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CANADA
MEDICAL & SURGICAL JOURNAL

Original Communications.

HÆMORRHAGIC SMALL-POX.

By William Osler, M.D., L.R.C.P., Lond.

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True hæmorrhagic small-pox occurs under two conditions; in one the characteristic symptoms come on early, either with or following close upon the prodromata; there are extensive cutaneous extravasations, with hæmorrhages from the mucous surfaces, and death ensues with a terrible certainty in from two to six days. This is the *purpura variolosa* of authors, the petechial, malignant, or black small-pox. In the other, the case progresses as one of variola vera, and it is not until the vesicular or pustular stage that hæmorrhage takes place into the pocks, and in some cases from the mucous membranes. This, which is almost as invariably fatal as the former, has been called by some writers, *variola hæmorrhagica pustulosa*, indicating that the hæmorrhages occur at a later period of the disease.

The epidemic which has raged in this city for the past five years has been remarkable for the prevalence of this variety of the disease; and the present paper is based on 27 cases, 14 of which came under my own observation, chiefly at the General Hospital, while the remaining 13 were under the care of my predecessor, Dr. Simpson, to whose kindness I am indebted for

permission to utilize them. The clinical history of the disease is well exemplified in the reports of the following cases.

I.—A. T., aged 6½, unvaccinated. Admitted at 2 p.m., July 14th. Had been ill since the afternoon of Monday, the 10th, with fever, severe pains in the back and head, and vomiting.

Patient seen at 8.40 p.m. Pulse 144, tolerably firm; temperature 105°; respirations 26, the rhythm broken by an occasional deep inspiration, or a series of shorter ones. Pupils dilated. Slight delirium. Tongue thickly coated, white, edges red. General cutaneous surface of a dusky red colour, especially marked in the face, and by careful inspection an exceedingly fine papular eruption was discovered, most evident on the face, less so in other parts. Scattered over the whole skin were numerous ecchymoses, from 1 to 3 lines in diameter, and of a dark red colour. They were most abundant about the neck, in the submaxillary regions, scattered on the extremities. A thickly-set group existed over the left biceps. Ordered quinine gr. x, at 9.30. Very restless all night, raving and shouting; temperature at 3 a.m., 104.1°, and at this time he had a second ten grains of quinine, shortly after the administration of which he vomited a little blood.

15*th*.—9.15 a.m. Pulse 140, not so full; temperature 104°; respirations 18, and still irregular. Is sensible, but will not take nourishment. Ordered a cold pack. At 12 a.m., temperature 103°. 5.30 p.m. Pulse 144; temperature 104.2°; respirations 32. On the back are many elevated wheals, and on the summit of these small groups of vesicles exist. The fine punctiform extravasations are almost universal on the skin of the trunk. Lips dry and cracked. Tongue darkly coated. Does not complain of his throat. Ordered a cold pack at 6 p.m., and quinine gr. x, at 9 p.m. To have morphia if sleepless.

16*th*.—Has been very restless all night, in spite of two draughts of morphia (¼ gr. each). Pulse 140, weak but regular; temperature 103.2°; respirations 18, more regular. Great restlessness and jactitation. The scattered papules are uniformly hæmorrhagic, and the wheals on the back and side,

which yesterday were only hyperæmic, are now purpuric. At least one half of the cutaneous surface is the seat of extravasation and the free portions are of a dusky-red colour. Purpuric spots numerous about the face, and a few exist beneath the conjunctiva. The urine passed through the night is clear, though scanty. Has passed a considerable amount of blood per rectum, and also a small quantity of bloody urine. Surface of body darker, extravasations appear deeper and more abundant; on exposing the trunk, nothing is noticeable on the skin but the deep plum colour. Restlessness extreme, and slight delirium.

According to the nurse he became easier after 3 p.m., passed more blood from the bowels and bladder, and died at 5.30 p.m., having been in hospital a little over two days. Duration of illness about six days.

The above may be taken as a fair example of the disease in question, but it may occur in a more aggravated form, killing in from three to four days, and before the eruption has become at all evident.

One of the worst cases which came under my notice was of this description, and, as I saw it very frequently from the beginning to the close, I will give a short account of it.

II. On the evening of Thursday, Oct. 24th, 1874, I was sent for to see A. N., aged 22, a stout, well-built, young Englishman. I found him in a high fever, complaining of intense pain in the lumbar and præcordial regions, and incessant vomiting. He stated that he had been to the theatre the previous night feeling in his usual health, but that on awaking this morning he felt unwell, had a headache and nausea, and was unable to attend to his business. He believed it to be biliousness, to attacks of which he was, at times, subject. On the left arm were two scars of an old vaccination.

25*th*, 9 a.m. — Found him in the same condition, having passed a very bad night. The vomiting and pains continue. Temperature 101°; pulse 116, full and strong; face flushed, skin of chest erythematous. The præcordial pain was specially

grievous, and I gave him an injection of ½ a gr. of morphia in this region.

12 a.m. — Is a little easier, but the retching continues.

4. 15, p m.—Skin of the trunk very hyperæmic, and a few isolated ecchymoses were noticed along the lower margins of the chest.

9. p.m.—Scattered spots of purpura exist also in the groins. Condition much the same, retching not quite so frequent. Pulse 112; temperature 102.4°.

26*th.*—Passed a restless, uneasy, night. Skin of trunk much congested, that of extremities less so. Ecchymoses have extended, and are more numerous. In consultation with Dr. Howard in the afternoon, my suspicions were confirmed, and the diagnosis of small-pox made. On careful inspection a few small papules were discovered upon the wrists and forehead, near the roots of the hair. Still complains of the dull, aching pain in the back, and the vomiting continues every 15 or 20 minutes. In the evening he was removed to the small-pox wards of the General Hospital, and placed under the care of Dr. Simpson. Shortly after arriving there he vomited a little blood. 9. p.m.—The skin of the trunk is now almost universally purpuric, and the extravasations are extending on the extremities. Pulse 124, soft and compressible; respirations 26, interrupted, every fifth or sixth inspiration deeper than the others. Complains a little of his throat; soreness due probably to the constant retching. Still complains of the dorsal pains. A hypodermic injection of morphia was given in the lumbar region.

27*th.*—Passed a restless night. Hæmaturia and melæna towards morning. Hæmatemesis at intervals. Considerable oozing took place from the puncture of the hypodermic needle. General symptoms a little improved. The lumbar pains much relieved. Cutaneous hæmorrhages are extending on the extremities. Pulse 140, and small; respirations 34; temperature 100.2°. Hæmorrhages from the bowels, stomach, and urinary passages continued through the day, and the symptoms became aggravated. 6 p m.—Pulse 140, and

almost imperceptible; respirations between 40 and 50, and interrupted. The mind, which up to this time had remained clear, now began to wander. The greater part of the skin of the body is ecchymotic. The face is somewhat swollen, dark purplish red in colour, and on pressing with the finger it is seen that colouration is due chiefly to the extravasations, which have also occurred round the orbits. The conjunctivæ are swollen and black, hæmorrhage having taken place beneath them; the corneæ appear sunk in dark red pits, giving to the patient a frightful appearance. The whole trunk is of a deep plum colour, hardly a trace of clear cuticle remains. The purpuric spots are thickly set, and between them are fine punctiform extravasations. On the extremities the petechial eruption is more scattered; still, even here, more than two-thirds of the cutaneous surface is the seat of hæmorrhage, and the whole skin is hyperæmic. The most careful inspection fails to detect any papules, even about the wrists or forehead, where on Friday evening they were appearing.

Just after midnight the respirations became more prolonged, pulse quite imperceptible, extremities cold, and death took place at 12.45 a.m., on Monday morning. The whole illness lasted hardly four days.

With the exception of two, all the cases of hæmorrhagic small-pox which I have observed were of the above type—the patients died before the characteristic eruption developed, or the cutaneous ecchymoses completely cloaked it. In two instances the extravasations did not come on in the initial stage, but during the development of the pocks.—*V. hæmorrhagica pustulosa.*

The following is a brief history of one of these cases:

III. A. McR., aged 19, a well-built Scotch girl, unvaccinated. Admitted January 31st, 1875, from the general wards, where she had been under treatment during two weeks for some ill-defined affection. Only six weeks previous to this she had been discharged from the Hospital convalescent from typhoid fever. In the general wards she had suffered with the usual initial symptoms of the disease. On admission, temperature 103.3°;

pulse 116; respirations 22. A deep erythematous rash exists over the whole body, most intense on the abdomen and thorax, unaccompanied by ecchymoses. A papular eruption is present on the face, thorax, and arms, and is just appearing on the legs. Patient dull, heavy, and does not respond to questions.

Feb. 1*st.*—9 a.m.—Temperature 102°; pulse 110; respirations 26. Has passed a restless night; delirious at times, vomiting continues at intervals. Erythema persists. 6. p.m. Pulse 112; respirations 32; temperature 103.4°. Towards the afternoon the nurse states that a small amount of blood was vomited, and she also passed a little from the bladder and bowels. The eruption has extended, many of the papules have now vesicular tops. The erythema is not nearly so bright.

