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THE Montreal Medical Journal

A MONTHLY RECORD OF THE
PROGRESS OF MEDICAL AND SURGICAL
SCIENCE.

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THE

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SPECIAL NOTICE.

With this number commences what is, to all intents and purposes, a new series of the JOURNAL, although to prevent confusion it has been deemed wise to treat the new volume as being in direct continuity with the old series.

The editorial staff have for long appreciated the fact that the position of Montreal as a medical centre, and the activity displayed by the graduates of our schools, both those resident in the city and those scattered through the length and breadth of North America, fully justify an extension and remodelling of the JOURNAL, so as to render it a more complete exponent of medical thought and progress in our midst. It is considered that the opportune moment has arrived, and now the JOURNAL appears in a new and expanded form, under the direction of a fuller editorial board of which each member will be responsible for one special department of medical science.

In its new form the JOURNAL will present the following features:

1. Articles detailing the results of original work. The increasing amount of original research and observation in medical and surgical science emanating from the universities and hospitals of Montreal ensures a steady increase in the extent and importance of this department of the JOURNAL. The JOURNAL will be the recognized organ for the communication of such work.

2. The issue of each month will contain the report of a clinic as actually delivered by a member of the staff of one or other of the large hospitals in Montreal. The editors believe that these reports will form a useful feature of the JOURNAL and will be appreciated by our subscribers.

3. The Review Department, under the control of members of the staffs of the Montreal General and Royal Victoria Hospitals, will form

a prominent part of the programme. Signed reviews and criticisms on general medicine and surgery, as well as on the special subjects, will appear month by month, giving a *résumé* of work in the medical world.

4. A Monthly Retrospect will be given of Canadian medical literature. By means of this the JOURNAL will be a record of work performed not only in Montreal, but in Canada and by Canadians at large.

5. Editorial comment will be made on subjects of interest to the profession. Notice will be taken of all important events occurring in the medical colleges and societies of Canada and at our chief hospitals. Appointments, professional distinctions gained at home and abroad by men with local connections, the authorship of contributions to literature, and obituary notices will be recorded. For assistance in making this portion of the JOURNAL as complete and full of interest as possible the editorial board appeal to their friends everywhere.

6. Full reports will be given, as in past volumes, of the Proceedings of the Montreal Medico-Chirurgical Society.

7. While the JOURNAL will be conducted so as to appeal to the profession at large, its position as a record of medical intelligence in connection with McGill University and its graduates will not be lost sight of. The medical alumni of McGill University are so widely scattered that the JOURNAL would justify its existence if it merely performed the function of keeping them informed of the doings and successes of their contemporaries.

Such is the programme proposed by the editorial board and publishers : to maintain a high-class medical journal, in close touch with the Medical Faculty of McGill University, yet not narrowed down to the interests of that University alone—on the contrary, appealing to Canadian practitioners at large. While the staff is in the main connected with the Medical Faculty of McGill University, the JOURNAL is in no way under the control of that Faculty.

Original Communications.

INFECTION IN THE DENTIST'S CHAIR.*

By GEORGE E. ARMSTRONG, M.D.

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I presume that every member of this Society must have noticed, as I have done, the absence of evidence in dental offices of means of sterilizing the instruments, and also noted that no attempt seemed to be made to cleanse the field of operation.

The following cases have directed my attention more particularly to this subject, and I think that perhaps a brief report of them may prove not altogether uninteresting; in fact I feel like making a stronger statement and saying that this is an important subject and that a discussion here may arouse some interest among the members of this Society, and possibly indirectly lead to good results in developing greater care among our dentists.

M. B., aet. 31, housemaid, was admitted into the Montreal General Hospital on the 27th of March, 1895, complaining of a sore throat and sore gums and tender, painful teeth. About the 22nd February last patient suffered from sore throat, for which she used an iron gargle. Shortly afterwards three teeth in the left lower jaw became sore and ulcerated and were extracted. Soreness and swelling of the gums immediately succeeded the extraction of the teeth and the patient suffered pain on attempting to bite anything hard. She has been treated without effect for some time, the condition becoming progressively worse.

Patient was born in Canada; had the exanthemata in childhood: always been healthy; has not been taking any medicine of any kind.

Present condition.—A fairly well nourished girl of a rather low order of intelligence. Mental condition unimpaired. Her temperature is 105° F., pulse 140, respiration 28. Complains of salivation and pain in the mouth; can only eat soft food.

Patient has no difficulty in opening the mouth. Gums are swollen, soft and cedematous and encroach upon the teeth and covered with a dirty sordes.

The cedema extends from the gums into the cheeks, but does not

* Read before the Montreal Medico-Chirurgical Society, May 31st, 1895.

affect the palate, tonsils or the tongue. Teeth are painful on pressure, but not loose. Tongue coated. Breath extremely foul and foetid.

Vascular and respiratory system normal. Urine contains neither albumen nor sugar.

Treatment.—I ordered a mouth wash containing pot. chlor., carbolic acid, alum, glycerine and water; also a hot boracic acid sol. grs. viii to x oz., and directed that the mouth be washed with these solutions alternately every half hour. She was also given a mixture the tr. fer. mur.

By the 1st of April there was an improvement in the condition of the mouth and the temperature was lower, ranging from 102° to 103½° F. General condition good.

On the 2nd of April the patient became delirious and the pulse weaker. A careful examination failed to detect any pneumonia. Stimulants were ordered, but the delirium continued and the patient attempted to swallow the gargle.

On the 3rd of April the urine became smoky and was found to contain blood and albumen. That evening the delirium continued. Hypodermic injections of strychnia were given, but the pulse became weaker and weaker and the patient died on the morning of the 4th of April.

At the autopsy there was found a severe septic stomatitis, acute nephritis and acute pyelitis, also recent acute ulceration of stomach and ascending colon.

There was a suspicion that possibly the patient had swallowed the gargle, containing carbolic acid and chlorate of potash in quantities sufficient to cause poisoning, and with the object of determining whether this was the case or not, Dr. Ruttan kindly made a careful examination of the blood and urine and he reported that there was no methæmoglobin and that the urine did not contain chlorate of potassium or phenol. There was therefore no evidence of poisoning by pot. chlor. or carbolic acid.

The case appears from the result of the autopsy to be one of septic intoxication or infection, but examination of the parts about the mouth does not show a local invasion of the veins or lymph glands to make it certain that that was the point of infection. I mentioned to Dr. Wyatt Johnston my intention of reporting the case and he has kindly written out a very full report of the autopsy, which I think will be interesting.

Autopsy performed April 4th, 1895, four and a half hours after death.

Body that of a poorly nourished young woman. About the legs a

few bluish patches of skin surrounded by ecchymoses. The gums along the whole of the upper and lower jaws on both sides are swollen, sodden and of a dull, livid, grey colour, looking microbial in places.

Head.—Dura and skull normal. Veins of pia moderately filled. Brain normal.

Thorax.—No fluid in pleura or pericardium. Beneath epicardium are numerous small ecchymoses, most abundant along posterior border of right ventricle.

Right heart contains 4 oz. of fluid blood, which appears to have a somewhat brownish tinge, but which changes to bright red on standing in the air. Heart muscle pale, mitral valves a little thick, other valves normal. No ecchymosis of endocardium.

Left lung (330 grm.) shows a few sub-pleural ecchymoses, most numerous posteriorly. Bronchi normal. Pulmonary artery normal. Lung substance somewhat congested, but crepitant throughout. Right lung (410 grm.) crepitant, but much congested and œdematous. Bronchi contain whitish froth.

Larynx and trachea show nothing special.

Tongue shows sordes on surface, but is free from inflammation or ulceration. Sub-maxillary glands not noticeably swollen on section, but a little œdematous. No signs of phlegmon or thrombosis about the pharynx or in the cervical veins.

On the left side of the lower jaw is a ragged gangrenous looking ulceration extending back, but not apparently involving the cheek. The entire extent of the gums of both upper and lower jaws appears to be swollen, soft and of a dull grey colour. There does not appear to be any swelling or infiltration of the glands in the retro-pharyngeal or parotid regions.

Owing to restrictions placed upon the autopsy a dissection of the jaw bones and palate was not possible. As far as could be ascertained no thrombosis of the larger veins had occurred.

Œsophagus normal. Stomach contains reddish mucus. The mucosa about pylorus shows small elevations capped with hæmorrhages. Duodenum normal.

Small intestine normal. The cæcum and the ascending colon show very marked ecchymotic areas, each of which is capped by a small hæmorrhagic slough; these sloughs are all adherent. Rectum normal.

Kidneys.—Right weighs 200 grms. and left 220 grms., both much enlarged and look about double normal size. Capsules readily removed. On section cortex looks opaque and greyish and columns of Bertini very wide. No evidence of ecchymosis or hæmorrhagic in-

farction in kidney substance, but the entire pelvis of each kidney presents a uniform thick hæmorrhagic layer of mucosa extending up into each of the calices and terminating sharply below at the beginning of the ureters; rest of ureters normal.

Bladder contains a little opaque, brownish urine, found by Dr. Ruttan to be free from methæmoglobin, chlorate of potassium and phenol, but to contain numerous tube casts. Uterus large, pear-shaped; mucosa reddish. Cicatrices about os. In right ovary a recent corpus lutum.

Liver weighs 2180 grms. On section central portion of lobules distinct.

Spleen 360 grms., very large and soft, of greyish-red colour.

Microscopic Examination.—Microscopic examination of gums near the site of the ulceration shows small cell proliferation of sub-mucosa. The surface epithelium is not necrosed. Moderate number of streptococci and diplococci on surface, none in deeper parts of gum.

Microscopic examination of the kidney shows swelling and degeneration of the epithelium. The hæmorrhagic areas of the pelvis show thick layer of streptococci.

Cultures from pelvis of kidney and from spleen give growth of streptococcus pyogenes.

My second case was that of a young man in apparently good health who came to me with a large abscess of the cheek. This abscess had developed immediately after the extraction of a molar tooth. The abscess contained fully an ounce of thick, creamy pus.

I quote from the *Dominion Dental Journal* for January, 1894, a case of infection and abscess of the cheek reported by W. Geo. Beers, L.D.S. I do this to show that the dentists are alive to the danger of dirty instruments and at the same time to illustrate the carelessness of antiseptic principles that obtains among some of them.

A young lady in perfect health applied to a dentist to have a cavity in a molar tooth filled. The young lady noticed that the bur was stuck up with what appeared to her the dust of teeth collected during previous operations. The bur slipped twice and injured the soft parts in the neighbourhood of the tooth. This was followed by suppuration and a very troublesome abscess.

This experience very naturally led me to study the subject of the bacterial flora of exposed mucous surfaces.

I find that all the micro-organisms that may be present in the air, food and ingested fluids may appear temporarily in the mouth. The number of bacteria which have been cultivated from the human mouth is very large. Miller has isolated over one hundred species.

Freund has cultivated eighteen different chromogenic micro-organisms from the mouth. The bacteria find there moisture and temperature and nutritive pabulum favourable for their growth—conditions much more favourable than obtain on the skin.

A minute drop of saliva spread upon a glass slide and dried and stained with one of the aniline colours will always be found to contain an immense number of bacteria of various forms. Some of these are attached to epithelial cells and some are scattered about singly or in groups.

Vignal has tested a considerable number of micro-organisms obtained by him in his cultures from the human mouth with reference to their peptonizing action on various kinds of food, with the idea that some of them may have an important physiological function of this kind. Out of 19 species he found 10 which after a longer or shorter time dissolved fibrin, 9 which dissolved gluten, 10 which dissolved casein, 5 which dissolved albumen, 9 changed lactose into lactic acid, 7 inverted sugar cane, 7 caused fermentation of glucose and 7 coagulated milk.

Probably for mechanical and chemical reasons many of the bacteria do not remain long in the mouth.

Sanarelli has shown that normal saliva has the power of destroying the vitality of a limited number of pathogenic bacteria, including the following species: *Staphylococcus pyogenes aureus*, *staphylococcus pyogenes*, *micrococcus tetragenus*, *bacillus typhi abdominalis*, *spirillum cholerae asiaticæ*.

The diphtheria bacillus was not destroyed in filtered saliva, but did not multiply in it. On the other hand, it proved to be a very favourable medicine for the development of *micrococcus pneumoniae cruposæ*.

Sternberg gives a list of 24 pathogenic micro-organisms that have been isolated. The frequent presence of pathogenic bacteria in the healthy mouth is of great practical importance.

The *streptococcus pyogenes*, *staphylococcus pyogenes aureus* and *albus*, the *bacillus coli communis* and the *micrococcus lanceolatus* are especially to be feared in surgical operations in the mouth. Both the *streptococcus brevis* and *longus* have been found.

Nette found the *streptococcus pyogenes* in 7 out of 127 healthy mouths examined; that is, in 5.5 per cent. of the cases.

Dörnberger found streptococci in the mouths of healthy children in 45 per cent. of the 94 cases examined. Widal and Besançon found streptococci constantly and in large numbers in the mouths of 20 healthy persons and still more abundantly in the mouths and pharynx of 49 persons affected with various diseases.

Another important point is that streptococci are increased in numbers in inflammatory conditions of the tonsils, pharynx and mouth, and that they are commonly associated with the Loeffler bacillus in diphtheria.

While it is highly probable that the majority of micro-organisms that gain access to the mouth perish, the secretions of the mouth have a germicidal action, but we do not know the factors that favour their attenuation or exaltation.

The wonder, then, is not that such a simple operation as the extraction of a tooth should occasionally be followed by local and general septic infection, but that such a sequence is so seldom seen.

Miller states that the dentinal tubules have a greater average diameter than the bacilli. These tubules are not empty, but contain living matter.

I learn from a casual perusal of dental literature that it is now believed and taught by dentists that not only the gum-boil, but decay of teeth are due to bacteria.

It necessarily follows therefore that instruments used in cleansing tooth cavities and drills and burs, in fact any instrument used in cutting dentine, even if it does not come in contact with the soft parts, becomes infected.

I learn from this study of the bacterial flora of the healthy human mouth that all instruments used therein should have been previously sterilized and that all operative work done in the human mouth should be done, as far as possible, on strictly antiseptic principles. Probably the free flow of blood and drainage accounts for the rarity of septic inoculation in the dentist's chair.

All dental instruments, including forceps, gauges, burs, etc., should be sterilized immediately before using. I am told that many of our best dentists do this regularly, but how often do we see forceps and other instruments laid out ready for use on velvet or plush covered trays or even carried in a convenient coat pocket.

I would suggest also that some attempt be made to clean the field of operation by using an antiseptic mouth wash and by carefully washing around the teeth and along the margin of the gums, and by the subsequent use by the patient of a non-poisonous antiseptic solution. I would suggest also that we advise patients suffering from inflammatory conditions of the mouth, pharynx and tonsils to delay if possible a visit to the dentist until the mucous membrane in these regions is restored to a normally clean condition.

If you remember the history of my first and only fatal case states that the teeth were extracted soon after she had suffered from a sore throat.

I have not touched upon the subject of syphilis being contracted in the dentist's chair but I may say that I always ask patients suffering from syphilitic lesions of the mouth and throat, if I know that they think of consulting a dentist, to tell him the condition of their throat, that he may be on his guard and not unwittingly convey the poison to some innocent person.

Lastly, the subject of sponges; we all know their danger and how difficult it is to make them sterile. They are ruled out of nearly all German operating rooms. Yet dentists use them without a proper sterilization, with hands not rendered sterile, and with the same sponge wipe the face and mouth, in fact pack it into the spaces from which the teeth have been removed to check hæmorrhage.

It might be argued that this was a case of osteo-myelitis of the lower jaw, the local injury being the traumatism from the extraction of the teeth and the infection coming from the colon. Kocher thinks many cases of osteo-myelitis result in this way. Clinically, however, the infection was from a fetid septic stomatitis. Streptococci were found in the mouth, in the kidney and in the spleen. It was then clearly a case of streptococcus poisoning. Moreover, the common colon bacillus was not found in either the mouth, kidney or spleen. I think, therefore, the infection was from the mouth and that the ulcers in the colon were hæmorrhagic infarcts due to the poisoned condition of the blood.

TWO CASES OF SEVERE ANÆMIA WITH ABSENCE OF HYDROCHLORIC ACID IN THE GASTRIC JUICE.

By F. G. FINLEY, MD.

Physician to the Montreal General Hospital : Assistant Professor of Medicine and Clinical Medicine, McGill University.

Of the two cases reported below both were regarded during life as pernicious anæmia. The second, however, was clearly shown by the post-mortem examination not to be of this nature. As they both presented a severe form of anæmia, poikilocytosis and absence of free acid in the stomach, they are recorded inasmuch as the association of these conditions is still involved in considerable obscurity.

Case I.—Pernicious anæmia, absence of hydrochloric acid in gastric juice—Marked improvement after thymol—Failure of arsenic and bone marrow.

CASE.—H. J., male, æt. 52, of temperate habits, was sent to the Montreal General Hospital by Dr. Hutchison on November 17, 1894, complaining of indigestion, vomiting and weakness.

He states that he has had small-pox and gonorrhœa. He has not been strong for ten years and has suffered from vomiting, lasting a day or two at a time, two or three times yearly. He has been much worried of late by family trouble.

Present illness—Began in August, 1894, with weakness and loss of flesh. For several months he suffered from nausea and occasionally vomiting induced by slight exertion. At no time was there any abdominal pain or hæmatemesis. Increasing weakness obliged him to take to bed about the end of October and the vomiting continued up to the time of admission to hospital. He has lost about twenty-five pounds in weight.

Family history—Father is healthy, æt. 82; mother, a sister and brother died of consumption, and a brother is stated to have died of anæmia.

Present condition—He is moderately nourished, the panniculus adiposus is small. The muscles are soft but of fair size and the weight is 124 pounds. The skin is moist and perspiring. The face and back of hands are of a decided lemon colour, and the conjunctivæ show a slight yellow hue. The mucous membranes are pale and there is a considerable degree of anæmia present. The tongue is moderately coated and flabby. The abdomen is normal, presenting no tenderness or tumour, and the liver and spleen are not enlarged. The

heart is of normal size; a soft systolic murmur is heard with maximum intensity at the pulmonary cartilage, transmitted to the aortic and down the sternum as far as the fourth costal cartilage. The lungs are normal. The urine is acid, S.G. 1020; no albumen, sugar, urobilin or bile colouring matters are present.

November 18.—Blood examination shows slight irregularity in the shape of the corpuscles (poikilocytosis) and a few small corpuscles (micro-cytes) are present. On Nov. 25th red cells, 1,928,770 to c.m.; hæmoglobin 45 per cent. (Fleischl). Stained specimens show some irregularity in shape and size of the corpuscles and a few microcytes. Ratio of red to white 3 to 508. The gastric contents withdrawn after a test meal show an entire absence of hydrochloric acid (Congored, Boas and Gunzberg's tests); lactic acid absent.

