular meeting of the society was held Friday evening the 20th April, 1906, Dr. F. R. England, president, in the chair.

OSTEOMA IN THE MUSCLE OF UPPER ARM.

E. W. ARCHIBALD, M.D., presented a patient with a hard tumour in the soft tissues of the deltoid region. He had been referred to the surgical outdoor of the Royal Victoria Hospital by Dr. Wm. Howell. The man, while carrying a load of coal on one shoulder, slipped through a hole in the floor, one leg going under, and the elbow coming in contact with the floor with considerable violence, but the shoulder received no hurt. Beyond a slight local injury to the elbow nothing was noticed until three or four weeks later, when this swelling appeared in the shoulder. The latter had remained practically unchanged since. It caused no symptoms whatever, nor did it interfere with the function of the shoulder in the slightest. Dr. Archibald considered that this was a bony tumour developing in the deltoid muscle, a myosteoma as happens occasionally in accidents of this sort. It was however rather rare on this continent, the only one he had seen or heard of was one upon which he had operated some three years ago, in which case an osteoma had developed under and in the brachialis anticus following fracture of the elbow joint. The X-ray photograph confirmed the diagnosis.

F. J. SHEPHERD, M.D. I have seen one or two of these cases, I remember one in the biceps which I removed; I also operated on one in the thigh. They, of course, all follow injury. We had no X-rays in those days and these were cut down upon thinking them to be tumours and the osteoma was found.

E. W. ARCHIBALD, M.D. I am very glad to hear from Dr. Shepherd that he has seen these cases before; I had made quite a few enquiries but no one seemed to have heard or seen a like case. The condition is much more common in the old country where large standing armies go through a daily musket exercise than it is on this continent.

ABNORMALITY OF THE CAROTID ARTERY. HOUR-GLASS STOMACH.

A. E. ORR, M.D., presented anatomical specimens of these conditions, illustrating the former with diagrams. Both specimens were obtained from the dissecting room of McGill Medical College during the past session. The right common carotid, six m.m from the innominate, divides into a small internal carotid and a large external carotid. There is a thyriodea ima from the upper part of the innminate; and the inferior thyroid springs from the abnormal external carotid, opposite the thyroid cartilage.

The stomach is divided into a cardiac and a pyloric sac, connected by a narrow cylindrical portion. There were no adhesions to surrounding organs. In the narrow part the walls are thick and the mucous membrane is thown into longitudinal folds. There is no evidence of ulceration or corrosive gastritis. The existence of a congenital form of hour-glass, or bilocular, stomach is rather doubtful. Recent investigations show that during digestion the stomach contracts into many of the shapes which have been found *post mortem*, and exhibited as the congenital variety. It is probable that the example now shown presents merely a phase of normal peristalsis, a contraction fixed in death.

F. J. Shepherd, M.D. I am sure we are all interested in the specimens Dr. Orr has shown us this evening. With regard to the first anomaly it is a very rare one, and it is also an important one to remember. I have seen several cases where there was no early division of the carotid artery at all. The final division was between the temporal and internal maxillary and the branch which was small was really a continuation of the common carotid which did not divide anywhere. This anomaly of the arteries which supply the thyroid gland is interesting as it is of practical importance when removing tumours of that organ. With regard to the stomach condition Dr. Cunningham's experiments are interesting. He shows that the stomach is simply a dilated tube, which naturally appears to be small, not so large as the large intestine, and whether it is with our new methods of injection or hardening of the vessel we take the stomach by surprise as it were, in a state of rigor mortis and this condition results is a question I am not able to solve. Within the last few years we have seen a great many of these small stomachs, and they are remarkably frequent in the insane, many cases being noticed here being from Longue Point Asylum. An interesting statement made by Dr. Cunningham is that hour-glass stomachs are never congenital but are always acquired. Anatomists have always said that these stomachs were congenital, but it would seem that Cunningham has good ground for some of his assertions.