2*nd.*, 9 a.m.—Temperature 102.3°; pulse 100; respirations 26. The hæmatemesis has continued at intervals through the night. Slight hæmaturia. The bright erythematous rash has gone, the skin is now of a dusky livid hue. 6. p.m. Temperature 103.4°; pulse 60, and intermittent every fourth beat, but is tolerably full; respirations 28. Cutaneous extravasations noticed for the first time, chiefly about the vesicles on the upper part of the chest, and on the legs. In many the hæmorrhage has occurred into the vesicles. The hæmorrhages from the mucous membranes have continued at intervals.

3*rd*, 8.30 a.m.—Temperature, 101°; pulse, 112; respirations, 24. Most of the vesicles on the legs are now hæmorrhagic, and the ecchymoses have extended in the abdominal region. The vomiting is still a very troublesome symptom. 5.30 p.m.—Pulse, 120, not irregular; temperature, 102°; respirations, 24. On the face and arms the pocks are developing slowly, and only a few in these parts are hæmorrhagic; melæna, hæmaturia and metrorrhagia (slight). Takes nourishment well.

4*th*, 9. a.m.—Pulse, 120; temperature, 101.2°; respirations, 28; says she feels better; vomiting has stopped. Blood in the urine passed through the night. Pocks are not developing, look dark, and the majority of them are hæmorrhagic.

6. p.m.—Pulse, 124; temperature, 102°; respirations, 36. The peculiar variolous odour very evident this evening.

5th, 8.30 a.m.—Pulse 116; temperature, 100°; respirations, 18. Slept well, and says she feels much better. Melæna and hæmaturia through the night. Pocks much flattened at the top, and of a dark colour; skin between them livid, and covered with minute extravasations. 6 p.m. Pulse, 112, very weak and intermits every tenth beat; temperature, 101°. Is very dull and heavy, and does not care to take nourishment. Not much change noticed in the eruption, the majority of the pocks look like elevated hæmorrhagic papules, no umbilication in any of them. Through the evening she lost a good deal of blood from the vagina, got much worse towards morning, and died at 7 a.m., on the 9th day of the disease.

The details of the above cases furnish a tolerably accurate picture of the clinical features of this truly terrible disease, and I shall now proceed to make some general remarks upon its symptoms, diagnosis, etiology and pathology.

Symptoms—Satisfactory evidence is wanting as to the period of incubation in hæmorrhagic small-pox. Most writers state that it is the same as in the ordinary form, *i. e.*, 12 to 14 days. Zulzer,* however, states that it is shorter, having determined it in 9 cases to be from 6 to 8 days. In the majority of instances it is unaccompanied by any symptoms—perhaps slight languor and malaise—the disease breaking out suddenly in all its violence. So it was in the case above reported of the young Englishman. The day before the attack he had walked round the mountain, (5 miles).

The symptoms of the initial stage are those of the pustular form; indeed, the disease may be regarded as an intensified and prolonged initial stage, combined with a remarkable tendency to cutaneous and mucous hæmorrhages.

The fever, pain in the back, and vomiting—that triple combination, which we look upon as almost pathognomonic of small-pox—are the prominent symptoms throughout, even after the characteristic extravasations appear.

* Berliner klinische Wochenschrift, 1872.

The fever is usually moderate, varying from 101° to 103°; only once did I observe a temperature of 105°. It is frequently ushered in with a rigor, or series of chills. The pain in the back is perhaps the most distressing symptom to the patient, and persists longer, and is more constant, in this than in the pustular form of the disease, continuing in some instances to within 12 hours of death. All of my patients complained of it, and when asked to localize it placed the hand over the sacrum. Præcordial pain was also common, in one or two cases much more severe than the dorsal. Headache is rarely absent during the first days of the fever.

Vomiting constitutes a very troublesome symptom, and, in my experience, proves exceedingly obstinate, much more so than in ordinary small-pox. It was very unusual for patients with the latter disease to vomit after the appearance of the eruption, while, in cases of the hæmorrhagic form, it continued for 3, 4, and 5 days. Dry retching was frequently combined with it, and seemed particularly distressing.

Early on the second day, or even in the most severe cases on the evening of the first, a bright scarlatiniform redness spreads over the skin of the trunk, sometimes extending to the extremities, but not often involving the face. In some instances this is not universal, but confined to the lower abdominal or lateral thoracic regions. It is difficult, or even impossible, to distinguish this general or localized erythema preceding hæmorrhagic small-pox from the similar condition which, as an initial rash, so frequently ushers in the ordinary or modified forms of the disease. For a time simply hyperæmic and disappearing on pressure, the character of the rash quickly alters by the occurrence of numerous extravasations, which begin commonly in the groins and lateral thoracic areas. At first punctiform or macular, and concealed by the general redness, they soon increase in size, and on the trunk form irregular patches, ranging in size from a six-pence to a penny, while on the extremities and face they remain discrete. In 36 hours the ecchymoses may have developed to such an extent as to involve fully two-thirds of the cutaneous surface. The skin of the trunk is now of a rich plum

colour, and by pressure very slight difference is made in the intensity. Hæmorrhage into the tissue of the eyelids and beneath the conjunctivæ is common, and adds greatly to the disfigurement of the face, already puffed and swollen. The extravasations deepen until the end, forming throughout the most distinguishing feature, and the one which has so justly given the name of black small-pox to this variety of the disease.

True papules of variola may nearly always be discovered, if carefully looked for upon the forehead and wrists at the end of the second or upon the third day. They were present in all the cases which came under my own observation. In the most malignant form—*purpura variolosa*—the rapidly extending ecchymoses soon hide them, and it may be difficult or impossible even to feel them; indeed, in several instances, I could not, *post mortem*, convince myself of their presence. In the other variety, *v. hæmorrhagica pustulosa*, the eruption comes out as usual, the extravasations occurring either in the vesicular or pustular stage.

Hæmorrhage from the *mucous membranes* takes place in the majority of cases, and constitutes one of the most prominent symptoms.

Epistaxis is common, especially in the early stage of the disease.

Hæmatemesis occurs in more than half of the cases. In my experience it is not copious, but the blood is mixed with the thick mucus brought up in the constant attacks of vomiting.

Melæna was noticed in about one-third of the cases; the blood in three was tolerably fresh and bright; as a rule, however, it was dark, and mixed with the mucous discharges.

Hæmorrhage from the *urinary passages* occurred in a large proportion of the cases, and was often profuse, the blood coagulating in the chamber-pot.

Metrorrhagia is stated to be exceedingly common in women. It was only noticed in one out of six females.

Hæmoptysis occurred in five cases, in one it was profuse and arterial. The sputa hawked up are frequently streaked with blood from the bronchial tubes and fauces.

These hæmorrhages from the mucous membranes do not

always occur. In five of my own cases (Nos. 16, 18, 20, 22, 23,) they were absent, and yet these were among the most severe and rapidly fatal cases of the disease, death ensuing on the 5th, 5th, 6th, 7th and 4th days respectively. In two, (Nos. 22, 23) *post mortem* examination revealed extensive hæmorrhages into the mucous membrane of the stomach, intestines, and urinary tract.

The *pulse* in the first days of the disease ranges from 110 to 120 beats in the minute, and is full and compressible. Gradually the arterial tension is increased, the pulse becomes more rapid, 120 to 140, small, hard, and irregular, and at last uncountable or imperceptible.

The *respirations* are unusually increased in frequence in the early stage, without any discoverable disorder in the lungs, and are out of proportion to the intensity of the fever. In the case of a negro whose respirations the morning after admission were 32, and the temperature 101°, after examining the lungs and finding nothing to account for the acceleration, my suspicions were aroused, and on careful inspection I was able, even on the dark skin, to detect the hæmorrhagic condition in and about the papules. This symptom alone directed my attention to his dangerous condition, which might otherwise have escaped observation, as there were no hæmorrhages from the mucous membranes. An interesting, and by no means unfrequent phenomenon, was the disturbance in the respiratory rhythm, first drawn attention to by Drs. Cheyne and Stokes, consisting in a series of superficial respirations, sometimes almost imperceptible, followed by a deep inspiration. This was noticed chiefly during the last 24 or 36 hours of life.

A short hacking cough was not an uncommon symptom. Many of the patients complained of sore throat, which, in some instances, appeared to be due to the constant gagging and vomiting, in others to a foul, horribly fœtid, diphtheritic pharyngitis.

Consciousness is commonly retained until near the end. In only six cases was delirium a prominent symptom. A hyperæsthetic condition of the skin, mentioned by Zulzer* as common, was not noticed in any of the cases.

Loc. Cit.

In the true petechial form the patients seldom outlive the sixth or seventh day; where the hæmorrhages do not come on until the vesicular stage, they of course last longer. The cases upon which this paper is based died on the following days:

1 on the 3rd day; 2 on the 4th day; 5 on the 5th day; 6 on the 6th day; 5 on the 7th day; 4 on the 8th day; 4 on the 9th day.

The disease, in both its forms, is spoken of as invariably fatal, and such has been our experience in the small-pox department of the General Hospital.

Diagnosis.—In an epidemic of small-pox characterized by the presence of hæmorrhagic varieties, there is rarely any doubt of the nature of a case of fever presenting extensive cutaneous extravasations, and, perhaps, mucous hæmorrhages. Given, however, an individual case, when no epidemic was raging, and the matter would not be so easy.

We must be careful, in the first place, to remember that the initial rashes, which so often precede the milder forms of the disease, may be general and purpuric, closely resembling, or identical in appearance with, those accompanying the true petechial variety. It might be impossible to decide definitely for 24 hours on the nature of a case of this kind. In the latter the erythema would probably be more intense, the ecchymoses more extensive, and the general symptoms more aggravated. In many instances the progress of the case would alone determine its nature.