The red corpuscles have become more irregular in shape. Careful measurements show that many of them are larger than normal, measuring 9 to 10 m., instead of 7 to 8 m.; a few microcytes 3.6 m. The white cells are relatively but not absolutely increased. Nucleated red cells have not been found in repeated examinations.

The urine has varied considerably, S.G. 1015-1020, being on some occasions dark in colour and at others light. Urobilin (Huppert's test) has been frequently but not always present, and the spectrum of pathological urobilin has also been occasionally seen.

On January 23, the spleen was felt below the costal border, and has since continued enlarged. On March 17 a severe attack of facial erysipelas set in, the temperatures ranging from 103° to 105°, and terminating by crisis on the sixth day.

With the exception of this attack of erysipelas referred to, there was no fever during the six months that the patient was under observation. Retinal hæmorrhages were almost absent. The weight fluctuated from 119 to 124 lbs. Vomiting occurred a few times in the fortnight following admission and then ceased. The stools were examined for intestinal parasites with a negative result.

The blood began to improve in the first half of March, and, as will be seen by referring to the table appended, by the end of April almost reached the normal. Corresponding with the improvement of the blood conditions, the patient's strength and energy returned and he was able to leave the hospital on May 16.

The shape of the blood corpuscles has always continued irregular, and hydrochloric acid has been persistently absent from the gastric juice.

Treatment—Arsenic has been faithfully used for several months, also bone marrow, iron and latterly thymol have also been given a

trial. Arsenic has been used throughout internally in the shape of Fowler's solution in doses of from $m\ ii$ to $m\ x$ t.i.d. The stomach would not tolerate a large dose, and on several occasions it had to be discontinued. Arsenious acid in pill form was better borne, and hypodermics of Fowler's solution in water were also tried but proved painful and were discontinued on the formation of a small abscess. A glycerine extract of bone marrow was used from January 8 to February 8, during which time the corpuscles decreased from 1,792,000 to 1,320,000, although there was a slight increase in the hæmoglobin 35 per cent. to 45 per cent.. Blaud's pills in doses of 10 to 15 grs. t.i.d. were used from February 8th to March 4th, the red corpuscles rising in this period from 1,320,000 to 1,770,000, but with a decrease of hæmoglobin.

On March 3rd thymol was commenced. A reference to the table below will show the relation of the blood count to the principal drugs used.

BLOOD COUNTS.		TREATMENT.	
Nov. 25... Red B.C.	1,928,000 Hglobin 45%		
Jan. 7....	1,792,000 Fleischl 30%	to 25%	Nov. 24th. Arsenic in v to x , and also alternating with $\frac{1}{2}$ gr. arsenious acid t.i.d. taken during almost whole period of hospital residence.
25....	1,820,000 40%		
Feb. 6....	1,320,000 40%		Jan. 8 to Feb. 8. Bone marrow:
12....	1,340,000 45%		March 3 to June 15. Thymol gr. $\frac{1}{2}$ to gr. $1\frac{1}{2}$ t.i.d.
March 4.	1,770,000 30%	to 35%	March 17 to 22. Erysipelas.
11.	2,440,000 45%		
April 5...	2,860,000 65%		
12....	3,140,000 65%	to 70%	
30...	4,810,000 80%	to 85%	
June 26...	2,197,000 40%		

On comparing the blood counts with the treatment it will be noted that no improvement appeared with arsenic. All the blood counts made after March 4th showed a steady improvement, an improvement which was coincident with the use of thymol and arsenic, and which had not been effected by the use of arsenic alone. The experience of this case is certainly suggestive of the beneficial action of thymol. The attack of erysipelas complicated the case at this stage, and suggests the possibility of its exerting a modifying influence over the disease. It will, however, be noted that the improvement began *before* the attack of erysipelas, and co-incidentally with the use of thymol.

A blood count made June 25th showed a great decrease in the number of corpuscles and hæmoglobin, a relapse so frequently seen in pernicious anæmia.

Case II.—Severe anæmia—Arterial sclerosis—Dilated heart—Absence of hydrochloric acid in Gastric fluid—Autopsy.

R. O'C., æt. 61, labourer, admitted to the Montreal General Hospi-

tal on January 25th, 1895, complaining of weakness and shortness of breath.

Personal history—He has had measles, whooping cough and scarlet fever, but no venereal disease.

Present illness began in the spring of 1894 with frequency of micturition, and in November, there were severe paroxysms of pain in the right groin.

In October, 1894, began to be much troubled with shortness of breath, especially on going up steps, and about this time he noticed his face to be of a slight yellow colour. He has noticed for some time back small red spots on the hands, lasting from a week to ten days, evidently subcutaneous hæmorrhages. He has had palpitation, dizziness, and has lost about 30 lbs. in weight. He has never had headache, nose bleeding or diarrhœa. He has vomited on three occasions and suffered a few times from heartburn.

Family history—Father died from fever and ague; mother died at 57 from an illness attended by cough and expectoration.

Present condition—He is rather thin, the muscles are soft and the panniculus adiposus is small; weight 125 pounds. The face and back of hands are of a marked yellow hue and there is marked pallor of the conjunctivæ and gums. Two small subcutaneous hæmorrhages on the back of the right hand.

The arteries show a moderate degree of thickening; pulse 84, slight irregularity in rhythm and tension not increased; the apex impulse is strong and in the nipple line, the cardiac sounds are normal. The lungs and abdominal viscera present no abnormality on physical examination. Urine pale, S.G. 1015, no albumen or sugar. Urobilin negative with the spectroscope.

Jan. 26.—Blood count, red cells 3,320,000; hæmoglobin 25 to 30 per cent. (Fleischl). Irregularity in size and shape of the corpuscles is well marked. Hydrochloric acid absent from gastric contents in a test meal by same tests as used in first case. Subsequent blood examinations were made as follows:

Feb'y. 12.	Red cells,	2,250,000;	hæmoglobin,	20 to 25 per cent.
" 28	"	2,660,000;	"	20 to 25 "
March 3	"	2,390,000;	"	20 to 25 "

Numerous examinations were made of stained specimens of blood. These always showed marked irregularity in size and shape of the red blood corpuscles. Most of the cells were under rather than over the size of a red blood corpuscle, a very common size being 5.4 m.; microcytes were not numerous and the largest cells have not been over 10 m. No nucleated red cells have been seen.

The urine has been for the most part pale in colour, although occasionally somewhat dark. It has frequently in both pale and dark specimens shown the presence of urobilin with Huppert's test, but not with the spectroscope. The sp. gr. has usually been about 1015.

The temperature has been normal throughout. There have been no retinal hæmorrhages, but occasionally small subcutaneous hæmorrhages have appeared on the hands. A hæmic murmur developed at the pulmonary cartilage shortly after admission and the pulse has at times been intermittent. The gastric contents have persistently shown an absence of free acids. The weight has increased to 133 pounds.

The treatment, in addition to cardiac tonics, consisted in the administration of arsenic, beginning with m. ii. Fowler's solution t.i.d. and increasing the dose by m. i. daily until m. xvi were given, when it was omitted for two days on account of vomiting, and then recommenced with a dose m. xv. t.i.d., which has been continued to the present.

A glycerin extract of bone marrow in doses of ʒii. to ʒiii. t.i.d. was begun on March 1st in addition to the arsenic. The results of treatment have, as in the first case, been unsatisfactory, the blood conditions being precisely the same as on admission.

P.S.—This patient developed great anasarca of the lower extremities, double hydrothorax and dyspnoea, obviously of cardiac origin, and died April 7th.

Autopsy performed by Dr. Wyatt Johnston showed a moderate quantity of fluid in the pleural cavities. The heart was much enlarged on both sides and the right distended with blood. Œdema and slight emphysema of the lungs.

Kidneys—Left slightly enlarged, capsules adherent and a few cysts present.

Prostate presented two adenomata projecting into the bladder.

The liver was rather small and on section the veins were prominent. The spleen was large and firm.

The mucosa of the stomach was soft and the organ contained a pint of curdled matter. The red marrow of sternum, ribs and vertebræ was increased. On microscopic examination pigment was found about the central vein. No iron reaction and no pigment in peripheral zones.

Stomach on microscopic examination showed a loss of the superficial part of the mucosa from post-mortem digestion, but the glands in the deeper portion of the mucosa were normal in every respect.

presenting neither atrophy, increase in connective tissue, nor alteration of the epithelium.

The lemon tinge of skin present in both cases was extremely suggestive of pernicious anæmia.

The diagnosis of the first case rests chiefly on the condition of the blood, together with an absence of any of the usual causes for a secondary anæmia. The blood counts invariably showed a relative excess of hæmoglobin, a sign which is usually present in the pernicious form of anæmia. The marked irregularity in shape and size without increase of the white cells is also very characteristic. The presence of nucleated red cells which has been insisted on by some as essential in the diagnosis of pernicious anæmia are in my experience rather the exception than the rule. In five cases under my observation in which they have been carefully looked for they were present only in one. The splenic enlargement present in this case is rather exceptional, although it is a well recognized feature of the disease.

The presence of pathological urobilin is an important diagnostic feature, and urine of high colour and low sp. gr. is also suggestive of the condition.

The absence of free hydrochloric acid from the gastric contents at first raised the question of the possibility of carcinoma of the stomach being the cause of anæmia. The absence of pain, of tumour, of hæmatemesis and of persistent vomiting, together with the relatively embonpoint of the patient were decidedly against this view, and the absence of progressive emaciation during the past three and a half months also bear out the original diagnosis. A leucocytosis, again, which is commonly present in cancer, was here absent.

In the second case the diagnosis of pernicious anæmia in a patient with arterial sclerosis and dilated heart, made during life, was not borne out by the results of the autopsy. The deposit of iron in the liver was absent, and only the ordinary senile pigmentation in the center of the lobule was found.

Hüfler, quoted by Ewald, records a number of cases where hydrochloric acid was absent in cases of valvular disease, and it may be that this was the cause here. Such a degree of anæmia with marked poikilocytosis must, however, be unusual in cardiac disease, and the kidneys were so slightly affected that the anæmia of renal disease was hardly possible. Whether any relation between anæmia and absence of hydrochloric acid exists can only be determined by further observation. The case under consideration is, however, not one of anæmia associated with atrophy of the gastric tubules.

The absence of such an important constituent as hydrochloric acid does not seem to have caused any serious gastric disturbance in either case. We may perhaps assume that compensation is effected by the pancreas.

In the first case nausea, occasional vomiting and heart-burn began apparently coincidentally with the onset of the symptoms of anæmia, and in the second case such symptoms were entirely absent.

It is well known that the weight and general nutrition are usually retained in the subject of pernicious anæmia, and the loss of weight occurring in these cases may be satisfactorily accounted for by the absence of gastric digestion.

The association of atrophy of the gastric glands and a grave form of anæmia has been recognized for a number of years. First pointed out by Austin Flint, this observation has been confirmed by Fenwick by Osler and Henry and many others, and the fact is now well established. There has been and still is considerable divergence of opinion about the interpretation of these observations. Many observers regard the atrophy as a consequence and result of the anæmia and as having, therefore, but little bearing on the condition. There are others, however, Flint and Fenwick among the number, who do not hesitate to state that the atrophy is primary and the anæmia secondary, so that the term idiopathic anæmia is not strictly correct in such cases. Osler and Henry, for instance (*Am. Jour. Med. Sci.*, 1886) relate a case with all the clinical features of pernicious anæmia, including the blood changes, in which extensive atrophy was found in the gastric tubules at autopsy. The onset of the malady was preceded for years by loss of flesh, indigestion and vomiting, and the authors therefore conclude that the gastric condition was primary. Hunter (*British Med. J.*, 1890-92), records a case in which atrophy of the gastric glands was found after death in a case of pernicious anæmia, and he brings forward arguments based on pathological investigation and urinary analysis to show that abnormal fermentation in the gastrointestinal tract may generate certain toxic agents which have a deleterious action on the blood, and induce a process of blood destruction.

As hydrochloric acid is the natural antiseptic agent of the stomach, its absence would naturally favour these abnormal chemical changes. Without dwelling on this point, Hunter has made a valuable addition to our knowledge by pointing out that pathological urobilin is frequently present in large quantities in pernicious anæmia. As this substance is derived from blood pigment, its presence in the urine indicates excessive destruction of blood. Hunter regards the presence of this substance as of much diagnostic value. It may be detected by

the spectroscope, in which it shows a broad dark band lying close to the line F., and also a considerable absorption of the outer part of the blue spectrum. Jaksch also recommends Huppert's test, performed by collecting the precipitate formed by the addition of milk of lime to urine, adding alcohol and a drop or two of dilute sulphuric acid in a test tube and boiling. On settling, the supernatant liquid shows a red tint. Hunter recommends adding a solution of zinc chloride in alcohol to urine, when a green fluorescence develops. This test, however, seems inferior in delicacy to the others, and has been negative in the above cases on the few occasions in which it was employed.

If we admit the frequent occurrence of gastric atrophy in pernicious anæmia we would *a priori* expect an absence of free hydrochloric acid in the gastric juice.

From a rather hurried search through various reports of such cases I do not, however, find this point referred to except by Eisenlohr. This writer (*Deutsch Med. Woch*, 1892.) relates a case in which this symptom was present in pernicious anæmia, and in which there was atrophy of the gastric glands.

That hydrochloric acid should be absent in two cases of grave anæmia seems rather remarkable, and it would prove of interest to know in what proportion of cases this sign is present. In the absence of post-mortem examination its significance is somewhat doubtful, as the acid may be absent in a number of conditions. Recognizing the fact, however, that atrophy of the gastric tubules is a frequent accompaniment of pernicious anæmia, it is highly suggestive of the association of the two conditions.

We are as yet hardly in possession of sufficient facts to state whether we can recognise a distinct gastric type of the disease, but it can readily be seen that such a view may have an important bearing on treatment. If we accept Hunter's view that abnormal fermentation with the formation of hæmolytic agents is going on in the gastro-intestinal tract, we may find that the administration of intestinal antiseptics is of primary importance, and indeed Gibson has recorded a case in which such a line of treatment was followed by marked improvement.

ANÆSTHESIA IN A CASE WITH DIMINISHED BREATHING AREA.*

By G. GORDON CAMPBELL, B.Sc., M.D.,

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The patient, Mrs. S., was a middle-aged, slightly built woman, of medium height, much emaciated, and suffering from an enormous abdominal tumour. As I had not seen the case until just before I began to anæsthetise her, I had prepared to administer ether by means of a Clover's inhaler. While making the usual explanations about the effect of the ether, I noticed that her respirations were extremely shallow and quicker than normal; and on requesting her to take several long breaths, in order to fill the bag before turning on the ether, I saw that this was an impossibility. No effort on her part increased the air capacity of the lungs as it was already taxed to the utmost limit. I then turned on the ether and gave it very cautiously at first, with plenty of fresh air, not thinking it advisable in this case to hasten the anæsthesia by shutting off the air. All went well until there was about 20 per cent. of ether vapour in the respired air, and then the breathing, which had been gradually getting quicker, became rapid and laboured, and reminded me very strongly of the condition present during a bad attack of asthma; violent efforts at respiration and little or no air entering the chest. There was no spasm in the air passages, and the patient was only partially anæsthetised, so, in order to remove any possible degree of asphyxia which might be added to the effect of the ether, I gave it without using the bag. No improvement followed, and chloroform given on a piece of stockinette stretched over a wire frame was substituted. The dyspnoea gradually passed off and the breathing, although continuing quick and shallow, was not laboured, the pulse, however, was rapid and of small volume. Full anæsthesia was established in a few minutes, and after the usual preparation the abdomen was opened and the growth removed. While the adhesions between it and the intra-abdominal organs were being separated, the usual respiratory reflexes were excited, and a condition of dyspnoea, similar but less pronounced than that seen at the outset under ether, occurred. I had to request the operator once or twice to cease his manipulations for a few moments and allow the quickened respirations to subside. I feared

* Read before the Montreal Medico-Chirurgical Society, April 19, 1895.

to continue giving the chloroform while they were present lest I should give an overdose, and withdrawing it altogether for any length of time would have allowed of partial recovery of the patient; an equally dangerous condition. The pulse had become much slower (80) and was of very poor volume indeed when the tumour was removed, eighty minutes after I began the anæsthesia. I then replaced the chloroform with ether and continued the anæsthesia for an hour longer with the Clover's inhaler.

In order to compare as far as possible the two agents, without having a possible third factor, asphyxia, in the case, I gave six breaths of pure air to every one from the bag. An almost immediate improvement was noted in the patient's condition, the pulse became quicker, increasing to 105, but was very much fuller, and more forcible, although in sudden relief of abdominal tensions like this the opposite usually occurs, the patient bleeding into her own abdominal vessels. The respirations increased from 24 to 30 per minute, and intra-abdominal reflexes of about equal intensity to those observed under chloroform were set up by further manipulations in the abdominal cavity. Now, however, there was no interference with the breathing, showing that the cause of the former dyspnoea had been mechanical altogether. The immense size of the solid tumour had completely filled up the abdominal cavity and pushed up the diaphragm encroaching upon the area of the thorax. The dyspnoea here was plainly due to the physiological effect of the ether absorbed upon the respiratory centre, causing quickened breathing; once the mechanical cause of obstruction was removed, the increased respiratory rate and increased depth of breathing caused no distress. The patient made an exceptionally good recovery and had no after vomiting. The chief interest in the case, apart from the comparison of the two agents, lies in the fact that it shows a condition in which chloroform should be selected in preference to ether as an anæsthetic. It must, however, be borne in mind that in cases such as these, where there is some interference with free breathing, the danger of accidents from chloroform is very considerably increased.

Clinic.

LATERAL CURVATURE OF THE SPINE.

CLINICAL LECTURE DELIVERED AT THE ROYAL VICTORIA HOSPITAL.

By T. G. RODDICK, M.D.

Professor of Surgery, McGill University; Surgeon, Royal Victoria Hospital; Consulting Surgeon, Montreal General Hospital.

Gentlemen—

To-day I have an opportunity of presenting to you a typical illustration of the affection known as Lateral Curvature of the spine.

This young girl, native of Gaspé, is 13 years of age, of healthy parents,—nothing in the family or personal history bearing on the case. The deformity which at present exists was first noticed only fifteen months ago, but has been steadily increasing ever since, until it has reached this very exaggerated stage. She has suffered no pain or discomfort of any kind, so far as we can find out. In the absence of the mother the facts are elicited with difficulty and may be incorrect in some measure. It is possible that the trouble may have originated in her being obliged to carry a younger child. Doubtless the condition has been present for a much longer time than fifteen months, although no attempt has been made to treat the case, the mother being informed that the girl “would grow out of it.” This advice, unfortunately, is too often given in these cases, the mischief being allowed to go on until the deformity has increased to a point beyond all possibility of correction, distorting the figure and contracting the visceral cavities, the sufferer reaching at last a condition of absolute disability.