J. M. Elder, M.D. I was very much interested in these anatomical specimens. With regard to the hour glass stomach it is a very much debated question whether this condition is congenital or not. There seems to be no question of the acquired variety and it is held by a fair proportion that there are congenital cases. The point which Dr. Shepherd has raised as to the finding post mortem of contractures in the stomach is well known, and it is a well-known statistical fact that these hour-glass stomachs are found very frequently in the insane; though I do not hold the starvation theory, that is these patients refusing food, as an explanation, for many such cases have been hearty

eaters. That there should be a redundancy of mucous membrane at the contracted point is not surprising, for if this is a contracture of the musculature of the stomach, then I think it follows that the mucous membrane must double up on itself in the manner shown in this specimen. I think a close microscopical examination of the tissues might throw some light on the question of this condition being congenital or acquired. With regard to the case referred to by Dr. Orr which I diagnosed, gastroplasty was performed and the condition cured, the patient being well to-day. I must say that those who are still of the opinion that there are cases of congenital hour-glass stomach, have some facts on their side of the question, and notably the preponderance of this condition in the insane.

MASKED AND LATENT ORGANIC DISEASE OF THE STOMACH.

C. F. MARTIN, M.D., read the paper of the evening. Among the various conditions described as masking diseased conditions in the stomach he mentioned the following:

1. Cases of carcinoma of the stomach which remain latent for a considerable period of time, giving no symptoms of this condition.

2. Cases where a tumour is found by the patient long before anything else is complained of.

3. Cases which may run on for months indistinguishable from pernicious anæmia.

4. Cases where the growth develops rapidly with no symptoms whatever till a large part of the organ is involved, and then symptoms arise only two or three weeks before the end.

5. Cases where the symptoms come on suddenly even though the condition has probably been present for a considerable length of time.

6. Cases where the carcinoma remains latent or masked by the presence of hyperacidity.

7. The latency of gastric ulcer.

8. Cases where a perforation of a gastric ulcer is the first sign of its presence.

In considering these and other conditions Dr. Martin cited examples of each occurring in the Royal Victoria Hospital.

W. G. REILLY, M.D. Dr. Martin mentioned in his paper what is to me a very interesting point, that in some cases of primary cancer of the stomach there is a normal or excessive secretion of hydrochloric acid when there has been an antecedent history of gastric ulcer. At a recent meeting of this society a patient was shown in whom the pyloric end of the stomach had been removed, microscopical examination of the specimen showed to be cancerous. In this case for many months previously there had been an enormous excess of hydrochloric acid secreted.

From the history obtained it was believed that he had had a gastric ulcer 25 years previously and during the interval he had suffered from dyspepsia manifested chiefly by epigastric pain and eructations. Repeated examinations led me to regard the case as one of pyloric stenosis with subsequent dilatation of the stomach the complaints dating from the time when he was supposed to have had gastric ulcer. Operation revealed the presence of stenosis due to a cancerous neoplasm and also the scar of the ulcer. It is interesting to know that this patient has gained 40 pounds in weight since operation.

F. G. FINLEY, M.D. We all feel very much indebted to Dr. Martin for his paper this evening. I was especially interested in his cases of latent carcinoma in the stomach. I remember several cases in which the symptoms developed very late in life, in fact only a few weeks before death, two I have had during the past winter. The latency of gastric ulcer is now well recognized. In cases of perforation, preceding gastric symptoms are often very indefinite, and are not specially suggestive of ulcer.

LATERAL CURVATURE OF THE SPINE.

F. W. HARVEY, M.D. The report of this case will be found on page 387 of this number.

J. M. ELDER, M.D. It is a well-known fact in connexion with the causes of this spinal curvature that it often follows contraction of the pleura; and I think that before treatment is undertaken in these cases it would be well to know whether the curvatures were due to some old empyæma or other pleural condition, or whether it was due to some actual caries of the vertebræ. Where a spinal caries exists it may be questionable whether excessive movement is a wise procedure or not.

T. P. SHAW, M.D. In Dr. Harvey's cases the subjects had almost reached maturity. In looking over school children it is by no means unusual to find curvatures more or less marked of the spine, and it is quite conceivable that this is due to bad posture at school. In a recent paper by Dr. Tait McKenzie he states that the integrity of the normal spinal curves is protected against the onset of deformity by three lines of defense of increasing strength, (1) The muscles forming an advanced mobile series of outposts that can be brought into service powerfully but intermittently; (2) The ligaments, more resistant but less mobile; (3) The bones which yield to the influence of deformity only after the other lines of defenses have been carried. After the deformity has altered the bony structure any treatment must be more or less cosmetic in character, aiming at concealment rather than at complete correction.