The bright, rosy-red, rash appearing on the second day might be mistaken for the eruption of scarlet fever, unless the mode of onset of the disease had been carefully watched. The diagnosis between hæmorrhagic scarlatina—fortunately a rare disease—and petechial small-pox offers still greater difficulties. Close inspection might discover in the latter papules about the forehead or wrists, and, I think, the characteristic odour of small-pox, which is well developed in this variety, would aid in arriving at a conclusion.

Cerebro-spinal meningitis is another disease which, in some of its forms, is apt to be confounded with purpuric variola. The pains in the head and back in the latter simulate those of

meningitis, in which disease also cutaneous ecchymoses not unfrequently occur. Indeed, I have the permission of the physician in charge to state that in case 25 on the list the error in diagnosis was made. I remarked to him at the *post mortem* examination upon the similarity of the pathological changes to those in hæmorrhagic variola. The mother, who had nursed the child, a short time subsequently took small-pox, and died.

With true *Purpura hæmorrhagica* —the *Morbus maculosus Werlhoffii*,—this variety of small-pox has many points in common. In both there are cutaneous and mucous hæmorrhages, but in the former the extravasations begin on the lower extremities, the skin is not so hyperæmic, the fever not so high, and there may be œdema about the joints, diarrhœa, and ascites.

Etiology.—From the table subjoined some interesting facts with reference to the general etiology of the disease may be drawn.

It is most common between the ages of 15 and 30. Thus of the cases there were—

Under 10 years, 3 ; between 15 and 20, 4 ; between 20 and 25, 9 ; btween 25 and 35, 6 ; between 35 and 45, 3 ; above 50, 1.

Young, vigorous, muscular persons form the majority of the victims, and this remarkable fact was noticed also in the late epidemic in Germany. (Zulzer, Ponfick). Several of my patients were above the average muscular development, most of them belonging to the artizan class. The predisposing causes mentioned by Aikman,* viz., sudden change of residence, debilitating nervous influences, unhealthy dwellings, were not speciallyobserved.

Men appear to be more frequently attacked than women.

With regard to vaccination the table shows that 14 were unvaccinated, while 13 showed marks of a by-gone vaccination. In none was there a history of re-vaccination. That is, the whole of these cases were unprotected, for I hold that we have no right whatever to say that a man is *vaccinated* because he has cicatrices on his arm. The proof that these 13 were not vaccinated lies in the fact that they died of the worst form of small-pox. No properly *vaccinated* person, one in whose tissues the impress of vaccina persists, can, I maintain, take small-pox.

Similarly Zulzer's† cases, 35 in number, all showed scars,

* *Glasgow Medical Journal*, 1871, p. 60. † Loc. Cit.

but none of them had been re-vaccinated. Other observers state that persons without cicatrices of a former vaccination form the majority, or even all of the number attacked.

The proportion of hæmorrhagic cases has been unusually large in this epidemic, not only here but in other parts of the world; indeed, it has been the most virulent type of small-post known since the beginning of the century.

In the small-pox department of the Montreal General Hospital there were admitted from Dec. 14th 1873, to July 21st 1875, one year and seven months, 260 cases. Of these 24 died of the variety under consideration, or 9.23 per cent.

Case.	Age.	Sex.	Unvac.	Vac.	Day of Death.	REMARKS.†
1	27	F.	.....	V_1*	8th	Delirium. Hæmatemesis.
2	28	F.	.....	V_2	6th	Epistaxis. Melæna. Hæmoptysis.
3	29	M.	Unv.	....	8th	Delirium. Melæna.
4	53	M.	.....	V.	3rd	No papules evident. Died 34 hours after admission.
5	20	F.	Unv.	....	6th	Epistaxis two days before. Slight convulsions.
6	19	M.	.....	V_2	7th	Hæmaturia.
7	35	M.	.....	V_2	9th	Much Delirium. var. hæm. pust. No mucous hæmorrhages.
8	20	M.	.....	V.	6th	Delirium. Melæna, frequent.
9	19	M.	Unv.	....	7th	Hæmatemesis. Melæna.
10	24	M.	Unv.	....	8th	Epistaxis. Melæna. Hæmatemesis.
11	25	M.	Unv.	....	9th	Var. hæm. pustulosa. Hæmoptysis. Old lung disease.
12	..	F.	.....	V_2	8th	Hæmaturia. Melæna. Hæmoptysis.
13	23	M.	.....	.	7th	Epistaxis. Hæmoptysis.
14	22	M.	.....	V_2	4th	Hæmaturia. Hæmoptysis. Melæna.
15	20	M.	.....	V_2	9th	V. hæm. pustulosa. Hæmaturia. Hæmatemesis.
16	21	M.	.....	V_1	5th	No mucous hæmorrhages.
17	19	F.	Unv.	....	9th	V. hæm. pustulosa. Hæmaturia Hæmatemesis.
18	44	M.	Unv.	....	5th	No mucous hæmorrhages.
19	24	M.	Unv.	....	5th	Hæmaturia. Metrorrhagia.
20	36	M.	.....	V_1	6th	Delirium. No mucous hæmorrhages.
21	6	M.	Unv.	....	4th	Hæmaturia. Hæmatemesis Melæna.
22	35	M.	.....	V.	7th	Delirium. No mucous hæmorrhages.
23	16	M.	Unv.	....	4th	No mucous hæmorrhages.
24	30	M.	Unv.	....	7th	Hæmaturia. Hæmatemesis. Hæmoptysis.
25	4	F.	Unv.	....	6th	Hæmatemesis.
26	36	M.	Unv.	....	6th	Hæmaturia. Melæna
27	6	M.	Unv.	....	5th	Hæmaturia. Hæmatemesis.

* The figures indicate the number of scars.

† Cutaneous extravasations occurred in all.

Pathology—The condition of the internal organs in th disease has received a good deal of attention within the past fe years. The remarks which I shall here make are based upo seven carefully performed autopsies.*

The prominent characteristics in all were the hæmorrhage into the various tissues and organs.

The *blood* during life was carefully examined in six cases, bu no change of importance noticed in the corpuscles. Post morten it was dark in colour and generally fluid.

In the *meninges* of the brain scattered ecchymoses were noticed in five instances. The venous sinuses of the dura mater and the vessels of the pia mater were full. In cases 21 and 2 thin coagula of blood existed on the surface of the pia mater. The *brain* appeared normal, the consistence remarkably good. In case 22 there was a small clot in the right ventricle. The *spinal cord* was examined in one instance, when nothing abnormal was found.

On the *pericardium* maculæ were present, often quite large on the visceral layer along the tract of the coronary vessels. The *heart* substance was firm, dark in colour; in several instances minute ecchymoses were observed on the endocardium, and in the muscular walls.

Both visceral and parietal layers of the *pleura* contained ecchymoses in 6 cases. The *lungs* were crepitant, and contained much blood in the posterior parts. In case 23 there was a patch of catarrhal pneumonia. In five instances apoplectic spots were found, none of them larger than a walnut.

The *spleen* in all was firm, about the natural size, in two a little enlarged. On section the substance was compact, smooth, of a dirty-purplish red colour, and in six of the cases the Malpighian corpuscles were remarkably enlarged, appearing as round white bodies on the dark background of the pulp.

The *kidneys* appeared of normal size. Ecchymoses on the capsule common; in one instance a thin clot existed upon the organ. The consistence of parenchyma was good. In three cases minute hæmorrhages had taken place into the substance. The vessels as a rule were full. The *pelves* of the kidneys in

* For two of these I have to thank Sister Rosalie, apothecary at the R. C. Civic Small-pox Hospital, who kindly informed me when any of these cases occurred.

four instances were plugged with dark clots, which extended up into the calyces, and down the ureters. In all ecchymoses were present on the mucous membrane. In the mucous membrane of the *bladder* small hæmorrhages were met with on five occasions. In case 21 the walls of the whole organ were uniformly infiltrated with blood, not a trace of normal tissue could be seen on section.

The liver in five cases was of normal size, unusually dense and firm, lobules moderately distinct, of natural colour, and contained a good deal of blood. In two cases it was large, pale in colour, very friable, and on examination proved fatty. The general condition in both these cases accounted for the state of the liver, one had suffered from chronic disease of the leg, the other was a drunkard. Ecchymoses upon the capsule were common.

The mucous membrane of the *stomach* in all the cases showed an enormous number of extravasations, some small and capillary, others as large as a bean, and projecting on the surface. Similar appearances were found in the *small intestines*; in two instances the ecchymoses were most abundant in the ileum, in the others the upper region of the bowel was most affected. Peyer's glands were swollen and prominent in four instances. In the *large bowel* the extravasations were only noticed in three cases.

In two instances the *mesenteric glands* were uniformly infiltrated with blood, looking like dark-purple grapes. Extravasations occurred in all the cases in the *retro-peritoneal tissues*, about the aorta, along the iliac arteries, and about the lumbar nerves. In most they were small and confined to the adventitia and parts about the vessels, in one, however, quite a large suggillate was found in the region of the right psoas muscle. Similar appearances were noticed twice about the thoracic aorta.