Lateral curvature or Scoliosis (the name given to it by Hippocrates) is also called Rotary Lateral Curvature, because besides the twisting of the spine there is rotation of the vertebræ. The tendency to curve laterally, however, is always noticed first, the rotation taking place subsequently.

Surgeons are still at variance regarding the pathology of scoliosis; I think there can be very little doubt, however, that it has its origin in a weakness of the spinal muscles. These allow the vertebral column to be swerved to one or other side, until at length several of the vertebræ and intervertebral plates become compressed, causing the trunk to bend in that direction. The ligamentous structures likewise

become altered in shape and position. The body would be expected to bend to one side, and become fixed in that position, like a tree which has been tied down for some time. But such does not actually occur, or for a very short time only. So-called *compensatory curves* are established, so that when the curvature begins in the dorsal region, we find (what is well illustrated in this case) that the lumbar vertebrae are diverted to the opposite side. In extreme cases like this a third compensation occurs in the cervical region, thus allowing the patient to stand with the trunk in a fairly vertical direction. In a great majority of cases the original curve is dorsal, with the convexity to the right. Why this should be so is not easily explained, unless it be from the greater use of the right arm and hand.

Scoliosis is found to occur much more frequently in girls than boys. This is probably due to the fact that the latter take more exercise, their muscles becoming firmer and not disposed to yield. Girls have a habit of standing on one leg, and will sit reading in a large arm-chair—or writing—with the body in a crouched position. The school, indeed, has much to do in causing lateral curvature, a careless teacher allowing the child to sit for hours with the body in a twisted position. Ricketty children are very liable to lateral curvature. The habit of carrying children on one arm is another cause, and is a danger both to the carrier and carried, as illustrated probably in this girl. Habitual faulty positions of any kind may induce it. Inequality in the length of the lower extremities is another cause. The occurrence of empyema with contraction of one side of the chest, and the contraction from extensive burns, are other common causes of scoliosis. I have an interesting case at present under my care, in a child aged eight years, where a distinct compensatory dorsal curve has followed wry neck. This is so pronounced that I doubt if division of the sterno mastoid will be of any avail.

Lateral curvature is often discovered accidentally by the tailor or dressmaker, who notices that one shoulder projects, or that one hip is higher than the other. There may have been nothing previously to attract attention to the fact, because many cases (and our own of to-day is one) go on for months without causing symptoms. As a rule, however, the mother notices that the girl or boy, as the case may be, is more easily fatigued than before, and is disposed to rest much of the time. There will, perhaps, be pains of a neuralgic character running from the spine round the chest, usually more marked on one side than the other. It is very important, therefore, that a correct early diagnosis should be made, because the condition is undoubtedly curable in the early stage (when the muscles only are at fault) or

when the patient is young and the bones can be moulded back to their original shape. When long established, and especially when the age of development has passed, the affection may be incurable.

In all suspected cases, therefore, your duty is to strip the patient of all clothing low enough at least to expose the trochanters, and to place the trunk in a good light. The outline of the spine is now carefully inspected, and the spinous processes marked with the ordinary crayon. In the case of this patient, who is now ready for examination, you will notice two very distinct curves, one occupying the dorsal region, having a convexity to the right; the other the lumbar region, with a convexity to the left. This case is extreme enough to necessitate a cervical curve, as the spines which I have marked in that region form a slight, but, nevertheless, distinct curve. You will notice when the patient bends forward, with the legs straight, that the curves are made more apparent. When she stoops beyond a certain distance, the body inclines to the left side. By getting her to stand as erect as possible, the curves will be noticed to be all diminished, and the patient is taller by perhaps half an inch than when standing at ease. The right shoulder blade, you will observe, is standing out and raised above the level of its fellow. It is perched, as it were, on the top of these ribs, which, owing to the rotation of the vertebræ, have been bent or twisted, contracting the thorax on that side. This distortion of the chest walls really indicates the severity of every case. On the opposite side, the shoulder blade is depressed, and the wall of the thorax appears to have fallen in. The left hip is more prominent than the right. Turning the patient round to examine the front of the chest, we notice that on the right side the breast recedes, the nipple being directed outwards; on the left, on the contrary, it is more prominent. Our examination would not be complete without measuring carefully the length of the limbs. There is no difference noticeable in this case.

Diagnosis here, then is Scoliosis of the more common variety, beginning in the dorsal region, having the convexity of the curve towards the right, and compensating cervical and lumbar curves whose convexities are towards the left.

Treatment—Here the indications will chiefly be to correct faulty habits: to attend to the general health; to train the spinal and other muscles by a systematic course of gymnastics; and lastly to correct deformity by the use of some apparatus which will support the tired muscles.

Your first duty, then, will be to impress on the mother and nurse

the necessity for careful watching the patient. Whatever the occupation may be, whether at the table, piano, or reading or writing, the best possible posture must be insisted upon. I am in the habit of ordering a special chair for these cases, so that the back may be moved to any angle. Thus, when the young girl is sitting at the piano, the chair is so adjusted that she is supported all the time. When writing both arms should be symmetrically placed on the table. The patient's feet should always rest on the floor or on a stool, and the common practice of crossing the thighs is to be deprecated, as this has the same effect on the spine as standing on one leg. She should not be allowed to loll about in easy chairs, reading or sewing.

The general health must be attended to; food should be of the best and the meals should be regularly taken. Iron and hypophosphites may both be indicated, or used alternately. Sea bathing, in the season may be prescribed, or failing that, the mother should be instructed to douche the back thoroughly, at least once a day with a strong solution of sea-salt poured from a pitcher, placed two or three feet above the body of the patient. As she pours the water with one hand, she rubs or massages the back with the other. An ordinary douche bag, with a large tube and nozzle will be more convenient and less fatiguing. Regular massage, performed by a trained masseuse will be still better. The muscles on the side of the greater convexity will need most attention. Electricity may be of advantage too. Following the salt bathing, it is advisable that the patient should lie for half an hour to an hour upon a very hard couch, or better still, a board covered simply with a fold or two of blanket—nothing under the head—in fact the best results are obtained when a hole is made in the board, into which the back of the head sinks. The board should be six inches wider than the greatest breadth of the body, and at least a foot longer than the height. All the clothing should be removed from the body, with the exception of an under vest, and the back should touch the board at every point. The arms may be moved from the side—outstretched, or made to meet above the head—and then brought back to the sides, so that a gentle movement of the muscles is kept up. Occasionally for a few moments the patient turns over on the board, and rests the side of the convexity on a firm pad or pillow, with a view to correcting the rotation. When the case is advanced, this should be done for a length of time each day. A sort of sling made of canvas and wide enough to hold the convexity has been devised for this purpose. Another exercise that may be practised on the board is that of lying on the face, and raising the head and trunk from the horizontal position, so as to develop such

muscles as the erector spinæ, latissimus dorsi, spinalis dorsi, as well as the posterior cervical muscles. This exercise is at first very tiring and difficult, but as the muscles become stronger and the spine more flexible, it is accomplished with ease. This exercise may be gone through also with the body projecting over the end of any strong table, the feet and legs being held firmly down at the same time. The severity of all movements may be increased by instructing the mother or nurse to resist them by simple pressure of the hand.

I am in the habit, where practicable, of placing my patients with lateral curvature in the hands of a teacher of gymnastics, and where actual osseous deformity is not present, excellent results follow. The patients should always be trained, however, in a separate class, as the exercises which suit strong, healthy children would hardly do for them. The movements usually prescribed are those which develop muscles of the back and trunk generally, such as light dumbbell and barbell exercises—bending the body backward, forward, and laterally—in short everything to increase the flexibility of the spine. I have been recently recommending the carrying of a light weight on the head while about the house or marching in the gymnasium. I was struck during a recent visit to Egypt with the remarkably erect carriage of the women of that country. Lateral curvature is said to be almost unknown there. I think the explanation is to be found in the fact that from early childhood the natives carry the water bottle, baskets, &c., on the head, thus keeping up a symmetrical development of the back muscles, and preventing any swerving of the spine from the normal vertical position. In the effort to steady the object on the head the patient with lateral curvature will be noticed to straighten the curves, and probably increase her height a quarter of an inch or more. The ordinary parlour gymnasium will be found of service, especially where an instructor is not at hand. Rowing is good exercise, providing the exertion be not great. Riding horseback with a reversible saddle may be permitted in the later stage of recovery. Care should be taken that no article of clothing interferes with freedom of movement during any form of exercise. In slight cases even stays should be prohibited at any time, or if worn at all they should be so constructed as to admit of the full expansion of the chest walls. After severe exercise of any kind a short rest on the board for half an hour should be taken.

Mechanical appliances are to be employed only where the deformity is considerable, and where something is required to hold the corrected position in the interval between the exercises. Sayer's plaster of Paris jacket, applied with the body well extended, has many advo-

cates in the treatment of this as of angular curvature. I was never much impressed with its utility, however, in this variety, and its weight is objectionable. A jacket of paper or felt, moulded over plaster moulds, is, in my opinion, preferable. I am in the habit usually, of ordering for these cases a very simple brace, somewhat similar to the one I show you, consisting of a stout leather waistband made to fit the hips as accurately as possible, and surmounted by two crutchlike stays to fit the axilla. There is a pad, adjusted by means of a spring, to the convexity, which is intended to affect it by slight but steady pressure. This should be worn only when the patient is walking out or travelling; at other times the simple stays already described may be worn, or nothing at all.

I must warn you against promising too much from the treatment in cases of lateral curvature. Slight cases, at any age, in which the muscles only are affected, can be all cured in a few months. A second class of cases, in which osseous deformity is present to a slight extent, may also be cured, especially in children up to fourteen years. They can be improved in older persons. But in a third class (and our patient of to-day comes under this heading) we can promise only to prevent the deformity from becoming greater. In very young children only is even slight improvement possible. The osseous changes are too confirmed. It is only right to say, however, that some remarkably satisfactory results have followed the treatment by forcible correction, as devised and carried out by Lorenz, of Vienna, Bradford and others. They think it not impossible, in even advanced osseous deformity cases, to force the convexity back and undo, as it were, the rotation, providing the patient is young. The principle of the method is, first, to fix the trunk in a frame, and then bring great pressure on the convexity by means of webbing, counter extension being meantime exerted on the opposite or projecting side of the pelvis. The body is partly suspended at the same time by means of an apparatus similar to that used during the application of Sayre's plaster jacket. The whole thing is cumbersome and expensive, and adapted only for hospitals or large institutions devoted wholly to orthopædic work.

RETROSPECT OF CURRENT LITERATURE.

Medicine.

Treatment of Heart Disease at Manheim.

1. FRANK J. WITHERED. "The treatment of chronic disease of the heart by baths and gymnastics as practised at Manheim."—*Brit. Med. Journ.*, 1895, II. p. 1015.
2. JOHN F. H. BROADBENT. "On the treatment of chronic heart disease by the methods of Dr. Schott, of Manheim," with remarks by Sir William Broadbent, Bart., M.D., F.R.C.P.—*Practitioner*, May, 1895.

The success attained by the Schott treatment has lately been again brought into prominence by several papers. Among them the two mentioned above give a clear description of the process, and have the advantage of being written from the result of personal observation.

The treatment adopted consists in two distinct processes: (1.) By baths containing various mineral substances and carbonic acid in solution; (2.) By a series of graduated gentle exercises or movements with resistance.

(1.) The waters of Manheim are certainly rich in free carbonic acid gas, and also contain 2 to 3 per cent of common salt, and 2 to 3 per 1,000 of chloride of calcium and carbonate of lime. At the outset of treatment the baths are carefully graded, the patient being placed in a bath for six to eight minutes at 92° to 95°F., and containing 1 per cent. of salt, 1 per 1,000 chloride of calcium and without carbonic acid. After a variable number of baths, the proportion of salt is gradually increased and their temperature lowered. Eventually baths of full strength in mineral constituents and carbonic acid are administered.

In the healthy heart a reduction of the pulse is noted, amounting, in Dr. Withered's case to four per minute, and in the diseased heart the effect is still more marked, the pulse being slowed and its volume and force being increased. In cases of cardiac dilatation, diminution of

the area of cardiac dulness is noted, and the liver, when enlarged from venous congestion, also diminishes in size. Subjectively there is a marked improvement in the physical comfort of the patient.

(2.) The treatment by exercise consists in a series of slowly performed movements of the trunk and limbs against slight resistance applied by an attendant. These exercises are carefully regulated to avoid fatigue or breathlessness; indeed, they are stated to diminish the pulse rate, and to cause its beat to become more regular and forcible.

Mode of action.—Dr. Schott believes that the sensory nerve endings are stimulated by the baths, and, by a reflex action on the cardiac nerves and muscle, cause the modification referred to in the heart's action. Sir Wm. Broadbent attributes an important rôle in the process to a diminution in blood pressure, which may be perceived by the finger, thus relieving the work of the left ventricle. The mode of action of the gymnastic exercises is believed by Schott to be also dependent on reflex action. Dr. Broadbent suggests that the slow movement of the muscles increases their vascular supply, this being a well recognised physiological process. At the same time the contractions are not sufficiently strong to force the venous blood back to the heart. In this way a transfer of blood takes place from the venous to the arterial system, the obstruction in the pulmonary circuit is diminished, and the right heart is relieved.

Dr. Schott is of opinion that all forms of cardiac disease may be greatly benefited by the treatment above described, with the exception of cases of aneurism and of advanced arterial sclerosis. Even in arterial sclerosis improvement is sometimes seen. Dr. Withered speaks enthusiastically of the marked benefit frequently observed in advanced cases of valvular disease with dropsy and dyspnoea, an improvement in his opinion rarely seen in cases treated by drugs.

It is possible to prepare artificial baths containing the necessary constituents, and Dr. Withered refers to two cases treated at the Middlesex Hospital with marked benefit.

Prognosis of Apoplexy.

ALFRED G. BARRS. "On the Prognosis of Apoplexy due to Cerebral Hæmorrhage."

Dr. Barrs in a clinical lecture at Leeds makes some interesting remarks on this difficult subject. His observations refer only to prognosis as to life. The use of the term apoplexy is clearly defined in its clinical sense as one in which a person passes suddenly from

apparent health to one in which the functions of the cerebrum are suspended; a state in which the patient loses all voluntary movement and perception. Much stress is laid on the condition of the kidneys. Dr. Barrs found that in his experience of old hemiplegic cases the urine almost without exception was free from albumen, he also quotes Dana's statistics (*N. Y. Med. Rec.*, Feb. 23rd, 1895,) of 100 cases in only one of whom was albumen present in the urine, the inference being that the renal cases generally prove fatal.

A number of cases are quoted showing that the mortality in patients with renal disease is greatly in excess of those in whom the kidneys are healthy. The figures, however, are so stated that an exact comparison of the numbers is impossible.

Caution is, however, necessary in diagnosing renal disease simply from the presence of albumen, as both that substance and sugar may be present in an apoplectic seizure. The presence of albumen is, however, even in the absence of renal disease, a serious sign.

The presence of Cheyne-Stokes respiration and of hyperpyrexia are also signs of bad omen. A temperature rising to 104°, 106° or 108° is indeed of absolutely fatal significance.

In conclusion, Dr. Barrs states that any case of apoplexy due to cerebral hæmorrhage will, in all probability, prove fatal if any one of the three conditions mentioned are present, renal disease, Cheyne-Stokes respiration, or hyperpyrexia. If no one of these three makes its appearance, the patient may and probably will recover however long insensibility may last and however deep it may be.

Frederick G. Finley.

Tapping the Vertebral Canal.

AUGUSTUS CAILLÉ. "Tapping the vertebral canal."—*New York Medical Journal*, June 15th, 1895.

The writer in a paper read at the last meeting of the American Pediatric Society advocates the tapping of the vertebral canal in the lumbar region, and the withdrawing of some of the sub-arachnoid fluid, either as a means of relieving pressure symptoms in various affections of the brain, or as a means of diagnosis. The measure was first suggested by Quincke at a meeting of the German Medical Congress in 1891, and since then a number of cases have been reported in which this procedure was resorted to. Tapping the spinal canal is done with the understanding that there is an open communication between the sub-arachnoid space surrounding the spinal cord and the ventricles of the brain. The puncture is made between the third and fourth, or

fourth and fifth lumbar vertebræ, immediately below the spinous process, or a little to one side of the median line, the needle passing between the adjoining vertebræ through the dura mater into the spinal canal. The terminal cone of the cord is situated at the level of the first lumbar vertebra, and if the puncture is made below this it is not likely that any of the divergent strands of the cauda equina will be injured. The puncture is best made with the patient's body bent forward. Narcosis is unnecessary and aspiration is not required, as the cerebro-spinal fluid will ooze out drop by drop, or even squirt out if under much pressure. Care should be taken to prevent any sudden movement of the patient lest the needle be broken. The writer's experience so far is limited to only four cases. In three of these tubercle bacilli were sparingly found in the flakey sediment of the fluid withdrawn. In one, twenty-five centimetres of a clear limpid fluid were removed with relief to pressure symptoms, as evidenced by the pupils at once becoming equal in size and sensitive to light. In the fourth, an adult, as much as 50 c.c. of a clear fluid were allowed to run out. In tubercular meningitis, it is pointed out, the fluid is invariably clear and limpid; in other forms of meningitis it may be cloudy or turbid, and in some cases fluid distinctly purulent in character is met with.

Führbinger, of Berlin (*Berlin. Klin. Woch.*, April 1, 1895), reports that he has punctured the spinal membranes in 86 cases. An anæsthetic is unnecessary, and aspiration of the fluid may give rise to pain in the neck, head or back, so the writer uses the Pravaz syringe almost exclusively. The amount of fluid withdrawn varied from a few drops to 110 c.c., and does not always correspond to the amount present or to the pressure. In 37 cases of tuberculous meningitis the diagnosis was established in 29 cases by finding the bacillus in the fluid evacuated. In this writer's opinion any curative action can hardly be thought of; the symptom complex of this disease, he thinks, is not to any great extent the direct result of increased pressure. In one case of cerebral hæmorrhage with rupture into the ventricles blood was withdrawn, as well as in a case of hæmorrhage into the cerebellum rupturing into the fourth ventricle. One tapping in a case of lepto-meningitis gave pus. In brain tumours, basilar meningitis and uræmia no improvement was noticeable after tapping. In chronic hydrocephalus this operation promises considerable relief and is a much safer proceeding than tapping the ventricles through the cerebrum.