F. W. HARVEY, M.D. With regard to Dr. Elder's mention of the

cause I did not touch upon the etiology of the condition because there was so much controversy on the subject. Apart from an apparent cause, that is pleurisy, empyema, or where one leg is shorter than the other, the great majority of cases which we generally speak of as lateral curvature are those where no definite cause can be found. No doubt in many of the earlier forms of lateral curvature of the first degree, bad posturing assumed at school, or at the desk, in weak, poorly nourished individuals may lead to these lateral curvatures.

NEPHRECTOMY WITH UNUSUAL CALCULUS. EPITHELIOMA OF THE SCROTUM.

J. ALEX. HUTCHISON, M.D. The report of the latter case will be found on page 376 of this number.

J. M. ELDER, M.D. I was present at this operation for nephrectomy and certainly the patient's condition was a very serious one. As to the calculus, it was found in the pelvis of the kidney and had taken on the cast of the calices, a not uncommon condition. I saw Dr. Shepherd operate upon just such a case many years ago and there a sinus persisted. At the subsequent nephrectomy a small calculus was found, which no doubt was the cause of the failure of the wound to close. There is no question at all that these kidneys become pyonephritic sacs, and one should always establish that the other kidney is healthy by catheterization of the ureter, before doing a nephrectomy. Two years ago I reported a case before this Society on whom operation had been done some months before. I cut in and found the whole kidney full of stones, and removed it. The patient lived for a few hours only. Post mortem showed that I had removed the better kidney of the two, the other kidney being more full of stones than the one removed.

With regard to the Chimney Sweep's Cancer. I have seen these specimens under the microscope, but have not treated a living case. There is no doubt at all that these epitheliomas are due to irritation, more mechanical than chemical, if one may so term it. Another case in point is the well known cancer in India on the anterior abdominal wall, caused by a hot stone being placed in the belt over the abdomen. However, with proper hygiene and proper care there need not be chimney sweep's cancer at all.

F. R. ENGLAND, M.D. With regard to the kidney case. Two or three years ago I had under my care a case of ureteral calculus impacted about one and a half inches from the bladder. The patient, a young woman, had suffered from kidney and bladder symptoms for eight years. The kidney was explored, (nephrotomy), only a small quantity of urine escaped daily through the wound in the loin; I therefore decided to remove the kidney rather than attempt the removal of the stone. The

kidney was found greatly atrophied, in fact only a small amount of kidney tissue remained. Here apparently when the ureter became blocked the kidney, being useless, soon ceased to functionate. In Dr. Hutchison's case the course run was quite different, the kidney instead of undergoing atrophy became dilated with a resulting hydro and pyonephrosis. The case of Chimney Sweep's Cancer is very interesting and as shown by Dr. Hutchison there may be only irritation of the part for some considerable time when suddenly a marked malignancy occurs, that is to say the growth takes on an active change and we get rapid dissemination throughout the body. I would like to know if the inguinal glands were removed. In operating in cases of malignant disease I do not think it wise to leave infected glands. Recurrence is very common after removal of cancer in situations such as the present and I think it is well in all cases to remove not only the inguinal glands but all lymphoid tissue as well.

THE CHARGES AND THE PRIVILEGES IN THE TORONTO HOSPITALS.

Canada Lancet, May, 1906.

Within the past few weeks the subject of the charges made by the various hospitals, and the privileges enjoyed by the patients in the different kind of wards, has been under discussion. This has arisen out of the demand made by the chairman of the Toronto General Hospital that, unless the city council paid over the $200,000 on the understanding that patients must pay the cost of maintenance before they could secure the right to select their own medical attendants. It transpired that the cost of maintenance in the Toronto General Hospital was about $10 per week. After much discussion it was agreed that some wards would be set aside at $7 per week, in which patients could engage their own medical attendants. It will, no doubt, be interesting to know the rules of the various hospitals on these points.

1. The Hospital for Sick Children. In this institution there are two ward charges, namely, $3.50 and $9.00 per week. In all the public wards, at $3.50, the patients have no voice in the selection of their medical attendant, either on or off the medical staff, regardless of whether under a city order or paid for. The member of the staff who attends cannot make any charge for his services, even though patient is paid for. With regard to the wards at $9.00 per week, the patients may make a selection, but it must be confined to some member of the staff. If the patient is able to pay for such attendance the doctor in charge of the case may charge. No member of the profession, not on the staff,

can attend any patient in the Hospital for Sick Children.