Such are the chief pathological changes in the internal organs, and they correspond pretty closely to those described by Ponfick* in the Berlin epidemic. In addition to the hæmorrhages, the firm, dense condition of the heart and abdominal glands seems peculiar, and stands in marked contrast to the appearances of these organs in variola vera, in which they are swollen, soft

* Berliner klinische Wochenschrift, 1872.

and friable, and in that state of cloudy swelling common to prolonged fever. So impressed is Ponfick with the pathological and clinical differences between these extremes of small-pox, that he is inclined to group them as distinct diseases. But, just as transitions are met with clinically between the macular hæmorrhagic form and that in which extravasations take place in the vesicular and pustular stages, so also, I think, in a more extended series of post mortems appearances would be found intermediate between the extremes, and where the disease had lasted any time the same pyrexial changes would occur. Indeed, Curschmann* states that he has noticed them in *variola hæmorrhagica pustulosa.*

On the intimate pathology of this disease I can offer no suggestion. We are, as yet, profoundly ignorant of the conditions of its genesis, and do not know whether it depends on the intensity of the poison or the extreme susceptibility of the patient.

Most histologists are agreed that in these purpuric disorders the red corpuscles pass through altered or thinned and not ruptured vessels, but as to the causes of this general *diapedesis*, as the process is called, we have no data upon which to form a judgment.

The *treatment* of the disease is eminently unsatisfactory, the patients almost invariably die. A few instances are recorded of recovery from variola hæmorrhagica pustulosa. All the usual medicines indicated under these circumstances were tried, gallic acid, ergot, turpentine, acetate of lead, &c., without the slightest benefit. Quinine was used in large doses, and in three cases I used the cold pack.

Since the closure of the wards I have met with an article in the *Glasgow Medical Journal* by Mr Aikman, formerly assistant medical officer at the Hampstead Small-pox Hospital, in which he recommends strychnia in large doses, and states that under this treatment many of these cases recovered. He gives as much as a drachm and a half of the liquor strychniæ in the twenty-four hours in severe cases, combined with iron and quassia.

* Ziemssen's Encyclopædia, Vol. II., Art. Small-pox. p. 387.
† Loc. Cit.

THE EARLY USE OF THE CLINICAL THERMOMETER.

By W. F. Shirriff, M.D., L.R.C.S., Eng.,

Huntingdon, Que.

I do not remember the history of the clinical thermometer, but until lately I supposed it was a comparatively recent invention. I have a copy of the fourth edition of Dr. James Currie's Medical Reports, printed in 1805, on the effects of water cold and warm as a remedy in fever, and other diseases. Some time ago I was looking over the 1st volume and was much surprised to find a thermometer described almost identical with those at present in use. Dr. Currie strongly advocates the use of the cold affusion in fevers, but only when the temperature of the body is considerably above the natural heat. On pages 35 and 36, he says: "In taking the heat of the patient, I have generally used a small mercurial thermometer of great sensibility, with movable scales, made for me by Mr. Ramsden, after a form invented by the late Mr. Hunter, and used by him in his experiment on the heat of animals, and I have introduced the bulb under the tongue, with the lips close, or under the axilla, indifferently: having proved by repeated experiments that the heat in these two places corresponds exactly, and gives a just indication of the heat of the surface of the body, where sheltered by the necessary teguments from the contact of the external air. Finding, however, considerable risque in using the straight-tubed thermometer in contagious diseases, I got some instruments of this kind made with a small bulb and curved at the end. The bulb being introduced under the tongue or axilla, the observer can stand behind the patient, and mark the rise of the mercury, without coming into the immediate sphere of his respiration. Though no injury has in any case incurred from the use of the thermometer, yet a further improvement has suggested itself. By introducing a small piece of air into the tube after the manner of Mr. Six, a permanent indication of the greatest heat is obtained, and the approach of the observer towards the patient during the experiment is rendered unnecessary." On page 21 he describes a case, dated 1st January,

1790. I will transcribe it as it is interesting. He says: "a nurse in the fever ward of the Infirmary having several patients under her care, caught the infection. She was seized with violent rigors, chilliness and wandering pains, succeeded by great heat, thirst, and headache. Sixteen hours after the first attack her heat at the axilla was 103° Fahr., her pulse 112 in the minute and strong, her thirst great, her tongue furred, and her skin dry. Five gallons of salt water, of the temperature of 44° were poured over her naked body, at 5 o'clock in the afternoon, and after being hastily dried with a towel she was replaced in bed; when the agitation and sobbing had subsided, her pulse was found to be at the rate of 96 strokes in the minute, and in half an hour afterwards it had fallen to 80. The heat was reduced to 98° by the affusion, and half an hour afterwards it remained stationary. The sense of heat and headache were gone and the thirst nearly gone. Six hours after she was found perfectly free of fever, but a good deal of debility remained.

Small doses of colombo were ordered with a light nourishing diet, and for several days the cold affusion was repeated at the same hour of the day. As at first the fever never returned." As this case is dated 1st January, 1790, the clinical thermometer must have been in use some time before.

Sanctorius who was a teacher of medicine in Padua from 1602 to the time of his death, in 1636, used a thermometer of his own invention to determine the temperature of the body in disease. Subsequently Boerhave and van Swieten followed up the practice, and DeHaen made extensive use of the thermometer, apparently using Fahrenheit's instrument, which was invented about the year 1726. DeHaen was fully impressed with the importance of the clinical use of the thermometer, and not only employed it in his own practice but taught its use to his class; his observations on thermometry are to be found in his works entitled *Ratio Medendi*.

John Hunter made many observations on the temperature of the body, and he recorded local elevation of temperature, in the inflammation which followed surgical operations. Dr. James Currie first published his medical reports in 1797. These went through several editions but they did not appear to be of practical value, and therefore were neglected. Since that time many observations have been carefully recorded by various observers, English and Continental. But thermometry did not assume the important position it holds at the present day until after the declaration of the doctrine of the unity and correlation of forces. This produced a new train of reasoning since it was apparent that the temperature of the body was a convertible force subject to set laws. Bärensprung, Traube, Wunderlich, Aitkin, who gave to us the invention of the self-registering thermometer, and a host of other workers, have all contributed to render the thermometer a most important auxiliary in the treatment of disease.—ED.

Reviews and Notices of Books.

Inhalation in the Treatment of Disease; its Therapeutics and Practice.—A treatise on the inhalation of gases, vapours, fumes, compressed and rarefied air, nebulized fluids, and powders. By J. SOLIS COHEN, M.D., Lecturer on Laryngoscopy and Diseases of the Throat and Chest in Jefferson Medical College; one of the physicians to the German Hospital of Philadelphia, &c. Second edition, revised and enlarged with many new illustrations, 8vo. pp. 392: Philadelphia, Lindsay & Blakiston, 1876.

Enthusiasts in favor of the treatment of pulmonary complaints by means of local applications claim for this topical medication a great superiority over the ordinary methods by the internal administration of medicines. We are not prepared to go with them so far as this, insomuch that if we were compelled to make a choice between inhalation and internal dosage we should certainly retain the latter. Take, for instance, the case of softened tubercle. The most favorable result which we can possibly hope for in these cases consists in the absorption of the fluid parts and the obsolescence of the semi-solid remainder, *i. e.*, its conversion into a calcareous and inert mass, whilst at the same time the process of deposition is arrested, and consequently no new tubercle is formed elsewhere. Now this involves the extinction of what we call the tuberculous crasis, and must, we think, be intimately connected with the general condition of the nutritive functions. If this view be correct local applications can have but little to do with effecting the desired result. In saying this much, we do not for a moment desire to be understood to be decrying the usefulness of inhalation and the breathing of atomized fluids, &c., because we have a high opinion of their utility, but we wish merely to dissent from the views of those who, we think, ride this hobby rather too severely, and perhaps to the exclusion of more beneficial, general, and hygienic measures. The great assistance to be derived from the use of medicated steam and atomized fluids is at present undoubted, and it behoves every

practitioner to have a fair knowledge of the proper means of applying these, and of the various drugs which are suitable for use in different cases. The little work of Dr. Cohen is very well suited to serve this purpose, being very complete in its mention of all the substances which may be beneficially employed in this way, and in illustrating and describing all the appliances which are requisite for the several procedures. Much of the success of these very valuable auxiliaries will depend upon the care with which the thoroughness of their application is attended to by the practitioner himself, and no doubt it is the time and trouble thus involved which prevents their being universally adopted.

Part I. includes the inhalation of airs, gases, vapours and fumes. Here we have short notices of almost all known substances which have been thus employed, together with their therapeutical applications and modes of usage. The sections on condensed and rarefied air are interesting, as some rather extensive experiments on this treatment have recently been made in Paris and elsewhere on the continent. Some of the most recently discovered and most valuable drugs are, we think, treated rather hurriedly, and without the consideration that their importance and their novelty demand. For instance, *Nitrite of Amyl* has but a short notice awarded it and its main indications for employment pointed out. It seems to us that a good deal more detail on this subject would have been very acceptable to the readers.

Part II. On the inhalation of nebulized fluids or sprays is made interesting by numerous experiments and arguments as to the penetration of these fluids into the respiratory passages, together with observations on all articles of the materia medica which are suitable for this mode of administration.

Part III, considers the inhalation of powders, and *Part* IV is a short chapter on medicated atmospheres.

There are a number of illustrations which also will be found very useful in explaining the text.