Surgery.

Hypertrophy of Prostate.

J. WILLIAM WHITE. "Result of treatment of hypertrophy of the prostate."—*New York Med. Rec.*, June 1, 1895.

The treatment of this condition has been attracting a good deal of attention, especially since Mr. A. F. McGill read his paper on the treatment of retention of urine from prostatic enlargement at the Leeds meeting of the British Medical Association in 1889. Various methods of operative treatment have been suggested, some attacking the prostate from within the bladder and others through Von Dittel's perineal incision, and recently the suggestion of the relationship of prostate and testicle made by John Hunter has been studied, with the result that castration, single or double, has not only been advised, but actually carried out in now over a hundred reported cases.

Dr. White, of Philadelphia, is generally looked upon as the champion of this method of bringing about a wasting of the prostate and thus relieving the symptoms which its enlargement has induced.

In his paper read before the American Association of Surgeons Dr. White refers to Sinot's theory that prostatic hypertrophy is a natural hypertrophy of age, and then mentions other theories as, for instance, that it results from excessive sexual indulgence. It is sought to establish a close analogy between the relations existing between the ovaries and uterus and that existing between the testicles and prostate. The close nervous association controlling blood supply between these organs is pointed out. All development is regulated by nerve function. The testicles secrete spermatic fluid long after spermatozoa have ceased to exist in it and after the power of reproduction has ceased to exist. In such cases the removal of the testicle has the same effect upon the hypertrophy of the prostate as in those in whom the reproductive function still exists. The testicles have two functions, that of reproduction and that of imparting the quality of masculinity to the individual. Possibly it is the perversion of the latter function after the former has ceased to be active which imparts the motive force to cause the hypertrophy of the prostate, a closely associated organ as shown above.

Griffiths some years ago put forward the view that the prostate should be considered a sexual rather than a urinary organ.

At any rate it seems to be very generally admitted by surgeons having experience in castration for retention due to prostatic obstruction, that after the testicles are removed the prostate lessens in size and the obstruction to the outflow of urine in most instances disappears. It is stated that removal of one testicle causes wasting of that side of the prostate corresponding to the testicle removed. The shrinking is said to begin at once and to be appreciable in a week or ten days after castration.

It is an operation, however, not devoid of danger. Dr. White in his paper has collected 111 cases, and of these there were 20 deaths from the operation. Of these deaths Dr. White claims that 12 were desperate cases and death was due to complicated conditions. It is quite possible that if all operations done were reported that the number of deaths would be still greater.

Following out this line of thought, experiments have been performed to determine if it was necessary to remove the whole testicle, or whether the same atrophy of the prostate would result from division of certain parts of the spermatic cord. In this connection some experiments performed by Alessandri and reported in *Il Policlinico*, May 1, 1895, and reprinted in the *Brit. Med. Jour.*, are of interest. He finds that after ligature of the vas deferens the testis and epididymis eventually atrophy. The process begins with dilatation of the canaliculi of the epididymis and narrowing of the seminiferous tubules; fatty degeneration and increase of connective tissue about the vessels finally obliterate the canals. These changes occur more slowly in the epididymis. The author never found cystic degeneration either partial or *en masse*. Ligature of the spermatic artery and pampiniform plexus *en masse* invariably caused atrophy of the testis. If the circulation be maintained through the artery of the vas the testis and epididymis still atrophy, but more slowly. Ligature of the spermatic artery or pampiniform plexus alone causes partial atrophy. Ligature of the spermatic artery with some of the pampiniform veins caused hæmorrhagic infarction, degeneration, formation of fibrous tissue, but not so rapidly as in ligature *en masse*. The epididymis was only affected secondarily. Ligature of the artery of the vas deferens alone has no effect on the testis or epididymis. Excision of the nerves of the cord is not without effect on the nutrition of the testis. A coagulative necrosis beginning at the centre of the testis and spreading to the periphery, with similar changes in the epididymis, was noticed after injury or excision of the nerves. There was, however, no noteworthy diminution in the size of the testicle seventy-five days after operation.

According to these experiments ligature of the vas deferens should bring about the same atrophy of the prostate as castration. It is in order now for some one to try simple crushing of the testicle, the same as was formerly done to deer. This would result in a simple subcutaneous non-perforating wound and atrophy of the testicle.

It sometimes happens that surgeons are called upon to relieve old men who cannot use a catheter and in whom obstruction to the outflow of urine from enlarged prostate has existed so long that purulent cystitis, dilated kidney, and hypertrophy of bladder wall, ureteral wall and heart, has developed to such an extent that any surgical procedure is attended by great danger to life. In these the simplest operation only can be considered, and some men in such an extreme condition may be willing to sacrifice their testicles, but we need an operation that will relieve the patient of the offending parts of his prostate without such a mutilation as castration, and until a comparatively safe method of enucleating the prostate is devised the field for prostatectomy will be very limited indeed. However, the technique is improving every year, and we hope that soon we shall be in a position to afford relief to patients suffering from prostatic hypertrophy, and to do so with such a low rate of mortality that the operation can be recommended to patients before secondary changes have occurred, which would render recovery from any operation extremely hazardous.

Pharmacology and Therapeutics.

Treatment of Psoriasis.

RADCLIFFE CROCKER. "On salicin and salicylates in the treatment of psoriasis and some other skin affections."—*The Lancet*, June 8, 1895.

The writer in this paper, which formed part of the introduction to a discussion on the internal therapeutics of psoriasis at the annual meeting of the British Dermatological Society, claims a very definite value for this treatment. He thinks that under the great authority of the German school, attention has been directly too exclusively to mere local treatment in skin diseases. The discovery of the influence of thyroid extract was a startling reminder that the old humoral pathology is perhaps not quite dead, and may yet live again in a more exact and scientific form. He was first induced to prescribe the salicylates in a case of psoriasis accompanied by symptoms of tonsillitis. The improvement in the appearance of the patches which followed from week to week, was very remarkable. Since then he has given the salicylates an extensive trial with results in many instances equally striking and conclusive, especially in those cases of *psoriasis guttata* of extensive and recent development, the very form unsuited for the exhibition of either thyroid extract or arsenic. Under the influence of the drug, he observed a diminution of the hyperæmia, the scales were no longer formed abundantly, while the old crusts became easily detached leaving a pale red surface which became smoother week by week. Should the drug produce any gastro-intestinal irritation, an aggravation of the psoriasis may result, requiring the administration of an alkaline sedative for a few days, after which the salicylates may be resumed in smaller doses. He claims for the salicylates also much success in the treatment of the various forms of *erythema multiforme*, and also in *erythema nodosum*, and mentions one case of *lupus erythematosus* in which striking improvement followed their administration. He sums up a very interesting paper as follows: Salicylate of soda, and probably salicin and its derivatives, are of much value in the treatment of psoriasis, especially during the period of active development, and in hyperæmic cases which are unsuitable as a rule for arsenic and thyroid extract. They are useful in all forms

except when they produce dyspepsia, and perhaps in old chronic patches.

Treatment of Cardiac Affections.

T. R. FRASER. "The remedies employed in cardiac affections and their treatment."—*Edinburgh Medical Journal*, April, 1895.

This paper opened a discussion on cardiac therapeutics at the Edinburgh Medico-Chirurgical Society. The author claimed for strophanthus that of all the cardiac tonics it acted most powerfully on the cardiac muscle. One part of the dry alcoholic extract in ten million parts of water, causes extreme systolic contraction in the living heart of a frog in fifty minutes, while the most active of the soluble principles of digitalis has but little effect in a solution of one in fifty thousand. On the other hand, the solution of digitalis exerts at least fifty times greater contractile power on the blood vessels, than does a similar solution of strophanthus. With regard to other cardiac tonics the writer states that strophanthus extract is 8 times more powerful than adonidin and scillitoxin, 30 times more powerful than convallamarin, 300 times more powerful than good specimens of digitalin, and 30,000 times more powerful than caffeine.

In mitral and mitral tricuspid lesions the drug given in doses of six to eight minims of the tincture produces a marked rise in arterial tension, and may be persevered with for several months without giving rise to troublesome symptoms.

In aortic regurgitation distinct evil may be done by a cardiac tonic like digitalis, which at the same time produces contraction of the vessels. Strophanthus may, however, be of much service if compensation has not been established. In cardiac insufficiency without valvular lesion, due to changes in the myocardium, advantage may be derived from the exhibition of strophanthus.

Failure of cardiac tonics is to be expected (1) when the degeneration of the myocardium is so far advanced that adequate contraction of the heart cannot be originated; (2) in mechanical obstruction of the circulation caused by valve leakage or stenosis, so extreme that no possible increase in the strength of the heart's contraction can produce a sufficient circulation of blood; (3) in a combination of degeneration, and of mechanical strain due to valve lesions, where each separately would be insufficient to cause failure, but where the combination is sufficient to do so; (4) when conditions outside the heart, either in the pulmonary or general circulation, such as bronchitis, pleurisy or hepatic disease are of a severe character.

External Application of Pilocarpine.

MOLLÈRE. "On the external application of pilocarpine in the treatment of nephritis"—*Lyon Medical*. April 11 and 21, 1895.

In a long and interesting article the writer advocates the external use of pilocarpine after a trial of it in his own practice in over fifty cases during the past ten years. He extols it as of great value in both acute and chronic nephritis, producing rapid cure in the former, and in the latter improvement with a longer continuance of life than by the use of other palliative methods. His method is to use it in the form of an ointment containing nitrate of pilocarpine with white vaseline, 1 in 1,000 or 2,000. A quantity of this is rubbed in over the skin of the whole trunk, which is then enveloped in a thick layer of cotton wool and a sheet of oil-cloth, and the whole maintained in place by bandages. This may be left on for several hours, or if the perspiration is not too free, until the reapplication of the dressing on the following day. Improvement may be noticed in a few days, but it is important to carry out the treatment regularly until the more serious characteristic symptoms disappear. Under this treatment the author claims the following results: (1) From the first application the patients acknowledge a feeling of well-being and marked relief. (2) A very abundant perspiration follows, at first neutral in reaction, but afterwards becoming acid. This is accompanied by marked diuresis, but no salivation. The amount of urine may rise to two or three litres in the twenty-four hours, and in acute nephritis even higher figures may be noted. (3) Under this treatment in acute cases the albumen disappears rapidly and the cure becomes completed. In chronic cases, although we cannot look for a cure, the albumen markedly diminishes, the cedema disappears and the general state of the patient is much improved.

On the Treatment of Tetanus.

R. T. HEWLETT. "The antitoxin treatment of tetanus."—*The Practitioner*, April, 1895.

A. A. KANTHACK. "On the value of the serum treatment in tetanus."—*The Medical Chronicle*, May, 1895.

On experimental grounds Hewlett considers the modern antitoxin treatment the most promising. As a remedy it ought to be administered as soon as the onset of tetanus is probable. Any distinct sign, such as stiffness of the neck, difficulty in opening the mouth, or even any considerable pain at the seat of injury, coming on without ap-

parent cause, a few days after an accident should at once lead to its employment. At the same time the patient should be placed in a darkened room and perfect quietness enforced. Abundance of easily digested food should be administered, if necessary through a stomach tube during chloroform anæsthesia. Local treatment, including if necessary free excision of the affected part, should not be omitted. Chloral may be used in sufficient doses to induce sleep.

Before estimating the value of this new treatment Kanthack endeavours to draw some conclusions as to the cause and mortality of the disease under old methods. The percentage of deaths, he thinks, is estimated most correctly by Roux and Vaillard, who calculate it at about 50 per cent. Generally, the severity of a case varies inversely with the length of the incubative period, and directly with the rapidity of the onset of the spasms. Examining, according to these considerations, the results so far obtained and published of cases in which antitoxin was used, it will be found that out of seven severe cases in which the incubative period amounted to seven days or less only one case recovered; on the other hand, in thirty-four mild or chronic cases only two deaths occurred. Summing up an exhaustive review he says that the serum treatment has not actually changed the prognosis in acute and serious cases, but judging from the accounts given of the milder cases, he thinks that in these it lessens the spasms, the pain and the distress, and that it has apparently reduced the mortality, but to what extent we are not yet able to estimate. The antitoxin is still on its trial; no decidedly acute or otherwise hopeless case has yet been really cured by it. Nevertheless, he thinks it our duty to use it, not only for the purpose of cure, but also with the view of prevention in those injuries which have been contaminated by dirt or earth and have not received immediate attention and thorough cleansing.

Pathology.

Gonorrhœa and the Gonococcus.

KLEIN, G. "Die Gonorrhœa des Weibes."—*Münchener Medicinische Wochenschrift*. No. 23. June 4th, 1895, p. 534.

TURRO. "Gonokokken Züchtungen und künstlicher Tripper."—*Centralblatt für Bakteriologie*. XVI. 1894.

HEIMAN. "A clinical and bacteriological study of the gonococcus."—*Medical Record (N. Y.)*, June 22nd, 1895, p. 769.

That the gonococcus of Neisser is the causative agent in gonorrhœa is a generally accepted fact; constantly in undoubted cases of the disease in its earlier active stage in man it is to be recognized in the urethral discharge. But doubt still exists as to whether the presence in the urethral and vaginal discharge, and in yet other discharges, of small flattened cocci in pairs necessarily indicates the existence of the specific disease—whether the cocci seen may not be harmless or at most non-specific forms—and whether, for example, the vulvovaginitis of children, from which such cocci are obtainable in abundance, is in reality gonorrheal. In short, while under clinical conditions in which the symptoms are typical and point clearly to gonorrhœa, there is no difficulty in confirming the diagnosis by bacteriological study, in these doubtful cases in which confirmation is of the greatest importance, there are many who hold that it cannot be given by the bacteriologist, inasmuch as there are other diplococci which simulate those of gonorrhœa. There is, it is true, one test which would determine the specificity of the cocci—but this is one impossible ordinarily, namely, inoculation of the human healthy urethra.

That these objections have some foundation, is made manifest by the work of Turro and Heiman. Not a little interest was excited recently by Turro's article in the *Centralblatt für Bakteriologie*, in which it was pointed out that the gonococcus grows upon sterilized urine, and that the cultures obtained upon slightly acid media (in place of the alkaline media usually employed) will, when inoculated into dogs, induce a catarrhal urethritis from which the gonococci are obtainable. If this were so, we had the means of testing the specific nature of diplococci occurring in doubtful cases—a ready means of

completing the bacteriological diagnosis. Unfortunately other observers—on this continent Dr. Wright of Boston,* and Dr. Heiman—repeating Turro's observations have entirely failed to confirm them. But in repeating them Heiman obtained a diplococcus from cases of gonorrhœa, growing upon Turro's media, of the same size as the gonococcus, but differing from it in not being decolorised by Gram's method. Now the typical gonococcus, whether examined direct from the urethral discharge or obtained in pure cultures is so decolorised—and Turro would appear never to have applied this important test.

Hence the conclusion appears inevitable that the Italian observer, by his methods, isolated a non-specific form, and indeed Heiman found it to be harmless in man. Examining further into the matter he points out that posthitis or balanitis is most common in dogs, and that the discharge from the urethra contains cocci which (if I read Heiman's article aright) can easily be mistaken for the gonococci by preliminary microscopical examination. Under the circumstances, therefore, Turro's statements, to say the least, lack confirmation. Continuing his researches, Heiman examined the bacteriological fauna of the vulvo-vaginal tract in twenty apparently healthy children. In not one of them did he find a single diplococcus giving the reactions of the gonococcus, but in cases where there was a slight mucous discharge, and others in which there was simply enuresis, he found numerous pus cells containing diplococci resembling the gonococcus in size, appearance and all general characters, save that they were not decolorised by Gram's method, while a pure culture from one case, inoculated into the healthy urethra of a youth of 17, produced no effects. Boekhart, E. Fränkel and others, have also met with this form, and Heiman suggests tentatively that it is the cause of non-specific catarrhal colpitis. In three cases of vulvo-vaginitis, in two of which infection could be traced, and the cocci were found in the parental discharges, Heiman found diplococci giving all the reactions of the gonococcus, and a pure culture from one of the cases inoculated into an adult male of twenty-six, proved to be free previously from the disease, induced a mild attack of gonorrhœa with presence of the typical cocci in the urethral discharge.

The conclusion to be drawn is that the gonococcus can be diagnosed in discharges from both sexes by the following reactions :

I. The characteristic shape of the cocci and easy staining with ordinary aniline dyes.

II Their presence within the pus cells.

* J. H. Wright, *American Journal of Medical Science*, February, 1895.

III. Decolorisation by Gram's method of staining.

IV. Their capacity of setting up gonorrhœa when inoculated into the healthy human urethra.

Of these characters the first two are common to other forms, the fourth can rarely be tested, the third is the crucial test in ordinary.

Herein Heiman's careful and valuable work confirms the most trustworthy previous observations.

Employing the first three of these diagnostic features Klein points out that the gonococci may be detected with comparative ease in the external genito-urinary passages of the female. Gonorrhœa in the adult female especially affects the urethra and the cervix; from the latter it is frequently difficult to obtain the microbes, from the former they may often be obtained in great numbers, and contrary to what is usually held (that the disease of the urethra in the female heals rapidly) they may be obtained from cases in which clinically urethritis is no longer recognisable. But the gonococcus is not limited in its growth to cylinder epithelium. It has been found affecting stratified and peritoneal epithelium and even connective tissue—in periurethral tissue, in the connective tissue of the Fallopian tubes, and even in abscesses of the ovaries. Thus the clinical picture of gonorrhœal disturbances in the female may include vulvitis, colpitis, salpingitis, oophoritis, cystitis, peritonitis and parametritis, while metastases due to the gonococcus present themselves in the form of monarticular arthritis in little girls, as in adults, of vaginitis, myositis, perineuritis, and even endocarditis in adults.* Sarfert has described a purulent mastitis presenting intracellular diplococci in an infected female, Frisch and others the occurrence of gonorrhœal catarrh of the rectum, which might in many of its characters be mistaken for syphilitic proctitis.

In children born of infected mothers, besides the well-known specific blenorrhœa, there have been recognised ulcerous stomatitis, associated with the diplococci, and gonorrhœal otitis media.

As to the prevalence of gonorrhœa in females, in Germany at least it would appear to be appallingly widespread, if Noeggerath's estimate that 80 per cent. of all females are affected approaches the truth. Even if Sânger is correct and only 12 per cent. of all women seeking the advice of gynæcologists are gonorrhœal the figure is painfully high; yet Klein considers that more exact methods of examination prove this to be certainly below the truth.

* At the recent meeting of the Association of American Physicians Professor Welch cited the details of a case of gonorrhœal endocarditis (in the male) that had been investigated in his laboratory and had yielded pure cultures of the microbe.