2. St. John's Hospital for Women. In this hospital there are public wards at $3.50, semi-private wards at $7.00 to $10.00, and private wards at $12.00 and upwards per week. If a patient pays in a public or semi-private ward she may be attended by her own physician, under the permission of some member of the staff, who is really responsible for the case. In the private wards, patients can have their own doctor, if introduced by a member of the staff. The privilege of members of the profession, not on the staff, is one of courtesy, through a member of the staff. No ward is open to the profession except as introduced by one on the staff.

3. Grace Hospital. In this hospital there are public wards at $3.50 per week. All patients in the public wards are assigned to members of the staff for attendance. These patients, whether under city order or paying for themselves, have no choice as to who shall attend them. But the member of the staff who attends a pay public-ward patient may charge for his services, if the patient is able to pay. There is no rule against charging such patients. In some instances public ward pay patients are placed under a certain member of the staff by request. If the patients pay $8.00 a week, or more, they may select their own attendant, whether one of the staff or not.

4. St. Michael's Hospital. In this hospital there are public wards at $3.50 per week. All patients in the public wards are assigned to members of the staff. If these patients pay for themselves, the member of the staff in attendance may charge if the patient can afford to pay. There is no rule to debar a member of the staff from charging a pay public ward patient. If patients pay $7.00 a week, and upwards, they may select any member of the profession to attend.

5. The Emergency. There are two classes of wards, the public, at $3.50, and the semi-private, at $6.00 per week. In the former the patients have no privileges as to the selection of their medical attendant, whether they pay or are under city order. If they pay $6.00 a week, they may make their own selection of attendant, either on or off the staff.

6. The Toronto General Hospital. All patients who pay only $3.50 per week, or are under city order, are placed in public wards, and are attended by the staff of the hospital. In no instance is a member of the staff permitted to make any charge for his services to a public ward patient, even though he pays his way and may be able to pay a fee. There are some semi-public wards at $7.00 a week, in which the members of the profession, not on the staff, may attend their patients.

In the semi-private and private wards the general profession have the right to attend.

7. The Isolation Hospital. There are three kinds of wards in this hospital, the public at $3.50, the semi-private at $7.00, and the private at $14.00 per week. Every bed in the hospital is at the disposal of the profession, provided the patients pay their way in any of the foregoing wards.

8. The Toronto Western Hospital. This hospital has beds at prices ranging from $3.50 a week and upwards, as public, semi-private and private wards. Every bed in the hospital is at the disposal of the medical profession, excepting such as are occupied by the city-order cases. These patients are under the control of the staff. There is no rule to prevent a doctor from charging a pay patient in a public ward.

It will be seen from the foregoing that the Toronto General, the Emergency, and Children's hospitals give free medical and surgical attendance to all public ward patients. They go further, and forbid a member of their own staffs charging pay public ward patients, even though these might be quite able to pay for such professional services as they receive.

We contend that this is entirely wrong. A hospital should do nothing that would deprive any member of the profession of a fee. No hospital should undertake to furnish free attendance upon patients who can pay. Many well-to-do people will select a public ward because it entitles them to free attendance. If they pay for their hospital accommodation, it should be left an open question as to the attendance they receive and what they may have to pay for it. It is quite a mistake to compel a member of any hospital staff to give his services free to a rich patient, simply because such person prefers a public to a private ward, in order that he may obtain free attendance. This is one of the lingering hospital abuses that must be corrected, but like many another abuse, dies hard. It is most likely to find its remedy through other hospitals, which adopt a wiser policy towards the profession.

It is not many years ago when the private wards were closed against all members of the profession who were not on the staff. Then the private wards were opened to the profession and later on the semi-private. For a doctor, not on the staff, to attend his own patient, that patient must pay $6.00 a week in the Emergency, $7.00 per week in the General, $7.00 per week in St. Michael's, $8.00 per week in Grace, and $3.50 in the Western. No privileges are accorded the general profession in the Children's Hospital, and only by courtesy of a member of the staff in St. John's Hospital.