Cyclopædia of the Practice of Medicine. Edited by Dr. H. von Ziemssen, Professor of Clinical Medicine in Munich, Bavaria. Vol. XI. Diseases of the Peripheral Cerebro-Spinal Nerves. By Prof. Wilhelm Heinrich Erb, of Heidelberg, Baden. Translated by Mr. Henry Power, of London, England. Albert H. Buck, M.D., New York, Editor of American Edition; 8vo. pp. 623. New York: William Wood & Co., 27 Great Jones street, 1876.

Considerable progress has been made, during the last few years, in the pathology of the nervous system. This has very materially extended our acquaintance with the diseases of the peripheral nerves, although the knowledge thus gained may be considered small and unsatisfactory, when compared with advances which have been made in pathological research in other departments. The division of all nervous diseases into functional and organic is usually adopted. From being unable to recognise organic changes which may possibly exist, or have existed during life, we have no alternative but to adopt the signification of disturbed function. Pain is the essential feature of all neuralgia; it is the most commonly observed sensation, and may be produced in all sensory organs. It may have as its factor some anatomical lesion, or it may appear to be destitute of any special and well-marked cause.

Erb holds, in regard to pain in neuralgia, that "a nerve may be at one moment in a state of the most violent excitation, whilst at the very next instant it may be performing its functions in a perfectly normal manner,—and since a perfect intermission of the painful phenomena may thus occur, it cannot have undergone any notable anatomical changes; every such change would be accompanied by considerable interference with the functions of the nerves, that is to say with a high degree of anæsthesia." Anstie states that anatomical changes, where they do exist, are simply accidental, and that they rarely act as factors in the production of neuralgia. The occasional anatomical lesions found in the nerve centres, or in the course of the nerves themselves, unaccompanied by pain of any kind,

must indicate that these changes are not specially essential as factors of neuralgia.

Professor Erb has given us in this, the eleventh volume of this valuable series, a dissertation on diseases of the peripheral cerebro-spinal nerves. The contents of this volume are divided into two parts. In the first, which comprises the greater part of the work, will be found considered functional diseases of the peripheral nerves, or neuroses,—he takes up and discusses neuroses of the sensory nerves—and then he passes on to neuralgia of individual nerves. He then takes up neuralgia of the fifth pair, cervico-occipital neuralgia, neuralgia of the brachial plexus, neuralgia of the dorsal nerves, intercostal neuralgia, and neuralgia of the lumbar, sciatic and coccygeal plexuses, and a chapter on anæsthesia—general cutaneous and particular forms of anæsthesia. The author then passes on to discuss the neuroses affecting the nerves of special sense—neuroses of the nerves of taste and of the olfactory nerves. The motor nerves next demand his attention, and he commences with a general description of spasm and convulsions, taking up the mode of appearance, pathogenesis, etiology, symptomatology, sequelæ, electrical relations, prognosis and treatment. Special forms of spasm next come in order. Clonic and tonic spasm of various muscles or groups of muscles, supplied by nerves. Under this head are treated spasm of the diaphragm, writers' cramp, tetany, contractures. In the next division are considered paralysis. After a general consideration of the subject, the special forms of paralysis are given. This forms the first part of the work, and, as we before observed, takes up the larger part of the book.

In the second part, the author takes up and discusses the anatomical diseases of the peripheral nerves, such as hyperæmia of the nerves, inflammation of the nerves, or neuritis; atrophy of the nerves and hypertrophy, with neoplastic formations in the nerves.

We have endeavored in very limited space to give to our readers a general view of the contents of this volume. The ground gone over is very extensive, and much which is treated of here will not be found elsewhere. The subjects are all ably

handled, accurate in description, and highly practical in bearing. The translation is very clear and readable, and we cannot but express a belief that the Cyclopædia, as a whole, will become an unfailing source of reference to those seeking for information on the subjects treated of in these volumes. Messrs. William Wood & Co. have done their part excellently, and each volume, as it appears, is not only a store-house of information, but an elegantly got up book.

On Coughs, Consumption, and Diet in Disease. By HORACE DOBELL, M.D., F.R.C.S., &c., &c. Edited by D. G. Brinton, M.D.; 8vo., pp. 222. Philadelphia: D. G. Brinton, 115 South Seventh street, 1877.

This little work is a compilation or collection of extracts from published lectures delivered by Dr. Horace Dobell, of London, England, and are so arranged as to form a continuous treatise on the physical diagnosis and treatment of diseases of the chest.

Dr. Dobell is well-known to the profession as an enthusiastic worker, and has devoted much time and attention to pulmonary diseases. This can be fully attested when it is borne in mind that he is at the present time engaged in the publication of annual reports on diseases of the chest. The first report, published in 1875, was fully appreciated; the report for 1876, quite recently published in England, we have not, so far, received. Dr. Dobell has enjoyed unusual advantages, as he was for some sixteen years attending physician to the Royal Hospital for diseases of the chest; after which lengthened service he was elected on the consulting staff to that institution. This gives him a claim to be heard with attention, as his experience has been large. The editor and compiler of this little work divides the subject into three parts. In Part I. he gives the diagnosis of bronchial and pulmonary diseases. There is fully described the systematic examinations of the chest, as followed by Dr. Herbert Davies, Dr. Sibson, and Dr. C. J. B. Williams. We then have a chapter on the diagnosis of early

phthisis, on the value of cavernous sounds, and of the importance of hæmoptysis as a symptom; on winter cough, on the diagnosis of narrowed air passages; post nasal catarrh, ear cough, and of the natural course of a neglected cough.

Part II, consists of the treatment of colds, coughs, and consumption. In this will be found a description of the pathological conditions existing in winter cough, hints as to the avoidance of cold, the early treatment of colds, and the therapeutic resources in catarrh; the management of consumption, and on the use of pancreatic emulsion in phthisis. In the third part will be found directions as to suitable diet in sickness, the diet of consumptives, the use of nutritive enemata, and special receipts for medical food. This little work seems very practical in its bearing, and will be of use to the busy practitioner.

Extracts from British and Foreign Journals.

Unless otherwise stated the translations are made specially for this Journal.

Subcutaneous Injections. — Subcutaneous injection of pure or distilled water as a means of relieving pain. Dr. Lafitte read a paper in the Medical Section of the Nantes Scientific Congress for 1875, on the subcutaneous injection of water. He says he has found it most useful in many cases; he relates a number of cases, and states he has several times relieved the severe pain of acute rheumatism by these injections. He used water subcutaneously as early as 1872, and succeeded in immediately relieving pain in a woman who was suffering most acutely from lumbago. Eight grmm. of distilled water was injected, and the pain did not return. In cases of sciatica, supra-orbital and facial neuralgia, as well as in intercostal neuralgia and rheumatic affections of the joints, he has found water injected subcutaneously quite as useful as morphia. He says that the result is not always favorable, and that the pain frequently returns, but so it does after morphia injections. Dr. Lafitte never found that the hypodermic use of

water caused local abscesses as is the case with the subcutaneous injection of other substances. Water causes at first a burning pain which soon disappears. About 4 grmm. is the usual quantity to inject, The injection, which is done in the usual way, must be done at the painful spot, otherwise it is useless; several ordinary-sized (ʒss) syringes-ful may be injected; after you have emptied one syringe, wait two minutes, if by that time the pain is not relieved inject another syringe-ful, and so on up to six, till the pain stops, waiting two minutes between each injection. Lafitte says he has never found need for more than six syringes-ful, and that two or three generally suffice. 2 grmm. of water was the smallest amount which proved beneficial, and to use more than 10 to 12 grmm. is useless. Bad results from these repeated injections never occur.

Dr. Pillet speaks highly of hypodermic injections of water in lumbago and intercostal neuralgia. Dr. Lelut says that for the last three months he has used the pure water injections, with the best results. He relates how he came to use it. His servant one day upset the bottle containing his morphia solution for subcutaneous injections, and to conceal her clumsiness filled the bottle with ordinary water, Dr. Lelut, not knowing this, injected the water into the thigh of a patient who was suffering severely from sciatica, and whom he was treating by the subcutaneous injection of morphia. The patient was astonished at the instant relief of the pain, and said: "What kind of a liquid is this you are using which causes me no uneasiness or no sickness at the stomach like the former?" Since then Dr. Lelut has used nothing subcutaneously but water.

Dr. Dresch praises the usefulness of this injection especially in muscular rheumatism. He also tells of a case of osteo-sarcoma of the thigh in which he used daily 60 ctgm. of morphia subcutaneously, chloral, cicuta and other remedies, and where hypodermic injections of water succeeded in relieving the pain quite as well as morphia without producing the disagreeable constitutional effects of that drug. Dr. Dresch does not use simple water, but prefers peppermint water.

Dr. Burney Yeo, of London, says he found subcutaneous

injections of water useful in relieving the pain of a patient suffering from thoracic aneurism.

Dr. Gorrequer Griffith has used these injections since 1868. He prefers warm water.

Dr. Richards of Birmingham, also recommends it, he injects six drops of warm water at a time.—(*Schmidt's Jahrbücher*, No. 5, Bd. 170, 1876).