Space forbids that I should touch upon the incidence of gonorrhoea in the male. Suffice it to say that the capacity of the microbe to develop lesions in various organs is being each month more surely determined.

From the above it is very evident that instead of being the cause of a strictly localized disease, as was held until recently, the gonococcus is in itself capable of originating most of the lesions which used to be considered sequelæ and of secondary origin, but which now we find to be direct consequences of the lodgement of the specific virus in other regions.

J. G. Adams.

Diseases of Children.

Diphtheria Antitoxin.

"Discussion on the employment of antitoxin in diphtheria," American Pediatric Society, seventh annual meeting, May 28, 1895.—*Archives of Pediatrics*, July, 1895.

"Discussion on diphtheria antitoxin," Association of American Physicians, tenth annual meeting, May 31, 1895.—*New York Med. Record*, June 15, 1895.

J. GORDON MORRILL. "Immunising effects of antitoxin."—*Archives of Pediatrics*, July, 1895.

HOLT. "The use of antitoxin for immunisation."—*Archives of Pediatrics*, July, 1895.

ADOLF BAGINSKY. "Der serumtherapie der diphtherie." (The serum treatment of diphtheria, being a review of the results obtained in the Emperor and Empress Frederick's Hospital for Children in Berlin). Svo., pp. 336. Berlin, 1895.

There are few subjects which attract more attention at present from the medical world than does the treatment of diphtheria by antitoxin. Introduced rather more than a twelve month ago to the profession by Behring, after its value had been attested by bacteriological experiments in animals, and its action on man, as far as possible, verified by careful clinical observation, diphtheria antitoxin met, nevertheless, at the first with a cautious and somewhat hesitating acceptance.

The favoured observers who were able to make an early trial of the serum proclaimed results, which, with a few notable exceptions, acknowledged a more decided control over the symptoms and a decrease in the rate of mortality under the new treatment as compared with any other method yet adopted.

During the past winter, however, since the use of antitoxin became much more extended, and the sources of its supply more numerous, and its preparation in some instances perhaps less scrupulously exact, reports of many cases have been published in which it either altogether failed, or in which distinctly untoward symptoms attributed to the antitoxin have arisen. In a few cases it is stated that it has seemed to even hasten the unfortunate termination, so that a few

prominent clinicians, both in Europe and in America, have not hesitated to express opinions unfavourable to its use. With ourselves, partly owing to imperfection in the serum employed, partly perhaps to faulty dosage, and partly perhaps from our expecting the impossible, the results have been disappointing and our attitude has been one of hesitancy. It was with much interest, therefore, that we listened to the discussion, for the most part entirely favourable to this treatment, which took place both in the American Pediatric Society at its meeting in Hot Springs, Va., and in the Association of American Physicians' meeting in Washington. We note also the recent appearance of several monographs on this same subject, the most important, and by far the most voluminous, one being the report of Professor Baginsky on the results of a year's treatment under this method of all cases admitted into the Emperor and Empress Frederick's Hospital for Children in Berlin. During this period, from March 15, 1894, to March 15, 1895, 525 cases were admitted into this hospital and treated by the serum method; of these 83 succumbed (15.8 per cent.) In 11 cases the patients were so ill when admitted that they died within the first twenty-four hours, and manifestly deduction from the percentage should be made on this account. This mortality he compares with that of the three previous years, when of 993 cases treated, 430 died (43.3 per cent.) Very similar is the testimony of Bokai in the Buda-Pesth hospital (*Deutsche Medicinische Wochenschrift*, April 11, 1895), in which this writer reports 120 cases treated by means of Behring's serum with 31 deaths, a mortality of 25.8 per cent. This result he compares with the records of the same quarter for the three previous years, during which 337 cases were treated, with a mortality of 203, or 60.23 per cent.

With regard to such statistics the remarks of Dr. Welch, of Baltimore, in opening the discussion on this subject at the meeting of the Association of American Physicians, may be appropriately quoted: "Statistics," he says, "may be viewed from three stand-points—they either prove too much, and therefore nothing, or they leave the question in doubt, or they justify a favourable opinion." Opponents claim that the average cases this year are of a milder type than in previous years, and that many mild cases are included in these reports. They say also that owing to numerous articles appearing in the public press on the new treatment, parents send their children earlier to the hospital, and that they are, therefore, under more favourable conditions for cure than in the case of former statistics. That statistics should have their full value it is evident that the case must be classified. More important than figures at

the present time are the personal impressions of careful and experienced clinicians gathered from observations at the bedside, and these in the great majority of cases are eminently favourable to this treatment. Baginsky says that severe cases which under other treatment, would, in his judgment, have died, have under the influence of the antitoxin steadily improved and got well, and that during a short period when the administration of the antitoxin had to be interrupted owing to a failure in the supply, the mortality rose at once to its former percentage. Bokai states that he is fully convinced of the value of the serum in true diphtheria, but that its value in cases in which a septic character is pronounced from the beginning is doubtful, and that it cannot be depended on to check the development of heart failure when that sets in. At the conference held in Munich, under the presidency of Prof. V. Ziemmsen, not one dissenting voice was raised against antitoxin. Heubner, of Berlin, emphasized the fact, that if a case was presented early for treatment, the prognosis under the antitoxin was good. but that in nearly all cases he noticed a favourable influence upon the course of the fever, and the disintegration of the membrane. He noticed no increase in the albuminuria nor extension of the disease to the lower air passages, provided these latter were intact at the time of admission. Widerhofer said that he took pleasure in expressing himself as even more enthusiastic now in regard to the serum than he was after his first hundred cases. Reuke, of Munich, said that from the first he felt he had no choice in the matter of employing the serum, so urgent was the need of some radical change in the treatment of diphtheria; now he was willing to be regarded as enthusiastic in regard to the antitoxin treatment.

Clinical impressions, says Dr. Welch, are fortified by the results of post-mortem examinations, which almost invariably show an absence of fresh extension after the commencement of the injections. Baginsky in his book also draws attention to the testimony to be gained by a comparison of the results of tracheotomy and intubation before and after the introduction of this treatment. Before the introduction of the antitoxin a large number of both tracheotomies and intubations were performed in the hospital. Of 1,258 cases of diphtheria occurring between 1890 and 1894 553 cases had to have either intubation or tracheotomy performed on account of laryngeal stenosis. Tracheotomy was in general preferred because in more than 50 per cent. of those intubated, tracheotomy had afterwards to be performed. After the treatment by antitoxin was begun this was changed. The number of operations became less, and intubation became the full equivalent of tracheotomy and was generally

preferred, the latter being reserved for the worst cases, or for purposes of euthanasia simply. In only one case did laryngeal stenosis develop after the antitoxin treatment had been begun.

In reference to the *modus operandi* of the antitoxin, Dr. Welch says that according to one view its antidotal action is of a chemical nature, destroying or neutralizing the toxine generated, but the more generally received opinion is that its action is of a vital character, and is effected through the agency of the cells which are rendered more resistant and less tolerant of invasion. Against the former view is the fact that this treatment in no measure prevents the appearance of post-diphtheritic paralysis. According to the latter view, the action of the toxine may be looked upon as the natural mode of cure, for it is probable that recovery ensues under ordinary conditions by the development in the blood of the antitoxin, a process which is only hastened and fortified by the injection of artificial serum. That the antitoxin is not always successful, may be owing to the fact that there is a quantitative relation between the toxine and the antitoxin, and we have at present no means of ascertaining how much of the former may be circulating in the blood. In those where the antitoxin appears to have absolutely no effect, and the case goes on from bad to worse, it is probable that the cells of the patient, for some reason not yet understood, fail to respond to its action.

Among the after effects which have been attributed to the employment of antitoxin, the most important are the following: albuminuria, enlargement of the lymphatic glands, a form of arthritis, various exanthems, minor degrees of cardiac disturbance, and a rise in temperature, sometimes with fluctuations suspiciously like that of septicæmia. With regard to all of these, the general verdict is that they are but temporary in their manifestations. The symptoms are rarely alarming, and as Dr. Welch says they cannot outweigh the benefits to be derived from the use of the serum. In reference to the occurrence of albuminuria, which has been asserted to follow the employment of the antitoxin, Prof. Baginsky says that he cannot accept such a view. Among the 993 cases of diphtheria treated without serum from 1891 to 1894, albuminuria was met with in about the same frequency as among the 525 cases treated with serum, but clinical evidence of nephritis in the shape of casts, &c., appeared more frequently in the first series.

	Total Number of Cases.	ALBUMINURIA.		NEPHRITIS. (Clinical.)		NEPHRITIS. Post-mortem.	
		Cases.	Per Cent.	Cases.	Per Cent.	Cases.	Per Cent.
Without serum ...	993	417	42.00	256	25.78	162	16.31
With serum.....	525	215	40.95	66	12.57	83	15.80

The only criticism which can be applied to this statement is that a more severe standard appears to have been applied to the changes in the kidney in the cases treated with serum than in those treated without serum.

In this connection we may quote also the experience of Dr. Morrill, of Boston, as given in a paper read before the American Pediatric Society on the "Immunizing Effects of Antitoxin." "The urine of 82 children was very carefully examined with reference to the effects of antitoxin on the kidneys, and the result of 540 examinations may be briefly stated as follows: In 20 per cent. no change whatever was detected. Of the remaining 80 per cent., those which had been free from albumin previous to immunisation showed a slight trace—in most instances the slightest possible amount, which could be detected only when placed in front of a dark background. This was only noticed within 24 or 48 hours after injection. In cases where albumin had been present before the use of antitoxin there was a very slight increase of the amount. In no case was there any diminution in the amount passed, or any evidence of failure to eliminate properly."

Among the more important statements made by Prof. Baginsky are the following: Injections should be given under strict aseptic precautions, subcutaneously. The dose should be dependent on the time of the administration, whether early or late in the course of the disease; it is also dependent on the age of the patient and the severity of the case. From 600 to 4,000 antitoxin units should be employed. It is best to administer a full large dose at once, but an additional injection is advisable in an obstinate case. The action of the remedy is visible in the limitation of the local process, in the reduction of the fever and in the improvement of the general condition. Antitoxin is only effectual against the toxin of Loeffler's bacillus, which must be regarded as the cause of diphtheria. Diphtheritic symptoms may be produced by various forms of cocci, without the presence of this bacillus, but such cases as a rule do not present the same severe symptoms, as those in which the bacillus is found. For such cases he proposes the name "*Diphtheroid*." Although mixed infections are favourably affected by the antitoxin, they demand rather larger doses.

In reference to the immunising effects of antitoxin, Dr. Morrill, in the interesting paper, above referred to, gives us the results of his experience in the Boston Children's Hospital. He says: "With regard to the protection afforded by antitoxin (in doses of 10 cc. for children of 10 years or over) our experience has tended to show

that the serum, when fresh, can be relied upon to immunise against anything resembling clinical diphtheria for a period of thirteen days, and probably for a longer space of time. In no instance was the bacillus detected in the nose and throat of any child, who started with a clean record, in a shorter time than that just mentioned. This last point, if eventually established, is of practical importance as showing that an immunised child is not only safe from diphtheria, but is also safe as concerns this for a definite length of time.

A. D. Blackader.

Laryngology.

Adenoid Growths in Children.

EUSTON SMITH. "Adenoid growths in children."—*Lancet*, May 25th, 1895.

The author deals with the subject as of special interest to the general physician, considering the large number of derangements which may be set up by the presence of adenoid growths in the naso-pharynx. The frequency with which adenoid growths are met with in children three or four years old and upwards is a matter of every day observation, but it seems not to be so well known that they are equally common in infancy. At this early stage the patient is rarely seen by a throat expert, and unless the child's pharynx be explored with the finger the growths will often be overlooked by the general physician, for it is perhaps exceptional for them to give rise to the ordinary symptoms of nasal obstruction.

In an infant the growths should always be suspected if the child's nose be broad at the bridge and faintly dimpled on each side at the upper border of the inferior lateral cartilages, and especially if when the chest is uncovered any retraction be noticed in the inferior region of the thorax. In childhood symmetrical retraction of the infra-mammary regions and depression of the ensiform appendix owe their origin, with few exceptions, to naso-pharyngeal obstruction. In marked cases, where little air enters by the nose, the nares are small and the alæ flattened, probably from disuse of the organ as an air passage. In such children other symptoms may be met with; the hard palate is exceptionally high, the tonsils are overgrown, and examination of the auditory meatus shows a deep depression of the tympanic membrane. In infants who suffer from this form of nasal obstruction one of the commonest consequences is snuffing in the nose with much mucous secretion. Non-syphilitic infants who snuffle are almost always the subjects of adenoid granulations. They seem never to be free from coryza, and often sneeze violently and discharge quantities of thick mucus from the nose. With this they may be hoarse, and from the persistence of these symptoms are often suspected wrongly of inheriting a venereal taint.

Another point which the author draws attention to is the effect upon the lungs. In infants and young children suffering from

adenoids in the vault of the pharynx, signs of collapse at the upper part of the lungs are present, a high-pitched percussion note at the infra-spinous fossa without notable alteration of the heart sounds is commonly due to a patch of pulmonary collapse and is very suggestive of adenoid growths, especially if the child at that time is not troubled with a cough. Deafness is also known to be one of the very frequent results of the existence of adenoids, and there is no class of cases which having adenoids as the cause of the deafness responds so readily to treatment and is attended with the best results. Many cases of either acute or chronic suppurative otitis media have adenoids as a cause, and it is only by the removal of the cause that such cases recover.

Asthma and nocturnal incontinence of urine are mentioned as rare sequences to adenoids. Of 1,000 cases seen in private and hospital practice the writer has met with only one case in which the asthma and three cases in which the nocturnal incontinence of urine were really cured.

Another symptom which the author at some length calls attention to is a loud crowing or croaking sound which accompanies the breathing and is known as infantile respiratory spasm. This symptom, the author maintains, is due to the presence of adenoid vegetations in the vault of the pharynx. Such a view the writer is not able to corroborate and questions very much the relation of cause and effect in these cases. Amongst the writer's 1,000 cases of adenoid growths in the vault of the pharynx he has never met with respiratory stridor having such a cause. The writer has seen two cases of infantile respiratory stridor, but neither case had adenoids, nor did the digital examination precipitate any such attack, which would undoubtedly have occurred did such spasm have its origin from irritation in the vault of the pharynx, and the writer believes in the theory expressed by Leman and Horsely that it is due to cortical irritation.

H. S. Birkett.

Canadian Medical Literature.

[The editors will be glad to receive any reprints, monographs, etc., by Canadian writers, on medical or allied subjects (including Canadian work published in other countries) for notice in this department of the JOURNAL.]

PERIODICALS.

APRIL, 1895.

CANADA MEDICAL RECORD.

Abstract of a paper entitled "Observations on the treatment of Fibroids of the Uterus," p. 145.

LA CLINIQUE.

En recriminant—P. E. Prévost, p. 86.

Influence des dents sur le caractère et la santé—M. A. Lemieux, D.D.S., L.D.S., p. 87.

MAY, 1895.

MEDICAL NEWS (PHILADELPHIA), MAY 4TH, 1895.

- (1.) Normal and surgical anatomy of the vermiform appendix—Hadley Williams, London, Ont., p. 483.

THE CANADIAN PRACTITIONER.

Primary carcinoma of the gall bladder—J. G. Graham, Toronto, p. 319.

Carcinoma of the scalp—H. J. Hamilton, Toronto, p. 327.

Treatment of diphtheria by Antitoxic Serum—G. Clingan, Toronto, p. 332.

Operation for the removal of Ovarian Tumours (concluded)—A. Vander Veer, New York, p. 336.

ONTARIO MEDICAL JOURNAL.

Resumé of researches on the pathogenic organism of malaria—Herbert J. Hamilton, p. 331.

Puerperal fever—G. Gilbert Gordon, p. 333.

Clinical note—scaly eruptions—G. B. Smith, p. 338.

Clinical note—C. J. Chapman, p. 339.

CANADIAN MEDICAL REVIEW.

The treatment of diseases of the Fallopian tubes—A. Laphorn Smith, Montreal, p. 159.

LA CLINIQUE.

Un nouveau traitement de l'épistaxis—F. X. L. de Martigny.

Morphinomanie—Le Rouge.

MARITIME MEDICAL NEWS.

Case of crossed hemianalgesia—M. A. B. Smith, Dartmouth, N.S., p. 95.

The reaction of the Urine—A. Halliday, Stewiacke, N.S., p. 98.

- (1.) This paper is based on results drawn from various post-mortem examinations and from practical work in the dissecting room, and the author arrives at the following conclusions:—The development of the alimentary canal readily explains abnormal positions. At the twelfth and sixteenth weeks there seems to be no difference in size between the base of the appendix and the cæcum. Prior to the sixth

and seventh month the cæcum and appendix lie well up in the abdomen, behind the liver or median line. The appendix is nearly always found covered by peritoneum, and in most cases possessed of a mesentery. There is generally a well-marked muscular circular coat. The relative measurements between the exit of the appendix and the ileum are pretty constant. The appendicular artery lies behind the distal portion of the ileum, and is accessible to pressure. The wall of the appendix is always formed by anterior band of muscular fibres from the cæcum. The appendix is readily filled with air from the cæcum, (in only a few cases did this fail). From its position in a pocket-like cavity it is accessible to pressure from an impacted large bowel. Faeces collected in the lumen of the appendix do not necessarily set up any pathological disturbance. Air or fluid injected into the large bowel invariably rotates the cæcum outward, in close relation to the anterior superior spine and crest of the ileum. In this experiment the appendix is often dragged into abnormal positions and twisted on itself. When ulceration takes place, with extra-peritoneal formation of pus, two layers of serous membrane are involved if the appendix be intra-peritoneal. Anatomically it is impossible for pus to separate the layers of the appendicular mesentery. The lowest part of the abscess cavity in the recumbent position is two or three inches on a lower level than the incision in front and above Poupart's ligament. An intimate relation sometimes exists between the tubes and ovaries with the appendix. In such a case suppurative appendicitis and hæmato-salpinx were both present, though no distinct suppurating tract could be traced between them. A swelling in the right iliac fossa will give rise to similar symptoms from like anatomical relations to important viscera, vessels and nerves. When a large collection of pus has formed in the iliac fossa a tender spot may generally be felt in the lumbar region on the crest of the ilium, close to the sacro-iliac articulation. A downward incision at this point will be sufficient to evacuate the abscess.

Reviews and Notices of Books.

The Surgical Diseases of Children and their Treatment by Modern Methods. D'ARCY POWER, M.A., M.B., Oxon., F.R.C.S., Eng.. Demonstrator of Operative Surgery at St. Bartholomew Hospital; Surgeon to the Victoria Hospital for Children, Chelsea; Examiner in the University of Durham; Member of the Conjoint Examining Board of The Royal College of Physicians (Lond.) and of Surgeons (Eng.); with Illustrations. London: H. K. Lewis, 136 Gower Street. 1895.