Chronic Enlargement of the Spleen. (Local treatment by Professor MOSLER).—The operation of Splenotomy which has succeeded well in animals, and also has been repeatedly performed in men, proves that the partial extirpation of the spleen, (of which nine successful cases are known) as well as total extirpation of a normal spleen, may succeed if the operation is undertaken in consequence of wound of the spleen from accident; but that the operation for internal disease has been most unfortunate in its results, six cases out of nine being followed by death. The two cases operated on by Koberle and Bryant for leukæmia, died during or immediately after the operation from severe hæmorrhage. Furthermore, the admissibility of the operation is questionable, owing to the difficulty of diagnosis, as the case of Péan proves, this case was diagnosed as cystic disease of the left ovary, and afterwards it was found that a unilocular spleen cyst had been extirpated.

In chronic spleen enlargement, Mosler recommends injection into the substance of the spleen, and so treats his cases. He found that he could inject tincture of iodine through the abdominal walls in the splenic region without an after intense peritonitis. In man he injects a weak solution of carbolic acid, or Fowler's solution of arsenic. In this way he treated a patient 33 years of age who had suffered from intermitting fever for $1\frac{1}{2}$ years, which had run an irregular course and was subsequent to an attack of typhoid fever; he also suffered from œdema of various parts of the body. The spleen was much enlarged. For sixteen days, twice daily, he was given a subcutaneous injection of amorphous hydrochloride of quinine (one part to five of water),

and immediately after the injection a bag of ice was applied over the part for several hours to protect from local inflammation; when this precaution is not taken there are apt to be abscesses and gangrene. Although a diminution in the size of the spleen took place, Prof. Mosler thought a more rapid diminution would take place by injecting into the substance of the spleen itself. This he did and afterwards applied an ice bag over the part for several hours, in order that by contracting the muscles the amount of blood might be reduced. He injected a solution of carbolic acid (2 to 100 of water) and one month later injected the same amount of Fowler's solution of arsenic, of the strength of one to ten of water. After the injection of the carbolic acid the pain was so great that 0.2 grmm. of morphia had to be injected hypodermically, and during the following twelve hours an ice bag applied. After a couple of days there was no pain and no elevation of temperature nor was there a reaction of any kind. A distinct lessening of the size of the tumour was made out immediately after the injections into the substance of the spleen and the general appearance of the patient was much improved. Professor Mosler finds quinine the best remedy for injecting *into* the spleen, as it is most useful in lessening the blood contents.

Czerny used injections of arsenic solution with good effect in enlarged glands. In one patient he injected 740 drops in 74 injections of 10 drops each, and within seven months the patient was completely well.—(*Archiv. f. Klin. Med.*, 1875. Quoted in *Schmidt's Jahrbücher.*)

Supra-orbital Neuralgia. — (Dr. C. Roese, Leipsig, 1876.—Inaug-Dissért).—The most frequent causes of supra-orbital neuralgia are malaria, syphilis, hysteria, cold and injury. Furthermore, it accompanies different forms of eye affections, and in some rare cases is due to tumorous thickening of the bones of the skull, &c. Typical malarial neuralgia occurs in the young and middle-aged, and men are oftener affected than women. Shoemakers on account of their work

are peculiarly susceptible to neuralgia, but not the typical form. Typical supraorbital neuralgia is observed in the course of cold or hysteria. The pain of supraorbital neuralgia generally begins in the morning and lasts for from half an hour to six hours. The quotidian type is exceptional. The right supraorbital nerve is more often affected than the left, and both are very seldom affected together. The proportion of these kinds in sixty-one cases was 35 : 18 : 8. In occasional cases a glaucomatous condition and anæsthesia of the retinæ have been observed; the connection between them has not been made clear.

The best remedies in typical cases of neuralgia are quinine and arsenic.

Iron is also very useful. Among the preparations large doses of ferrum oxydatum s. hydricum, have been well thought of. Hot foot baths are also beneficial, especially when the neuralgia is double. Blistering the forehead or painting it with iodine may also be tried.—*Schmidt's Jahrbücher*, No. 8, 1876.

Is Syphilis Transmissible by Milk?—R. Voss inoculated three prostitutes with milk of a syphilitic woman, suffering from a papular syphilide, and condylomata about the genitals and anus; the breasts were quite free. The milk was obtained by pressure, and injected hypodermically. The first case was syphilitic, the inoculation was naturally without effect. The second had gonorrhœa, and was inoculated with the milk on the 27th of September. There formed a large inflammatory swelling—as in the other patients—which suppurated, and was healed by the 24th of October. On the 3rd of November, 40 days after the inoculation injection, a papular eruption came out about the place of injection, and on the 8th showed itself on the remainder of the body as a maculo-papular syphilide, combined with swelling of the lymphatic glands. Under inunctions of Hg., the symptoms disappeared. The author, in consequence, regards it as proven that the milk of a syphilitic person is just as capable of producing syphilis as the blood.—*Petersb. Med. Wochenschr. in Centralblatt.* No. 44.

Miliary Tuberculosis of the Pharynx.—In a paper read before the Berlin Medical Society, Dr. B. Fränkel described six cases of tuberculosis of the pharynx, which had come under his observation. In every instance there was also miliary tuberculosis of several or all the other important organs of the body.

In answer to the question: Does the tubercular process ever originate in the pharynx? it cannot be denied that tubercle often exists in the lungs or elsewhere before it makes its appearance in the pharynx, though Isambert (*Annales des Maladies de l'oreille et du pharynx*, ii. page 165), mentions cases in which the latter was first affected. In all of Dr. Fränkel's cases the apices of the lungs were already diseased when the patients first came under notice, but the disease of the pharynx was the first to attract their attention and continued to be the chief object of solicitude up to the very last. The ulceration of the pharynx was of an unmistakably tuberculous character, with a tendency to spread superficially, of a cheesy or lardaceous appearance, and seldom presented any evidence of granulations.

The edges of the ulcers were irregular and excavated, and only in some instances surrounded by an inflammatory areola. In the vicinity of the ulcers there were a greater or less number of small grey nodules; when numerous or confluent these gave rise to the so-called lardaceous infiltration, and it seems probable that the ulceration extends by means of their disintegration. Swelling of the lymphatic glands, especially those of the neck, was also a constant symptom.

The most important subjective symptom was always pain in the throat, which was increased by the act of swallowing. The severity of the pain varied greatly in different cases, as did also its character. Some patients also complained of a sharp lancinating pain in the ear caused by the act of swallowing. This, however, is commonly met with in other forms of sore throat, and does not depend, as some suppose, upon ulceration in the neighborhood of the Eustachian tubes. All the patients experienced greater or less difficulty in swallowing, and avoided doing so as much as possible, on account of the pain or uneasiness which it occasioned.

Solid food could not be taken when there was extensive ulceration and fluids often regurgitated through the mouth or nose, and to this difficulty in taking food is to be ascribed, in part at least, the rapid emaciation which characterized the later stages of the disease.

The ulceration would appear to begin as a rule at the sides of the pharynx and could be observed in all stages in the same case, from the deposition of isolated or confluent grey nodules, to the formation of large ulcers which appeared to have undergone caseous degeneration. The uvula, when also involved, was thickened and infiltrated with tuberculous deposits. Sometimes there was a tendency to hypertrophy with polypoid excrescences about the tonsils.

The ulceration never attacked the œsophagus, but sometimes extended to the tongue and lips.

The larynx was generally not affected until the disease had made considerable progress in the pharynx, but eventually it would seem always to have become involved, the first indication of which will be seen in an œdematous condition of the epiglottis, and afterwards ulceration of the same, and also of other parts of the larynx. There was always an increase of the temperature, subject, however to great variations, and giving a curve similar to that of acute miliary tuberculosis.

The diagnosis of this form of disease of the throat requires some care, for although it does not in any way resemble the ordinary throat affections, such as diphtheria, angina follicularis, &c., it might readily be mistaken for the so-called scrofulous ulcers of the pharynx, but in the latter disease it is to be noticed that the ulcers are deeper, more sharply defined, and tend to have a longitudinal rather than a transverse direction; moreover, the yellow spots around them are seen to be genuine abscesses, and not merely grey or cheesy nodules.

It is, however, only in some cases of syphilitic ulceration that any real difficulty in the differential diagnosis can occur, for in either disease there may be swelling of lymphatic glands in various parts of the body, the ulceration may attack the tongue, lips and cheek, and in one of Dr. Fränkel's case, there was also

swelling of one testicle which might have created doubt as to the nature of the constitutional affection.

If the history of the case is not sufficient to establish the syphilitic or non-syphilitic character of the affection, a careful examination of the ulcers will almost certainly suffice to decide the point, for the mucous plaques of the early stages of syphilis can hardly be confounded with the tubercular infiltration and ulceration above described. The ulcers of the pharynx, which occur in the later stages of syphilis besides being deep and sharply defined, tend to cicatrize and contract, and thus assume altogether a different appearance from that of the tubercular ulcers. Tubercular ulceration of the pharynx almost always ends fatally within a few weeks or months. Treatment would seem to be unavailing, though of course supporting measures are indicated. Some relief to the pain is afforded by painting the throat with a solution of morphia and glycerine. Death takes place from exhaustion and not from any impediment to respiration in consequence of extension of the disease to the larynx.—*Berlin. Klin. Wochenscrift*, Nos. 46 and 47. 1876.

Dislocation of the neck from a blow—Charles Orton in the *Lancet*, considers this case to be of some interest, not only on account of the rarity of the accident itself, but also of the cause of the accident, which was by a blow by a man's fist. The case was sent for trial at the Stafford Assizes, and the man who struck the blow, pleading guilty, was sentenced to twelve months' hard labor.

I did not see the deceased until five hours after death, when I made the post-mortem examination.

The eye-witnesses describe him as stooping forwards, with the chin slightly turned to the left. The blow was delivered under the right angle of the jaw by the right-hand fist, partially from behind and partially sideways, to the deceased, who fell towards the left, but backwards, and "seemed dead at once." He never moved after falling.

Post-mortem examination.—A man apparently beyond fifty years of age, fairly built but not muscular, and one who had no

doubt suffered from inflammation of lung and pleura, adhesions being thick and strong on the right side of the thorax. The piece of lung on the table shows to all appearance the cicatrix of an old cavity. Heart and other organs healthy. The head had lost what the French call its "solidity," rolling about in any direction. It was a pure and total dislocation between the atlas and axis; the head, to which was attached firmly the atlas, was thrown forwards; the odontoid process thus pressing on the front of the cord, and causing instant death. The posterior and other ligaments connecting the atlas and axis and axis and occipital bone were ruptured; but there was no fracture, not even of the odontoid process, and, what I opine to be still more rare, no rupture of the transverse ligament.

I think this case will go far to prove the truth of Dupuytren's declaration "that such accidents are wholly beyond the resources of our art." I am aware that Malgaigne quotes two cases of recovery after total dislocation of the neck between atlas and axis. In one case which occurred in the practice of his father, the head was bent forwards, the chin touching the top of the sternum, and remaining it that position immovably fixed, all other portions of the body preserving their natural functions. In the second case, under Ehrlich, there was dislocation of the atlas backwards. The head was found resting on the right scapula, having completely lost its solidity, rolling from one side to the other. The patient was unconscious, and the whole body in a state of complete paralysis. The reduction was accomplished with an audible sound, and the head resumed its position firmly; but there is a further statement made that the head was afterwards maintained in place by a bandage. In the latter case I cannot understand the head, after rolling about, being placed "firmly" in position, with an audible sound. In the former I cannot understand the immovability of the head, the chin on the top of the sternum, and the functions of the body preserved. At least it differs greatly from my case, where the chin reached to the middle of the sternum, and where there was perfect mobility of the head, which could easily be placed in position, but would not remain there.

Three cases of Injury to Nerves.—By Edmund Owen, M.B., F.R.C.S., Eng., Assistant-surgeon to St. Mary's Hospital, and to the Hospital for Sick Children.

Some time since, a boy was brought to me who had, a day or two previously, received a severe blow from a stone over the right eye. The skin was contused in a small spot over the supraorbital foramen, and a large crop of vesicles had broken out on the forehead and scalp, all over the extensive area of distribution of the supraorbital nerve. This case is particularly interesting, when taken in connection with Dr. Broadbent's remarks on Herpes, in the Journal of Dec. 9th, and with the following case.

The second case is that of a labourer from one of Her Majesty's dock-yards, who was under my care, at St. Mary's Hospital, two years ago. Three months previously he had met with a severe wound of the front of the wrist from a piece of broken glass. A recent cicatrix existed over the inner side of the tendon of the flexor carpi radialis; and on pressing the finger firmly over it—that is, against the median nerve—the patient complained of severe pain. There was impaired sensation over the anterior and outer aspect of the hand; and on the backs of the last phalanges of the outer fingers, including the radial side of the ring finger, sensation was almost completely obliterated. (Hilton on *Rest and Pain*, second edition, page 174). As the man said that he was improving, we advised no interference, although, in all probability, some small fragments of glass still lay against, or imbedded in, the nerve-trunk. While he was under observation, a copious eruption of small bullæ spread itself over the area of distribution of the median nerve in the hand. If injury to the nerves gave rise to these two conditions, herpes in the child, pemphigus in the adult, may not many of the pathological conditions of the skin which follow fracture of bones of the extremities be due to nerve-lesions?

The third case is that of a barman, who is now an out-patient of mine, suffering from abscesses on the inner side of the elbow. A year ago he was treated for a similar affection at another hospital, when it was found necessary, he says, to make at different times, no fewer than thirty incisions for the evacuation of abscesses. Many of the scars are even now clearly perceptible. One of them (rather a large one) lies over the inner side of the forearm, just below the elbow. Possibly, the gentleman who made the wound had satisfied himself that no large artery lay close by, and with the position of nerves he did not occupy himself. But, somehow or other, the unfortunate barman has now a wasting of the inner side of the forearm and of the muscles of the little finger. His metacarpal bones, now unsupported by

interosseous muscles, stand up in sad relief, whilst nothing is to be found between the metacarpal bones of the thumb and index finger but a flabby web of tissue—a poor representative of the abductor indicis and the abductor pollicis. Sensation in the parts supplied by branches of the ulnar nerve is but slightly affected. Possibly these fibres escaped complete division. The man says that he suffers from "pins and needles" in the hand occasionally, and the skin is extensively chapped and fissured; but this latter condition obtains also in the unaffected hand, being due to the peculiarities of his trade.—*British Med. Journal.*

Dislocation of both Hips.—Dr. J. B. Crawford, (*American Journal of the Medical Sciences*, October, 1876), was called on July 13th, to see Thomas Jones, a large and powerful man, aged about thirty, who had been injured four or five hours previously while working in a coal-mine by a mass of rock from the roof falling upon him. Upon examination, a dislocation of both hips was found; the head of the right femur rested upon the dorsum of the ilium, the leg was flexed upon the thigh, the knee lay upon the lower portion of the opposite femur, and the toes were turned strongly inwards. The head of the left femur was displaced into the ischiatic notch. The limb was nearly straight, the thigh being but slightly flexed, the knee nearly unbent, and the toes inverted. The lower portion of the spine was strongly arched. The amount of shortening could not be ascertained. The amount of deformity of the hips was less conspicuous than is usual in single dislocations of the same kind.

The patient was thoroughly anæsthetised, and the reduction effected by manipulation. First flexing the left leg upon the thigh and the thigh upon the pelvis, Dr. Crawford pressed the thigh obliquely across the abdomen, at the same time rotating the femur, using the leg as a lever, and then carrying the knee across to the left side, lifted the thigh to a right angle with the body, and made moderate vertical traction; when after dislodging the head of the bone from the sciatic notch, it glided readily and noiselessly into its proper place. Considerable force with rotation of the femur, was required to carry the flexed thigh across from the right to the left side of the abdomen; all the other movements were effected with comparative ease. Not more than two minutes were occupied in the process. The reduction of the remaining luxation was attended with more difficulty. Dr. Crawford first moved the limb in the line of its easiest motion; flexing the leg upon the thigh, and the thigh upon the pelvis, as before, carrying the knee well upward and obliquely across the median line of the body. Then attempting to abduct

while rotating the limb, he found the movement in that direction suddenly arrested. Again, pressing the thigh firmly upon and obliquely across the abdomen, and abducting and rotating as before, he succeeded in disengaging the head of the bone and bringing it apparently to the posterior border of the acetabulum; but upon bringing the limb down to a horizontal position, the head of the femur had returned to its former situation upon the dorsum ilii. The manipulations, varied somewhat, were repeated several times with the same result. Finally, having brought the head of the femur to the posterior border of the acetabulum, and finding it again arrested at the edge of the socket, Dr. Crawford directed the pelvis to be held firmly down by two assistants while he made strong upward traction upon the thigh bent at a right angle with the body. In about a quarter of a minute the dislocated bone returned to its socket with a sound that was heard distinctly. The patient left his bed ten days after the reception of his injury, and walked about the ward with but slight difficulty.

The records of surgery furnish but a very few examples of simultaneous dislocation of both hips. Dr. Gross in his "System of Surgery" says that the accident is exceedingly uncommon, and mentions but three instances of its occurrence—one recorded by Professor Gibson, one by Cooper, of London, and one which occurred in the practice of Dr. Boisnot, of Philadelphia. Hamilton, in his work on "Fractures and Dislocations," mentions only a single example of this injury, that of Professor Gibson. Each of these cases, where the particulars are given, differed from the others, as well as from the one here recorded, in regard to the character of the dislocation; in one the displacement being illiac and thyroid, in the other illiac and pubic, while the one here recorded was illiac and sciatic.

The subject of the present report told Dr. Crawford that he was at work, standing on a surface which inclined at an angle of about forty degrees, with the feet widely separated, the right one being much lower than the left, and the body bent forward. While he was in this position, a large mass of rock, weighing many hundred pounds, fell from the roof several feet above him, striking him in the lower dorsal region, bending the thighs upon the body and pressing him forcibly down upon the rock on which he was standing. He was certain that both joints were dislocated at the same instant, as the falling rock immediately rolled or slid from and released him. Severe bruises upon his back and a deep cut on the right arm, were the only other injuries received.—*London Medical Record.*

CANADA

Medical and Surgical Journal.

MONTREAL, JANUARY, 1877.

THE ACT OF AMENDMENT RELATING TO THE PRACTICE OF MEDICINE IN THE PROVINCE OF QUEBEC.

We have delayed publishing our *Journal* with a view of laying before our readers the act just passed by the Local Legislature to amend and consolidate the acts relating to the practice of medicine and surgery in the Province of Quebec. We are only able to give a translation of the act, for, strange to say, we have been furnished with a copy of the bill in the French language, and although we sought to obtain an English copy, so far it has been withheld.