The division of labour going on in surgery has called forth this book. It is a useful book. Many of the articles are full and thorough. Especially the one on tubercular disease of the spine, illustrated by some instructive diagrams from Hoffa's Lehrbuch.

Hernia is also dealt with in a very clear way, the author favouring operation for the radical cure in a large percentage of cases.

In the treatment of osteo-myelitis a clear description is given of pathology and diagnosis. Many surgeons, however, would be a little more radical in operating, and would hardly feel that they had done their duty in cutting through the soft tissue to the bone where the infective focus is still deeper, but would at once apply the trephine and get at the real seat of the disease.

In a book devoted to the surgical diseases of children, one would expect to find particular attention given to those conditions requiring especial surgical attention in the early years of life, yet club foot is scarcely more than mentioned, and the general practitioner seeking information here on that important subject would find himself compelled to consult some larger work, not specially devoted to the surgical diseases of children.

The same may be said of the article on congenital dislocation of the hip. Sufficient information is not given to enable one, from what he can learn from this article, to advise well much less operate well.

With the exception of one or two deficiencies of the above character, the book is well written, and will form a valuable addition to any medical library.

G. E. A.

The Treatment of Wounds, Ulcers and Abscesses. By W. WATSON CHEYNE, M. B., Ed., F.R.S., F.R.C.S., Professor of Surgery in King's College; Surgeon to King's College Hospital, and Paddington Green Children's Hospital, London. Philadelphia: Lea Brothers & Co. 1895.

This will be found to be a most useful book to the general practitioner,

as it gives directions in considerable detail for the carrying out of the most important methods in the treatment of those conditions mentioned in the title page.

Healing of wounds by first intention, by blood clot, and granulation are described. Emphasis is very properly laid upon the necessity of avoiding as far as possible injury to the tissues by rough handling.

The degree and intensity of infection depending upon the number and virulence of the organisms which enter.

Bruised tissues have a lowered vitality, and hence more easily succumb to invading micro-organisms.

Disinfection of instruments, field of operation and operators hands and dressings are fully described.

We note the author's preference for sponges over gauze pads. The objections to the latter seem rather weak.

The author advises early opening of acute abscesses without waiting for distinct fluctuation, and drainage without washing out.

Early opening and drainage of acute empyema before the lining is bound down by firm adhesions is advised.

A careful following of the directions given should ensure good results.

G. E. A.

The Principles of Bacteriology. A Practical Manual. By A. C. ABBOTT, M.D. Second Edition. Philadelphia: Lea Bros. & Co. 1894.

As a practical manual, it may safely be said that the first edition of Abbott's little work was far in advance of any other text-book of bacteriology published in our language. This second edition, with all its extensions and improvements, is again equally far in advance of the first, and is in fact invaluable to the student from its precision and the clear, succinct way in which the best methods and the features of the various pathogenic bacteria are described. It is unnecessary at the present day to say more in its praise. In our eyes the only important omission is due to the fact that Dr. Abbott has been philologically honest, and has employed the term bacteriology in its narrow and strictly correct sense, instead of permitting it to include the whole field traversed by the bacteriologist; consequently he has nothing to say concerning the pathogenic moulds, their properties and modes of growth, nor again concerning the minute parasitic animal forms—the malarial organism or organisms, and the sporozoa. This we cannot but regard as a regrettable omission. Chapters upon these subjects are required by the student, and if they are not included in a text-book of bacteriology, it is questionable where they should be found. It is true that much of our bacteriological nomenclature is faulty; the use of the term "bacteria" alone is most ambiguous. We want some term which shall indicate the study of all minute or microbic forms of life. "Microbiology" might be employed, yet it immediately institutes comparisons with "biology" to its own dis-

advantage. Perhaps it will be well to retain the old term, with the reservation that bacteriology is understood to include more than the study of bacteria. In any case, we trust that in the next edition of this admirable manual Dr. Abbott will do us the most useful service of adding the chapters here indicated. A.

The Cambridge Natural History, Edited by S. F. Harmer, M.A., Superintendent of the University Museum of Zoology, and A. E. SHIPLEY, M.A., University Lecturer upon the Morphology of Invertebrates. Vol. III. Mollusca and Brachiopods, by Cooke, Shipley and Reed. London and New York: MacMillan & Co. 1895.

There are not a few of our number who, in the intervals of practice, pursue as a hobby the study of some branch of natural history and find in it both bodily and mental recreation and an ever fresh delight. We would cordially call the attention of such to the series of volumes now being edited at Cambridge, of which the first to appear lies before us. The series is to deal with the natural history of all species of animals, from the protozoa to the mammalia, each important subdivision being treated by a recognized authority. For long there has been need of an authoritative Natural history, and judging from the volume before us, the want is to be most satisfactorily supplied. It is a large and handsome volume of more than 500 pages, admirably illustrated, mainly occupied by the Rev. A. H. Cooke's description of the Mollusca. So far as we are able to judge, both this and Mr. Shipley's article on the Brachiopoda are all that a natural history ought to be. The amount of curious and suggestive information in the first article is remarkable. Not only are the habits, geographical distribution and general economy of the various forms treated at a length never before attempted in any previous Natural history, but the bye-ways of the subject are explored. There are some admirable pages upon the cult of the oyster and upon its culture, from the days of a certain Roman Sergius Orata, who flourished in the first century, B. C., and Juvenal's epicure who

“ Could tell

At the first mouthful, if his oysters fed
On the Rutupian or the Lucrine bed
Or at Circeii.

There are other pages upon the use of shells as money with a discussion upon wampum. Others again upon the artificial cultivation of snails and upon pearls and pearl fisheries, so that even to us to whom zoology, we fear, has become little more than a memory, what with the broad generalisations upon the habits of the mollusca, and the mine of out of the way information it contains, the work has proved in the highest degree entertaining. Zoology, it would seem, is passing through an interesting development. But a few years ago a name was only to be made by microscopical and embryological studies; now the younger workers are discovering that fuller and more satisfactory results are to be obtained by

following Darwin and Wallace, and investigating the various forms of life in connection with their environment. The publication of works such as this will notably aid in stimulating others to study and comprehend the living world around them. A.

Affections Chirurgicales des Membres. Statistique et Observations par Docteur Polaillon, Chirurgien de L'Hotel-Dieu, Professeur agrégé à la Faculté de Médecine de Paris, Charge de cours de Clinique Annexe, Membre de l'Académie de Médecine. Paris—Librairie Octave Doin, Editeur, 8 Place de L'Odéon. 1895.

Dr. Polaillon has followed up his book on Regional Surgical Statistics by the publication of a large volume on surgical affections occurring in his practice during an uninterrupted period of 14 years. He has divided his work into surgical diseases of the extremities and of the trunk, and again into traumatic and organic diseases and malformations, and finally tumours and infectious diseases. As might be anticipated from the large opportunities and length of time (a period of 14 years) Dr. Polaillon has in this book put before his readers an amount of clinical material rarely found in one volume. Many of the cases are reported very fully and a great deal of valuable information is to be derived from the perusal of this volume. G. E. A.

Text-Book of Diseases of the Kidneys and Urinary Organs.

By Prof. Dr. PAUL FURBRINGER, Director of the Friedrichshain Hospital, Berlin. Translated from the German with Annotations by W. H. Gilbert, M.D., Physician in Baden-Baden. In 2 vols. Vol. 1. 800. London: H. K. Lewis.

This work will well repay careful perusal. It is from the pen of an able, experienced and hard-working physician. We are pleased to see that the author's classification of Bright's disease is of a clinical character. In the present state of our knowledge this is the only non-confusing division of this intricate subject. The recent attempt to make many sub-divisions of Bright's disease leads to confusion, and does not help in any way in more clearly pointing out indications for rational therapeutics.

The present volume is free from such blemishes.

We await with interest the appearance of the second volume.

J. S.

On the Relations of the Diseases of the Spinal Cord to the Distribution and Lesions of the Spinal Blood-Vessels.

By R. J. WILLIAMSON, M.D. London: H. K. Lewis. 1895.

This small volume is made up of a series of interesting notes which appeared in the *Medical Chronicle*, of Manchester. They are an able *resumé* of the views held at present as to the nature of the various acute and chronic diseases of the spinal cord.

J. S.

The Year-Book of Treatment for 1895. A Critical Review for Practitioners of Medicine and Surgery. Philadelphia: Lea Brothers & Co. 1895.

This very useful volume maintains its high standard. It deals with all the more important practical therapeutics during the past year.

J. S.

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- The Treatment of Laryngeal Tuberculosis by the Application and Submucous Injection of Creosote.** By Walter F. Chappell, M.D., M.R.C.S. Reprinted from the *New York Medical Journal* for March 30, 1895.
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- Aseptic Prophylaxis of Asiatic Cholera: Arsenization.** By Reginald Barkley Leach, M.D., Member American Public Health Association, etc., etc.
- Third Annual Report of the Dairy Commissioner for the Dominion of Canada for 1892-93.**

Correspondence.

To the Editors of THE MONTREAL MEDICAL JOURNAL.

VIENNA, March, 1895.

The thought that some readers of your JOURNAL may be interested in hearing of the work in the hospitals of Prague and Vienna prompts the present letter, and the hope that it may be helpful to some who are intending to visit the Continent to continue their medical studies leads me perhaps into more detail than will be interesting to those who have no such plan in mind.

In order that time may not be lost, some study of the language is necessary before coming, and residence for a time at first in a German town is to be recommended before going to the centres, in most of which English-speaking students are found.

Prague, though not a German city, affords special advantages in the facilities for learning the German language. Here this language is free from such dialects as one unfortunately hears in Vienna, and here also but few English-speaking people are to be found while medical students from America are seldom seen in the institutes or hospitals. And other advantages of this place, apart from those already mentioned, are its natural beauty, its various marks of antiquity and its historic interest, not one of which are to be depreciated by a visitor in Europe.

As regards the time to come, it seems to me that the winter semester affords the most favourable opportunities. Of course such a question is decided by the convenience of the individual, but in talking with those who have observed the work in both semesters the opinion seems to be general that the winter semester commencing in October is by all means the better.

It was on the first of October that we began work in Prague, and as we were recommended to enregistration in the university we obtained, by the payment of a small fee, such privileges in the hospital and institutes as were accorded to Austrian students. Besides such work, special instruction is obtainable from private docents and first assistants. But in Prague, while the material is abundant and the instruction good, they are not able to give courses at a moderate fee, since the number receiving them is small. This is a disadvantage. Notwithstanding this disadvantage, however, there are many favourable conditions secured by a short stay in Prague. In addition to

those already mentioned let me speak of the work in the Pathological Institute. First of all, every one who comes from America, we believe, is sure to receive a hearty welcome from Professor Chiari, whose cordiality and ready helpfulness are always apparent in his dealings with those who show an interest in the work in which he seems to take so much delight. The material for examination in the department of pathological anatomy is plentiful, and many interesting sections were seen.

The General Hospital, das Allgemeine Krankenhaus, of Prague is now a very old and not at all a modern building, far behind like American institutions in its appointments and furnishings. In its various apartments over fifteen hundred patients are under treatment, while the out-patient departments (ambulances) are daily largely attended. The general surgical department is under the direction of Prof. Wild since Prof. Gussenbauer received the appointment to the Klinik of the late Prof. Billroth.

The division of internal medicine comprises two kliniks, the second of which is that of Professor V. Jaksch. A few words concerning this professor and author, whose work on clinical diagnosis is so generally circulated, may not be out of place just here. Professor Jaksch is Dean of the Medical Faculty of the German University at Prague and Professor of the Second Klinik in Internal Medicine. He was at one time assistant in the clinic of Professor Nothnagel, of Vienna, and was appointed to his present position about seven years ago. A man of middle age, he is possessed of a high degree of energy and activity, but unfortunately for the young student of German he is rapid and often not clear in his speaking. Several cases of interest were shown in this course. Two of the most striking may be briefly referred to, and inasmuch as they had so many points in common reference to one will suffice for both. They were cases of Argyria occurring in men aged fifty-five, whose occupation for the past fifteen or twenty years was that of making ornamental glass, staining it with different silver solutions. In the process they needed to draw the solution into long tubes held in their mouths. They made no complaint, nor had they experienced any ill effects during the years while the pigmentation was increasing. An extract from the notes taken in the clinic will serve to put the appearances presented before your readers. There was intense pigmentation of all visible surfaces, skin and mucous membranes alike. As one observed the face and head they seemed of an intense bluish-grey colour, which deepened over the nose and forehead and involved the exposed mucous membrane of mouth and eyes so that

scarcely any difference of colour was discernible between these parts and the skin. The surface shone as the light fell upon it, and the hair, once of deep brown, seemed to share in the general glancing bluish-grey pigmentation. The mouth, tongue, gums, uvula, epiglottis were almost as deeply pigmented as the skin. The teeth were black. As one went towards the extremities the depth of pigmentation diminished. Nothing further was remarkable about these cases, with the exception that one was a subject of arterial sclerosis, but this was not referable to the action of silver.

Briefly stated the following may be counted as advantages of attending this clinic of Professor Jaksch, apart from becoming acquainted with this clinician :

1. One has an opportunity of seeing a large number of cases in making the visit with the assistants.

2. Careful attention is given to the examination of excretions, secretions and the blood, and clinical chemistry is emphasized here.

3. One is frequently able to follow a case through a close clinical examination, to observe its progress, know the clinical diagnosis, and also to see the section and anatomical diagnosis. This is a very important advantage and most valuable as a means of instruction.

Professor Huppert, in the Clinical institute, gives a very valuable course in pathological chemistry and welcomes students to his laboratory.

Professor Ganghofuer, of the Franz Joseph Kinderspital, has charge of the medical division of the same and has been carefully observing the effects of heilserum in cases of diphtheria. We were afforded the privilege of seeing this remedy applied in several cases, and also heard his report, an extract from which we give below with portions from reports of other observers.

Far better facilities for every kind of medical work are afforded one in Vienna. Here we find the regular holding of courses which are altogether attended by English-speaking physicians. The instruction is generally good, the material in ample quantity and variety. The clinics are so grouped that no time is lost in going from place to place, and the numbers attending make the fees lighter, the general charge being a gulden (forty cents) per hour.

(CONTINUED.)

Society Proceedings.

MONTREAL MEDICO-CHIRURGICAL SOCIETY.

Cystic Fibroma of Right Iliac Fossa—Drs. Gardner and Adami.

Myxo-sarcoma of the Ovary—Drs. Gardner and Martin.

General Carcinomata—Dr. C. F. Martin.

Late Recurrence of Mammary Cancer—Dr. F. J. Shepherd.

A Case of Traumatic Tetanus with Recovery—Dr. J. C. Cameron.

Anæsthesia in Diminished Breathing Area—Dr. G. G. Campbell.

Discussion on Erysipelas—Drs. Hingston, Adami, Roddick and others.

Stated Meeting, April 19th, 1895.

G. P. GIRDWOOD, M.D., PRESIDENT IN THE CHAIR.

Cystic Fibroma of the Right Iliac Fossa.

Dr. J. G. ADAMI exhibited the specimen which he described as follows :

The tumour, a fibro-sarcoma lymphangiectodes (areolar fibro-sarcoma) of the fascia over the iliacus muscle, is the size of a grape fruit, roughly after hardening $4\frac{1}{2} \times 3 \times 2\frac{1}{2}$. It possesses a well defined and fairly thick capsule and upon section presents numerous cavities of various sizes, so that first upon removal it had in part a honey-combed appearance. When fresh these cavities were in the main filled with a straw colored thin transparent fluid. This has become coagulated in the process of hardening and is recognisable as a yellowish gelatinous substance. In some of the cavities there was more or less shrunken white clot.

Added to this, the cut surface was mottled, and presented darker areas of various sizes where there had been hæmorrhage into the tissue of the tumour.

The stroma in between these cavities and hæmorrhages had a white fibrous appearance and was fairly firm. Examined microscopically the tumour showed itself to be a fibro-sarcoma lymphangiectodes. The capsule was formed of well developed old fibrous tissue of a laminated type. This merged insensibly into more fasciculated and more cellular fibrous tissue, the strands of which were in parts so cellular as only to be so described as fibro-sarcoma, or indeed as spindle-celled sarcoma. In other regions there was mucoid infiltration, in others following probably upon the hæmorrhages the tissues were disorganized and necrosed. The numerous spaces filled

with fluid and white thrombi were clearly dilated lymph channels; they possessed well defined edges and a distinct lining of flattened endothelium.

We have, therefore, to deal with an aberrant fibroma—aberrant in position and in structure. It closely resembles in every respect the fibroma lymphangiectodes of the uterus, and I should like to ask Dr. Gardner if there is the slightest possibility of this being a transplanted pedunculated sub-serous uterine fibroma.

I judge from the note accompanying the specimen that this is improbable, not to say impossible, in that there was so clear an extension of the fascia covering the iliacus over the tumour. The probability is then that this developed from the sub-serous tissue above the iliacus, or from the inter-muscular connective tissue, and as such the tumour is to be classed as an atypical areolar fibroma; it is interesting to observe how closely this can simulate the condition more usual in the uterine fibroid. Cystic fibromata such as this have been found even in so dense a tissue as bone, the cysts being evidently dilated lymphatics.

The specimen is of further interest as illustrating what I had to say recently concerning the difficulty of determining the difference between mucoid and cedematous degeneration of fibromata and lymphangiectatic fibromata. In this specimen both conditions are present, and in parts only can the difference be made out, but in these parts it is very clear.

Dr. WM. GARDNER said that the tumour had grown very slowly. He had seen the patient six years before and the tumour had not increased very materially in size in that time. It lay in the right iliac fossa with the iliac vessels on the inner side and was intimately connected with the iliacus muscle, some strands of which were adherent to the mass. The general health of the patient had been unaffected, the only symptoms were those due to pressure upon the anterior crural and genito-crural nerves. The recovery after operation was uneventful.

Dr. ALLOWAY asked if there was any direct connection between the growth and the posterior wall of the pelvis. He understood that cystic fibromata of the kind exhibited here were only found in sub-peritoneal growths of the uterus. The present case was interesting as an exception to the rule.

Dr. GARDNER, in reply to Dr. Alloway, said that any connection between the tumour and the uterus or ovaries was entirely impossible. It had no connection with bone at all, lying in the iliac fossa between the aponeurosis of the iliacus muscle and the muscle itself.

Myxo-Sarcoma of the Ovary.

Dr. C. F. MARTIN after exhibiting the specimen described it as a large, heavy, irregularly oval encapsulated tumour weighing, after the loss on section of about 20 ounces of thin serous fluid, 13 lbs. 5½ oz. In length it measured 28 cm. The circumference was roughly about 85 cm. The tumour was of firm consistence on the whole, though certain areas were softened through degenerative changes.

The surface of the growth was of a reddish drab colour, intermingled with patches of a darker, more bluish tint, these latter corresponding to the degenerated portions. Large veins traversed the growth, some being thrombosed, while on the more convex edge of the tumour were two catgut ligatures, surrounding evidently the pedicle. Numerous loose masses of thin fibrous tissue were hanging in shreds from the mass, where apparently adhesions had existed to surrounding tissues and organs.

Section through the greatest diameter of the tumour showed its widest portion to be of extreme density, except for the presence of several cystic dilatations of various sizes up to those having a diameter of 8 cm. and 7 cm. These latter were of two varieties - the one smooth walled and more longitudinal in shape, while the other showed rough, ragged masses adhering loosely to the walls, the remains of a previous degeneration, *i.e.*, portions of tumour mass had undergone degenerative softening and partial absorption, leaving behind at the time of removal these raggedly walled cysts. Dr. Martin said that the dilated portions with smooth walls were probably to be regarded as lymph cysts, so common in tumours of this kind, though he was unable to discover any evidence of aggregated endothelial cells.

In the opposite and smaller pole of the growth there was much softer tissue, due likewise to the degenerative changes and cystic formations above mentioned.

Sections were taken from various portions of the growth, and of these the majority presented collections of small undeveloped spindle cells arranged closely together in the manner of an ordinary spindle cell sarcoma, while interspersed throughout was a generous distribution of small round cells, and in some places fully developed fibrous tissue cells. Other sections showed some degeneration with the presence of the characteristic stellate cells of tissues which undergo mucoid change; so that the tumour may be regarded on the whole as a myxo-sarcoma. Sections from the degenerated areas showed the usual changes which occur under such condition.

This tumour, then, being a myxo sarcoma, was interesting for sev-

eral reasons: Firstly, inasmuch as sarcomata of the ovary were by no means common, and according to Schroeder's statistics form only 1.5 per cent. of all ovarian tumours. In the second place its size was certainly unusual, though occasionally sarcomata as large as an adult head were placed on record.

Microscopically it did not present any special feature, the spindle celled variety, with some admixture of small round cells, being that commonly found.

Dr. WM. GARDNER said that the history in this case was very vague, not being readily obtainable. The patient stated that she had first noticed the tumour four years ago as a small lump, but in all probability it had been present before that. There was great emaciation, which was stated to have commenced six months previous to the operation, but had made more rapid progress during the six weeks before operation.

Examination before the operation showed an exceeding degree of density and immobility of the tumour, the hardness being such that it suggested the presence of bone, as the speaker had occasionally noted in dermoid cysts. Vaginal examination showed the mass to be wedged in the pelvis. He had approached the operation with uncertainty, thinking that the tumour would be adherent to the parietes but this was not the case, and except for omental adhesions and a corona of intestines along the upper part, there had been no attachments to work through. The pedicle was small and easily managed, and apart from stripping the peritoneum off a small portion of the adherent intestine the removal had been accomplished without injury to any part. The other ovary was also found diseased; it was about the size of a pullet's egg and was dense. Recovery had been absolutely without any drawbacks.

General Carcinomata.

Dr. C. F. MARTIN read the Pathological Report of this specimen, which will appear later.

Late Recurrence of Mammary Cancer.

Dr. F. J. SHEPHERD reported the following case:

I was called to see a woman *æt.* 45, mother of six children, a patient of the late Dr. George Ross, on November 7th, 1888, and found that she was suffering from a tumour the size of a small egg, situated in the lower zone of the left breast. This was quite movable, nipple slightly retracted, but the glands in the axilla were enlarged. Patient first noticed the growth nine months before, when it was quite small. It had never been painful. The operation of removal of the

breast was performed on November 8th, 1888. The breast and considerable portion of skin was removed and the fascia over the great pectoral, the glands of axilla and the tissue about them were freely removed. The patient's wound healed by first intention and she was about in ten days. Was not consulted again until January, 1895, when she came to me for a small hard, movable lump, two inches above the middle of the clavicle, noticed a few months before. This was tender and occasionally painful. A few days later removed this secondary growth, and as Dr. Adami will tell you it was carcinomatous.

This case shows conclusively that the three years' limit is not sufficient to declare a person free from the danger of recurrence, and also shows that good results in comparatively advanced cases can be obtained without the very severe operations recommended by operators during the last year or two. Here was a case that went nearly six years without any sign of recurrence, and when recurrence did occur it was in the cervical glands, not at the site of the operation at all.

Another case of breast carcinoma, on which I operated in September 1890, had no recurrence until September 1894, then it was not at the site of the operation but in the retro-sternal glands—here again the axillary glands were involved, and the contents of the axilla freely removed.

A Case of Traumatic Tetanus with Recovery.

Dr. J. C. CAMERON read a paper on this subject. (See page 881 of the June number).

Dr. F. J. SHEPHERD stated that he had never seen a good result from the treatment of tetanus, and he had tried chloral, opium, early amputation, etc. He asked about the condition of the wound at the time it set in and if there could possibly have been any other wound.

The PRESIDENT related the history of a case which had occurred in his practice some fifteen years before. The patient, a lady, had stepped upon a garden rake and one of the teeth had entered the ball of her little toe. The wound healed completely, but some time afterwards she suffered from pain in the wound, extending up the outer side of the leg, stiffness of the jaws, etc. Within a week there was complete opisthotonos. He had used Battley's solution and pushed it. On one occasion in his absence chloral had replaced it, but it did not give as much relief. The Battley had been given in 30 minim doses every three hours till delirium was produced and then gradu-

ally reduced for from two to three weeks. The patient recovered and was alive to-day.

Anæsthesia in a Case with Diminished Breathing Area.

Dr. G. GORDON CAMPBELL read the report of this case. (See page 18.)

Stated Meeting, May 3rd, 1895.

G. P. GIRDWOOD, M.D., PRESIDENT, IN THE CHAIR.

Discussion on Erysipelas.

Dr. HINGSTON, on introducing the subject, spoke as follows: My present duties are not at all difficult; I take as much as I choose to take and leave as much as I choose to leave. So many gentlemen are named to present the question in its various aspects before you, and to take part in the discussion that I think I shall best consult the interests of the Society by saying as little as possible at this stage. First, what is erysipelas? It is a disease known to most of us, in fact to the whole of us; a disease met with often, and particularly in hospitals; an inflammatory affection of the outer surface of the skin, characterized by all the usual signs of inflammation, yet with something more. In reading the subject in some of the recent text-books and periodicals, I have been rather interested to learn that very little was known or written upon the subject until the eighteenth century. Yet when I turn to Wiseman, the father of English surgery, I find a very able paper upon the subject; and in turning to the father of French surgery, Paré, who lived in the time of Queen Elizabeth, I find two important chapters devoted to the subject, in which Paré quotes the ancients—Galen and others—as having written on the subject.

A word as to the origin of the disease. Although the inflammation is seemingly of the skin, it does not arise in the skin, but in the lymphatics of the skin. Some authors go further and confine it to the leucocytes in the lymphatics of the skin. This is a nicety which must be left to bacteriologists to establish or to destroy. Another and most important question is: is the disease specific? or is erysipelas a mere ordinary inflammation? Some contend that it is an ordinary inflammation, modified by such circumstances as atmosphere, constitution and the surroundings of the sufferer. The opinion now, however, is general that erysipelas is a specific disease differing from ordinary inflammation in having a material organism or germ which is proper to it. Fehleisen claims to have discovered a microbe, a streptococcus, as it is called, in every case of erysipelas. He found by ex-

periment he could convey the disease to animals ; and from man to man. It is now established that, in erysipelas, there is a morbid specific inflammation, and that the streptococcus is always present, or is in some way connected with this morbid action. Another feature of interest : the streptococcus is not usually found over the whole erysipelatous blush. As the erysipelas progresses, the streptococcus disappears. The microbe is found in largest numbers at the margins, and in large numbers beyond the inflammatory zone ; indeed these are met with in greater numbers in tissue not yet seemingly invaded, than in parts over which the disease has passed. The streptococci are sometimes met with in such large numbers that leucocytes are to be found have disappeared altogether, while the ground that has been traversed by the disease is often as free from the streptococcus as is the prairie free from grass where fire has recently passed. Another question is : how does the microbe enter the body ? Most authors agree that the disease enters where there has been created some solution of continuity, some traumatism, some bruise or scratch in the skin ; others believe the disease to be purely idiopathic, occurring independently of all traumatism ; while not a few are of opinion that erysipelas may occur sometimes in one way, sometimes in another. Another question is as to its contagiousness. One would suppose that question to have been solved long ago ; but it is not solved yet. Most men believe that the disease is contagious ; some however, and even maintain recently, it is not contagious ; still larger numbers believe that it is not contagious under ordinary, but only under exceptional circumstances. Well, for myself, I should say, from a clinical aspect, I should be sorry to place a patient, upon whom I had operated in the immediate neighbourhood of a case of erysipelas ; not that I believe that the disease is as contagious as some suppose, or that extension to a healthy wound necessarily follows proximity.

How does erysipelas spread ? It is believed to spread along the lymphatics, and by the minute capillaries, and by the very small veins. It travels where the lymphatics are most numerous. For instance, a patient suffers from erysipelas of the face, it is often secondary, the disease reaches the upper lip, that it jumps quickly to below the jaw, not frequently attacking the parts between.

There is another form of erysipelas ; called phlegmonous erysipelas. Is it the same disease ? Here also there is difference of opinion. Some contend it is the same disease ; but favoured by certain circumstances, either in the condition of the patient, in the atmospheric state, or in the patient's surroundings the disease goes

on to the formation of pus. Some contend that phlegmonous erysipelas has a coccus entirely different; a something superadded, a something unlike the streptococcus which caused the disease, in the first instance. Then as to the gravity of the two diseases or of this modification of the same disease: the one—that is the form limited to the true skin—has a tendency to recovery, while of the phlegmonous variety its course is uncertain; sometimes prolonged; and not infrequently disastrous. Some contend that the streptococcus, finding itself in an unyielding skin, behaves itself with becoming modesty; but that when it gets below the skin into the loose connective tissue, it comports itself in a very different manner, but that notwithstanding a marked difference in feature, it is essentially the same disease caused by the same micro-organism. That I can say—speaking from a surgical point of view—phlegmonous erysipelas, especially in the neighborhood of the joints, is a disease of which I have very considerable dread, and this dread is increased if the subject of the disease is not clearly and unmistakably free from all taint of a tuberculous character. At the present time I have, under my care, a case of phlegmonous erysipelas, beginning in the neighborhood of the ankle joint, gradually attacking its synovial membranes, and leading to amputation of the ankle, then of the knee, and later of the elbow, Erysipelas is not confined to the skin; it invades the mucous membrane. In the face, it travels up and attacks the eye. It enters the nostril, there giving great trouble. You know the disposition the skin bears to the nostril; it goes in to meet mucous membrane, the reverse of what occurs at the lip. It is there where erysipelas gives much trouble. It is said to attack the mucous membrane of the female vagina, and I am glad that another gentleman is to take up that portion of the question. I should like it established whether the streptococcus of erysipelas has really any relationship or affinity to the gonococcus or other micro-organism which so frequently causes trouble in the tubes—inducing that pyosalpinx of females which gives the gynecologist so much trouble. There is one other circumstance connected with erysipelas which I have recognized: I have seen erysipelas, in more than one instance, limit the spread of epithelioma, causing it to remain stationary for months, and even years. In one case, still under observation, more than five and twenty years have elapsed since epithelioma first appeared, and in time, erysipelas has again and again arrested malignant action for months, and, in some instances, for a couple of years. The signs by which erysipelas are recognised from ordinary inflammation are so familiar to us all that I think it unnecessary to allude to them.

On the Bacteriology of Erysipelas.

Dr. ADAMI—That the disease erysipelas is due to the presence and active growth within the subcutaneous lymph spaces of one special form of micro-organism—a chain coccus or streptococcus—is now generally accepted.* But while we find a very characteristic disease induced by the presence of one special form of micro-organism, it by no means follows that that microbe is specific in the narrowest sense. It by no means follows that that microbe causes a cutaneous disorder alone and does not have ill effects in other tissues of the body. Indeed, what I wish to point out now is that the tendency of modern bacteriological work is to look upon erysipelas not as a disease *sui generis*, but as one manifestation of the pathogenic action of a germ that is very widely diffused, a germ capable of inducing processes differing in appearance according to the organ affected; the tendency is in short to regard the streptococcus of erysipelas in the same light as we regard the bacillus found in lupus. If Robert Koch had not made investigations into the bacteriology of lupus at the same time that he made his classic studies into tuberculosis of the lungs, of lymphatic glands (scrofula), of bones and joints, and if some other observer had independently discovered the tubercle bacillus in cases of lupus without recognizing the alliance of the disease to tuberculosis as it shows itself in other organs, it is quite possible that many would regard the bacillus of lupus as a different species from the *B. tuberculosis*. It would not be difficult to point out differences between the two forms in the rate of growth, in pathogenic properties and so on quite as distinct—or indistinct—as the differences that have been drawn between the streptococcus pyogenes and the streptococcus erysipelatis. When, however, we find that the chain coccus obtained from a case of purulent peritonitis will induce a typical erysipelas in the rabbit's ear, and that cultures obtained from an erysipelalous patient will, when inoculated into a series of rabbits, cause in some true cutaneous erysipelas, in others erysipelas associated with cellulitis, in others the formation of abscesses and pyæmia, with foci of suppuration in various organs, it is difficult to arrive at the conclusion that there is any line of distinction sufficiently sharp to render it proper to exalt the streptococci

* I would have said universally if it were not that of late cases of erysipelas had been described in which the cluster or staphylococci alone have been found. The difficulty of accepting such cases as authentic is two-fold: (1) It is easy to fail in obtaining cultures of streptococci from perfectly typical cases of the disease—thus the absence of chain growths in the culture media does not necessarily imply their absence within the tissues. (2) The ordinary pyococci may be looked upon as normal, or at least not unusual inhabitants of the surface of the skin—thus the presence of growths of these in material gained from a cutaneous lesion does not necessarily imply that they are the cause of the lesion.

of erysipelas and suppuration into distinct species. Add to this, that no single satisfactory characteristic has yet been established distinguishing the cultures of the cocci of one "provenance" from those of the other. All the morphological and cultural character of a series of growths from cases of erysipelas can be seen reproduced in a series of growths from cases of suppuration.

Let me pass now to the clinical side of the case and see whether this view is upheld. It is true that one meets with very numerous examples of perfectly typical cutaneous erysipelas; we may have cases of oft recurrent facial disease which never affect more than the skin. Nevertheless, small as has been my clinical experience as compared with that of most here present, I have for long been impressed by the series of transitional forms to be met with between the typical cutaneous disease and spreading phlegmonous suppuration—and I fancy looking backwards you must be impressed by the same fact. There are the cases that are not simply cutaneous, but are, or rapidly become, cellulocutaneous; other cases in which the erysipelatous disturbance of the skin is associated with very evident advancing deep lymphangitis; others in which, with cutaneous disturbance, there is suppuration of the nearer lymphatic glands; others of most acute phlegmonous disturbance; others of erysipelas followed rapidly by pyæmia, and the production of abscesses in the internal organs. You must all have come across at least some of these cases. What is more, in hospital practice it is possible to observe that where once erysipelas manifests itself in a ward, there is in addition to be noticed a series of cases of genuine suppurative disease—endometritis, peritonitis, pyæmia and so on. Such a series showed itself last year at the Royal Victoria Hospital beginning with a case of endometritis and peritonitis and followed by erysipelas in one of the students who pricked his hand during the performance of the autopsy, and by a localised abscess formation in one of the resident staff. Into the fuller details of this very interesting series I doubt not that Dr. Bell will enter. I will go so far as to say that cutaneous erysipelas alone is comparatively harmless. The danger lies essentially in the possibility of its deeper extension and in the development of metastatic suppurative process.

The streptococcus pyogenes is in fact a microbe, not only capable of, but actually producing a long series of diseases; it is among the two or three most widely distributed and most pathogenic microbes. We find it associated with suppurative disturbances of serous cavities, of cutaneous and mucous surfaces, of the interior of glandular organs, of bones and joints. Not only may it set up primary disease, but

very frequently it is discovered in association with the micro-organisms of other diseases—or in the lesions forming the sequelæ of such. I need not dwell here upon its almost constant relationship to the diphtheria bacillus in the false membranes of the throat; upon its power of inducing the grave throat complications of measles and scarlet fever; upon its frequent presence in the pneumonic disturbances following upon diphtheria and typhoid, or upon its not uncommon association with the peritonitis following upon perforation of the appendix. These are subjects away from this evening's discussion. They are of interest, however, in connection with erysipelas, inasmuch as there is one fact which is capable to some extent of elucidating all of them. I refer to the fact that the streptococcus has frequently been found in what may be termed a saprophytic condition upon the human organism. It has been found in the saliva of healthy individuals, in the intestinal contents, in scrapings from the skin, and more especially in the dirt under the nails. In this way is to be explained the apparently spontaneous origin of some cases of erysipelas and suppurative complications. So long as the mucous and cutaneous surfaces remain healthy and uninterrupted, for so long would the streptococcus appear to be perfectly harmless; lower the vitality of the defensive zone of cells, either by direct injury or erosion or by other disease or by exposure to chemical and thermal influence, and then it would appear that from being a saprophyte the coccus may become parasitic and pathogenic. Granted that the streptococcus happens to be present upon the skin in the immediate neighbourhood of a scratch or wound it is not necessary that the instrument inflicting the wound be infected. Granted also that the streptococcus be present upon the surface, it is possible to explain those cases of erysipelas which appear idiopathic and unassociated with any recognisable erosion or wound of surface. For as Garré proved experimentally in connection with the staphylococcus, boils and furuncles can be induced without erosion of the surface layers, and as Welch has proved pyogenic cocci can pass down into the deeper layers of the skin passing along the hair follicles. Thus I am indulging in no unwarranted speculation when I say that lowered vitality of the exposed skin by thermal or other influences may form a condition favourable for the development of erysipelas in the absence of any wound or injury recognisable by the naked eye.

But granting all this, there is still a big gap in our knowledge of the streptococci and their action that has to be filled in. Why is it that these micro organisms at one time induce cellulitis and genuine suppuration, at another erysipelas? That we cannot fill in

with complete satisfaction to ourselves. We can only see a possible explanation. We know that as distinguished from the staphylococci, the streptococci induce inflammations that are not of a sharply circumscribed type, but, on the contrary, tend to spread in the immediate vicinity along the lymph spaces and tracts; that erysipelas, lymphangitis, cellulitis, and abscesses induced by streptococci all have this character in common; that, therefore, the differences between these processes is one of degree rather than of kind. We know also, as I have already stated, that equal quantities of the same culture inoculated into a series of rabbits will in some induce erysipelas, in others lymphangitis, cellulitis and so on, and that therefore the reaction or extent of resistance on the part of the tissues has an important part to play. We find also that streptococci obtained from a series of cases of erysipelas, or on the other hand, of suppuration, vary remarkably in their pathogenic properties, and that, therefore, the virulence of these microbes is very far from being constant. Bringing all these facts together, we seem to see vaguely an explanation of the matter. But it is only vaguely: there is still much to be accomplished before the problem can be regarded as completely solved.

Lastly, I would say a few words regarding the development of the ordinary cutaneous erysipelas, a process which can be followed both in man and in the rabbits ear. Briefly, it would appear that in the earlier stages the virus developed by the growth in the tissues leads to a congestion of the vessels accompanied by exudation and consequent swelling of the area, and that in the earlier stages this is the main reaction. The chains of cocci develop within the lymph spaces at a greater rate than they are destroyed. Eventually in the region where the cocci are present in the greatest quantities, namely, at the original focus of infection, there is much migration of leucocytes, and destruction of the microbes ensue, accompanied by a considerable amount of phagocytosis. Outside this central area of marked congestion and destruction, in the advancing zone of simple exudative swelling, the streptococci are still to be seen in fair quantities. According to Cobbett and Melsome at the height of the erysipelatous process they can be obtained more than one inch beyond the well defined edge of the congested area. As the process continues in a satisfactory case this outer area of exudation containing streptococci steadily diminishes, and according to these observers there is a more and more rapid response to the injury or stimulus produced by the presence of the coccus and its virus, until eventually the response on the part of the organism follows immediately upon the presence of the cocci, so

that now the reddened line of demarcation corresponds perfectly with the limit of extension of the cocci. Where this is the case the process comes to an end, the exudation and diapedesis suffice to destroy the microbes and resolution sets in. The healing and resolution of erysipelas is thus essentially a process of accustomance or habituation of the tissues of the body to the microbe and its products, a process which, to use a familiar illustration, is like that of accustomance to tobacco, not immediate, but requiring some little period of time, which, unlike this, is not permanent, but lasts only for a few months. Thus it is that within a year an individual may again become susceptible to the disease and recurrence may occur.

Dr. RODDICK discussed the treatment as follows: All treatment should be based on the contagious character of the disease, and probably also on its specific character, because, notwithstanding the remarks of my friend Dr. Adami, I am still inclined to think that there is something specific in the erysipelas coccus. However the latter may change during the course of the disease, I am satisfied it has some distinct character at the outset. That it is contagious, however, there can be no two opinions, and hence is the treatment of the disease the first duty of the surgeon is to isolate the patient. Notwithstanding all the antiseptic precautions taken now-a-days, no one is justified in leaving an erysipelas patient near another patient, or in treating erysipelas patients in the same ward with other patients, even though no wounds are present in either case.

The disease is generally treated constitutionally and locally. The constitutional treatment consists first of all in clearing out the bowels and getting the patient into condition for a siege. It is a good old-fashioned plan to begin your treatment with a purgative. The old-fashioned calomel purge, the strength of the dose varying with the condition of the patient, answers admirably. Then, in spite of all that is being said, I have implicit confidence in the use of iron. I think the tincture of the muriate of iron is almost a specific in the early forms of erysipelas; in the later forms it may not be so efficient. Dr. Adami may probably be able to confirm my statement that it has been found that during an attack of erysipelas the blood undergoes a considerable change; the corpuscles assume a shrunken condition and there is an absence of hæmaglobin. Now, it is contended by many that iron has a decided effect in improving the condition of the blood corpuscles. Bell, of Edinburgh, first originated this theory, and it has since then been borne out by pathologists. Iron, then, in large doses, as much as 25 minims every four or six hours, depending on circumstances and the condition of the patient. The stomach some-

times will not bear the iron, but the addition of a little chloric ether will relieve the stomach. Sometimes you may give the iron in doses of half a drachm. Quinine also, two or three doses daily, is useful; ten grain doses may be given in some cases. Where a stimulating treatment is indicated camphor may be administered. In some cases camphor suits admirably; it relieves delirium, provided it be not pushed to that excessive stage where it might itself cause delirium. Alcoholic stimulants should be given early; it is a mistake to wait too long, and where a case is likely to be extensive I advise in the first stages to administer small doses, to be succeeded in the later stages by larger doses and of the diffusible kind of stimulants, such as champagne. You have here, then, in my opinion, all the constitutional treatment likely to be of service. I have no faith in salicylates; as a rule they are too depressive. In some cases of strong young men it may do good, but it should be closely watched. Neither have I any faith in aconite or digitalis, which we were wont to administer. The patient should also have milk and strong nutritious broths from the early stage of the disease; eggs and oysters are also to be recommended.

Of the local treatment, I think myself that notwithstanding the bacteriological origin of the disease, we can gain comparatively little by attempting to treat it as we would a septic wound, and cleanse it by antiseptics. The best thing if you want to use a liquid antiseptic is carbolic acid. It has a decidedly penetrating effect on the skin; in fact you know that in many cases we have to watch it for fear of poisoning. I generally use it in limited cases in the proportion of one drachm to one pint with lead and spirit. Lead is also an antiseptic, so also is spirit, which opens up the pores of the skin. Where an ointment may be employed, the recently recommended preparation of ichthyol has given me admirable results. A solution also of from 2 to 4 per cent. used to wash the skin is useful. I employ it first as a lotion and afterwards as an ointment, the strength of the latter being from 40 to 60 per cent. with lanolin. Its great objection is its offensive odour—a patient in the Royal Victoria Hospital was made quite sick from the offensive odour—but thiol, recently introduced, is said to have all the properties of ichthyol without its offensiveness. Thiol, therefore, might be used. I have no personal experience of it. These ointments should be rubbed well into the skin, and some surgeons advise that fine punctures should be made so that the ointment may actually enter the infected lymphatics. Hypodermic injection of carbolic acid we tried some years ago in the General Hospital, but we were not impressed with the results—we thought

the disease extended more rapidly. It is possible that we may not have gone far enough beyond the zone of the disease—beyond the line of the lymphatics invaded by the streptococcus. The application of carbolic acid in the form of ointment has many strong advocates. Where the disease tends to extend to the cellular tissue, the old-fashioned practice of making incisions should be used ; and here you always use antiseptics as in the case of any wound. Where a wound is present of course it should be thoroughly cleaned out and made aseptic as far as possible. The hygienic surroundings should undoubtedly be attended to ; the patient should be changed not only from the region where he may cause mischief to others, but for his own sake should be again changed, as relapse is very apt to take place if he is left too long in the one place. He appears to inoculate himself. Especially during the stage of desquamation everything must be kept disinfected. I have not exhausted the subject of treatment by any means, nor do I intend to speak of the treatment of any of the varieties of erysipelas, because I think this will be better dealt with by those who are down to speak of the special forms.

As to the remarkable power of erysipelas in curing other forms of disease, there can be no doubt. We all remember about the ulcers which had been in the hospital for months and months, and how, if they happened to contract erysipelas (and did not die), the ulcer was cured. So also old granular lids were cured by erysipelas. In new growths also it has been found useful, and the injection of the specific coccus in such cases is now a recognized therapeutic measure.

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CANADIAN MEDICAL ASSOCIATION.

The 38th annual meeting of the Canadian Medical Association will be held in Kingston, Ont., on the 28th, 29th and 30th August next.

From what we have learned of the programme from Dr. Starr, the general secretary, it seems to be certain that the meeting will be an unusually profitable one, so far as professional work is concerned.

Dr. Bayard, the president, who will be 81 years of age on the 21st August, will be sure to give something good.

Dr. Edward Farrell, of Halifax, will give the address in Medicine and Dr. I. H. Cameron, of Toronto, the address in Surgery.

The following papers have been promised :

A tumour of the Medulla oblongata—Dr. Graham, of Toronto.

What is the best treatment for retroversion of the uterus?—A. Laphorn Smith, Montreal.

Report of a case of acromegaly—F. Buller, Montreal.

Septic meningitis and infective sinus thrombosis from middle ear disease—Geo. E. Armstrong, Montreal.

Notes on typhoid fever in private practice—W. S. Muir, Truro, N.S.

Objective noises in the head—G. Sterling Ryerson, Toronto

Some practical notes on mental depression—J. V. Anglin, Montreal.

The operative treatment of injuries to the head—A. J. McCosh, New York.

Final results of gastro-enterostomy—Robert C. Kirkpatrick, Montreal.

Report of a case of dysmenorrhœa—J. C. Campbell, Seaforth.

Papers have also been promised by Drs. T. Wesley Mills, R. F. Rutan and T. G. Roddick, of Montreal; E. E. King, B. E. McKenzie and A. McPhedran, of Toronto; A. Bertram, Seaforth; Sir James Grant, Ottawa, and others.

A new and interesting feature of this meeting will be a skin clinic held by Drs. Graham, of Toronto, and Shepherd, of Montreal. Dr. Bulkley, of New York, is also expected to be present.

Let us have a grand rally this year and make the coming meeting the largest assemblage of medical men ever held in Canada. It is a duty that every physician owes to himself as well as a pleasure to identify himself with gatherings of this kind. The best interests of the profession are served and advanced by the meeting together of medical men from the different provinces.

No man can attend a meeting such as will be held in Kingston, even if only as a listener to the papers and discussions, without being repaid an hundred-fold. It broadens the view, enlarges the sympathy and clears away the cobwebs and diverts from well-worn ruts. Young men should begin at once to attend these meetings. The little that may appear to be lost by a few days' absence is well repaid, it is capital well invested.

The Canadian Medical Association offers almost the only opportunity afforded for the meeting together of doctors from the different parts of our broad Dominion in social intercourse and thus cementing the ties that do, and should even more than at present, bind us together as members of one profession and citizens of one country.

The Committee on Interprovincial Registration will present their report and it is hoped that something tangible will be agreed upon. It is felt more and more every year that our present arrangements are not as satisfactory as they perhaps might be.

We are in a position to state that the profession in that beautiful and attractive city of Kingston have arranged to make the meeting of the Canadian Medical Association this year pleasurable as well as profitable.

The general meetings will be held in the Convocation Hall of Queen's University and the section meetings in the class rooms.

Facilities will be provided for those who wish to visit the military school and the penitentiary.

On the second afternoon of the meeting the palace steamer "America" will take the members through the Thousand Islands, a trip of unsurpassed beauty. Supper will be served on board and in the evening an exhibition will be given with a search-light of one million candle power.

Comfortable hotel accommodation may be had at the British American Hotel and the Hotel Frontenac. Those so inclined will find in the neighbourhood good ground for using their rods or guns.

ONTARIO MEDICAL ASSOCIATION.

A most successful meeting of this association was held June 5th and 6th under the presidency of Dr. Bruce Smith, of Hamilton. There were a great number of papers read and an excellent programme was gone through. Among the papers read by the invited guests we notice: Operative Treatment of certain forms of Bronchocele, by F. J. Shepherd, of Montreal; Laryngeal and Tracheal Tuberculosis, by F. W. Chappell, of New York. A very practical paper on Delayed Union in Fractures was read by Dr. George A. Peters, of Toronto, and was discussed by I. H. Cameron, A. McKinnon and L. M. Grassett, of Toronto.

There was a very interesting discussion on diphtheria opened by W. J. Wilson, followed by G. M. Aylesworth, J. P. Fotheringham and others. An interesting feature in the meeting was the presence of half a dozen lady doctors, some of whom took part in this discussion and spoke well and to the point.

The number of papers was great and their value considerable. Dr. J. F. W. Ross, of Toronto, read a most conservative paper on "Modern Experimental Surgery in Man and Woman," in which he denounced the many useless and unnecessary operations which at present were so much in vogue. It was a protest against the over-operating tendency of the day.

A most instructive demonstration of the use of the projection microscope in the teaching of anatomy was given by Professor A. Primrose, of Toronto University. He fully proved the great advantages of this method of teaching. Good papers were read by T. K. Holmes, of Chatham, on Appendicitis; G. A. Bingham, Toronto, on Movable Bodies in the Knee-joint; Tumours of the Bladder, by Dr. Grassett, of Toronto; the Primary Repair of Genital Lesions in Child-birth, by K. N. Fenwick, of Kingston; the Present Position of the Antitoxin Treatment in Diphtheria, by Dr. Sheard, of Toronto; a case of Infantile Scurvy, by Dr. H. T. Machell, of Toronto; Operative Procedure for Spina-bifida, by Dr. H. Howitt, of Guelph; Seminal Vesiculitis, by Dr. King, of Toronto; a case of Mental Aberration following Removal of an Ovarian Cyst, by Dr. W. J. Gibson, of Belleville.

The discussions on the various papers were well maintained and the meeting was altogether a great success.

The members were entertained at luncheon in the Royal Canadian Yacht Club and afterwards a trip was made on the steam yacht "Cleopatra."

The meeting was a most enjoyable one and much credit is due to

the committee for the way in which it was carried through. The next meeting will be in Windsor, Ont.

SIR WILLIAM HINGSTON.

It affords us very great pleasure to note that among the recipients this year of the usual birthday honours is our esteemed *confrère* Dr. W. H. Hingston. As Surgeon-in-Chief of the Notre Dame Hospital, and as Professor of Clinical Surgery in the University of Laval, Sir William has been for many years a prominent figure in professional circles. He has likewise done good service to the state, having filled for two years the important office of Chief Magistrate of this city. In medical politics also he has been always foremost. Two years ago he was chosen to deliver the address in surgery before the British Medical Association, an honour, we believe, not hitherto conferred on a Colonial surgeon. Altogether Sir William has been a worker, which fact no doubt was taken into consideration by those whose privilege it is to recommend for honours. We sincerely trust that he may be long spared to grace the decoration of Knight Bachelor.

—The American Public Health Association which held such a successful meeting in Montreal last year, will meet in Denver, Col., on October 1st to 4th. This is the twenty-third annual meeting and is expected to be of great interest. All who can, should avail themselves of this opportunity to visit Colorado and judge for themselves, regarding the climate and the accommodation for invalids.

—The Convention of Bacteriologists, held in New York on June 21st and 22nd, was in every respect a great success. This was, we believe, the first congress devoted to bacteriology alone held in any country, and is of more especial interest to us in that it was the outcome of a suggestion emanating from Montreal. More than fifty bacteriologists attended, hailing from all parts between St. Louis and Montreal. Papers were read by Dr. Shuttleworth and Mr. J. J. Mackenzie, of Toronto, and Professor Adami and Dr. Wyatt Johnston, of Montreal.

—A work which, while not strictly medical, has our entire sympathy, is the summer camp at St. Agathe, established by the Y. M. C. A. of Montreal. The rights of a lake have been leased from the Government, and this for two months is the scene of much healthful outdoor life. This first two weeks are given up to the juniors, that is mem-

bers of the Association between the ages of thirteen and sixteen. The number is limited to thirty, and by close figuring the expense is reduced to ten dollars for the two weeks, including railway fares.

When the juniors leave, the camp is put in order to receive the seniors who may go for any length of time, from one to six weeks.

The rules are few, being only such as are necessary to maintain order and obtain the greatest benefit for all.

Situated as it is among the Laurentian mountains, a week or two spent there must have a most beneficial effect upon the health of our young men, many of whom would otherwise be debarred from such a holiday on account of the expense. Therefore we look upon it as a good hygienic scheme and wish the promoters all success.

THE MODERN TRAINED NURSE.—Sir Dyce Duckworth has always taken a deep interest in nursing and in the Royal British Nurses Association, of which he is vicepresident, and in an address delivered before this body the other day he laid stress upon various important points connected with the profession of nursing, and not the least of these was, the absolute necessity, as he pointed out, of a nurse being subservient to the medical man. The old style of nurse has so entirely disappeared that the patients and practitioners of this generation can hardly realize how much the successful treatment of disease owes to the help of an intelligent, trained woman; and this expression, *trained*, means, as Sir Dyce Duckworth clearly pointed out, not only medical and physical knowledge, but tact and silence. The abbot of Nitrian monastery once gave one of his monks as a rule of life the first verse of the psalm commencing, "I said I will take heed to my ways, that I offend not with my tongue." "When you can keep that rule," he said, "come, and I will give you another." Tradition has it that the worthy monk never arrived at the second. Be this true or not, it shows how the tongue in all ages has been regarded as an unruly member, and all nurses ought to remember to be absolutely silent as regards anything they may see or hear outside their own immediate duties. The Hippocratic oath still remains the canon for every attendant on the sick, either nurse or medical practitioner, and on this point Sir Dyce Duckworth rightly spoke with great earnestness.

—The *Western Medical Reporter* has ceased publication.

—Dr. Morrow has been appointed lecturer in physiology in the same University.

—Dr. Lafleur has been elected a member of the Association of American Physicians.

—Dr. J. Alex. Hutchison has been appointed surgeon to the Montreal General Hospital.

—Dr. C. F. Martin has been appointed assistant physician to the Royal Victoria Hospital.

—Dr. C. W. Wilson has been appointed assistant surgeon to the Montreal General Hospital.

—Dr. Adami has been invited to deliver the Middleton Goldsmith Lecture for 1896, before the New York Pathological Society.

—Dr. Birkett has been appointed Professor of Laryngology in McGill University in succession to Dr. Major who has left Montreal.

Dr. F. W. Campbell, Dean of the Medical Faculty of Bishop's College, has had the degree of LL.D. conferred on him by that University.

—Dr. Wyatt Johnston has been appointed lecturer in medico-legal pathology in McGill University and pathologist to the Montreal General Hospital.

—The place of the late Prof. Billroth on the editorial board of the *Archives F. Klin. Chirurgie* has been filled by the appointment of Prof. Gussenbauer.

—Dr. Boisy, of Havre, is probably the oldest physician in active practice. He has reached the respectable age of 103 years and still goes his daily rounds.

—A new medical journal, *Medicine*, has made its appearance. It is edited by Dr. Harold N. Moyer. Judging from the first number it will prove a valuable publication.

—Dr. F. F. Wesbrook (M.D., Winnipeg), has been appointed Demonstrator of Bacteriology at Cambridge University, and is conducting the graduate course in Bacteriology there.

—We understand that Dr. Playter, of Ottawa, intends starting shortly a home for consumptive patients in the Chelsea Mountains about ten miles from Ottawa, where they will have the advantage of being under the constant supervision of the doctor, and enjoy the invigorating air of that elevated locality.