There may be some few technical errors in what we publish, but we will keep the type standing, and should there be any errors or omissions of importance, we shall have them corrected so soon as the act appears or is published by the Legislature, and shall furnish our readers with it. Some disappointment may be felt by the profession generally that a central board of examiners, or a single door of entrance into the profession, does not form the prominent feature of this art. Such was, indeed, the character of the bill submitted to the Legislature by the College of Physicians and Surgeons of Lower Canada, and such was the very generally expressed wish of the profession. We should gladly have seen that method of entrance into the profession adopted in this act. The University of Laval, however, submitted before the Committee of the House, to whom the bill had been referred, its Royal Charter, and held that its rights could not be disturbed by Local Legislative enactment. This, of course, would have involved questions of law, which, had they been gone into, and argued upon by counsel, would have delayed or perhaps completely burked legislation, as the session was drawing to a close. It was thought better, therefore, to accept a compromise, and a sub-committee was struck, composed of

members of the House, delegates from the Universities, representatives of the College of Physicians and Surgeons, and representatives of the French-Canadian Medical Society of Montreal, who drew up and submited the bill which we publish, and which, with some few alterations, received the sanction of the Lieutenant-Governor, after having passed both Houses of the Legislature.

The changes in the law are very important; and we may hope that, in the course of a few years, if efficiently worked, the profession will be in a far better condition than it is at present. It will be observed that the schools retain the right of granting diplomas, which will entitle the holder to registration on payment of fees; but the graduate must give evidence of having studied his profession during a period of four years, during three of which he will be required to attend the lectures of some university or college or incorporated school of medicine recognized by the Board of Governors. The preliminary qualifications of the student must be testified to by his having passed a satisfactory examination before examiners appointed by the college, and this examination must precede his entering on his professional studies. To ensure efficient teaching and examinations by the schools, the Provincial Medical Board shall appoint assessors, two or more of whom shall visit the universities and colleges and incorporated schools during their examinations, and shall report to the Board of Governors the character of those examinations; and in case those duties are not efficiently performed, the Board of Governors shall have power to refuse registration to candidates from that school against whom an adverse report has been made. These are the principal features of the act as regards preliminary and professional education. The act, moreover, provides for a general registration of all members of the profession practising medicine, surgery and midwifery in the Province of Quebec This has to be complied with within twelve months of the passing of the act; neglect on the part of any practitioner of medicine to comply with the law in this particular, renders him liable to a fine and to be deprived of all civil rights as a medical practi-

tioner so long as he remains unregistered. Article XXI. is very specific on this point. There are some other points about this act, of importance to the profession. But we lay the whole matter before our subscribers, with a view of eliciting discussion and that the members of the profession may be prepared to meet its requirements and carry out its provisions.

An act to amend and consolidate the acts relating to the profession of medicine and surgery in the Province of Quebec.

I. Whereas the laws now in force in the province of Quebec, for regulating the qualifications and examination of candidates for the study of medicine, surgery and midwifery; for the registration of medical practitioners, and for the infliction of penalties upon persons infringing the provisions of the Medical Act respecting the practice of medicine, surgery and midwifery, require amendment; Be it therefore enacted by the Queen's most excellent majesty, by and with the advice and consent of the legislative council and of the legislative assembly of the Province of Quebec, and it is hereby enacted by the authority of the same, that from and after the passing of this act, the act or ordinance of the legislative council of the late Province of Quebec, passed in the twenty-eighth year of the reign of his late majesty King George the third, and entituled, *An act or ordinance to prevent persons practising physic and surgery within the Province of Quebec, or midwifery within the towns of Quebec and Montreal, without license*, and all other acts or part of acts in any manner relating to the practice of medicine, surgery and midwifery in the Province of Quebec, or in any manner relating to the mode of obtaining licenses to practice medicine, surgery or midwifery therein, shall be and are hereby repealed, except in so far as relates to any offence committed against the same or any of them before the passing of this act or any penalty or forfeiture incurred by reason of such offence.

II. And whereas it is expedient that the medical profession of the Province of Quebec, be empowered under certain restrictions to frame its own statutes for the regulation of the study of medicine in all its departments, and by-laws for its own government; be it therefore enacted. That all persons resident in Lower Canada and licensed to practice medicine, surgery or midwifery therein at the time of the passing of the present act, and all persons who may hereafter obtain a license to practice

medicine, surgery and midwifery in this Province, shall, and are hereby constituted a body politic and corporate by the name of *The College of Physicians and Surgeons of the Province of Quebec*, and shall by that name have perpetual succession and a common seal, with power to change, alter, break or make new the same; and they and their successors by the name aforesaid may sue and be sued, implead and be impleaded, answer and be answered unto in all courts and places whatsoever, and by the name aforesaid shall be able and capable in law to have, hold, receive, enjoy, possess and retain for the ends and purposes of this act and for the benefit of the said college, all such sums of money as have been or shall at any time hereafter be paid, given or bequeathed to and for the use of the said college; and by the name aforesaid shall and may at any time hereafter, without any letters of mortmain, purchase, take, receive, hold, possess and enjoy any lands, tenements or hereditaments or any estate or interest derived or arising out of any lands, tenements or hereditaments for the purposes of the said college and for no other purposes whatever; and may sell, grant, lease, demise, alien or dispose of the same, and do and execute all and singular the matters and things that to them shall or may appertain to do; provided always that the real estate so held by the said corporation shall at no time exceed in value the sum of $20,000.

III. And be it enacted, That from and after the passing of this act, the persons who compose the college of physicians and surgeons shall be styled Members of the College of Physicians and Surgeons of the Province of Quebec."

IV. And be it enacted, That the affairs of the said college shall be conducted by a board of governors, forty in number, and elected for three years—fifteen of whom shall be elected from among the members of the college, resident in the district of Quebec; nineteen from among its members resident in the district of Montreal; three from among its members resident in the district of Three Rivers; and three from among its members resident in the District of St. Francis: and of the said Board of Governors neither more nor less than eight shall be resident in the city of Quebec, and neither more nor less than eight in the city of Montreal; Provided always that not less than two members out of the city members shall be delegates from each of the universities, colleges and incorporated medical schools now existing in the Province of Quebec, to wit: The University of Laval, the University of McGill, the University of Bishop's College, and the Incorporated School of Medicine and Surgery,

Montreal, affiliated with the University of Victoria College, or with any other British University; and that at each election of the board of governors, every member of the said corporation shall have the right of voting by proxy.

2. Of the aforesaid districts, the district of Quebec shall comprise the present judicial districts of Quebec, Gaspé, Saguenay, Chicoutimi, Rimouski, Montmagny, Beauce, and Kamouraska; the district of Montreal, shall comprise the present judicial districts of Montreal, Terrebonne, Joliette, Richelieu, Bedford, St. Hyacinthe, Iberville, Beauharnois and Ottawa; the district of Three Rivers shall comprise the present judicial districts of Three Rivers and Arthabaska, and the district of St. Francis shall consist of the present judicial district of St. Francis.

3. The members of the board of governors shall be elected for a period of three years, but any member may resign his appointment at any time by letter addressed to the Secretary of said board, and upon the death or resignation of any member of the said board, it shall be the duty of the Secretary forthwith to notify the university or body wherein such vacancy may occur, of such death resignation or removal, and such university or body shall have the power to nominate another duly qualified person to fill such vacancy, or if the vacancy be caused by the death, resignation or removal from the electoral city or district of any member elected from the electoral districts or cities, the board of governors shall fill up such vacancies from amongst the eligible members of the college in the city or district where such vacancy shall have occurred by an election by ballot at the next ensuing meeting subsequent to the occurrence of such vacancy, and it shall be lawful for the board of governors to exercise during such vacancy the powers of the board hereinafter mentioned.

V. The said board of governors shall be, and are hereby constituted, "The Provincial Medical Board," in which capacity they shall meet *to perform the several duties devolving upon them under this act as the board of Governors of the College*, not less than twice in each year, at such time and place as by them shall be deemed most fit, and on which occasions, seven shall be a quorum for the transaction of business.

VI. And be it enacted that from and after the passing of this act, no person shall practice medicine or surgery, or midwifery, in the Province of Quebec, unless he shall have obtained a

license from the Provincial Medical Board; who are hereby authorised to issue such license.

VII. Be it enacted that every person who has obtained or may hereafter obtain a medical degree or diploma, in any university or college mentioned in section IV of this act shall be entitled to such license without examination as to his qualifications. Provided always that the Provincial Medical Board shall have the power and option of extending the same privilege to the holders of Medical degrees and Diplomas of other British and Colonial Universities and Colleges.

VIII. And be it enacted, that from and after the passing of this act, no person shall be admitted as a student of medicine, surgery or midwifery, unless he shall have obtained a certificate of qualification from the Provincial Medical Board, and no one shall be entitled to the license of the college on the presentation of Diploma unless he shall have been previously admitted to the study of medicine in accordance with the provisions of this act, or unless he has passed an equivalent preliminary examination before an authorized College or Licensing Board in Her Majesty's Dominions, acceptable to the Board created by this Act.

IX. At the first regular meeting of said Board after the passing of this act, there shall be appointed by the Provincial Medical Board for three years [subject to the continual approval of the Board,] four persons actually engaged in the work of general education in the Province of Quebec, to examine all persons about to begin the study of medicine, surgery and midwifery, on the subjects of general education hereinafter mentioned as belonging to the preliminary qualification of medical students, viz; one examiner skilled in the French language and one skilled in the English language for the City of Montreal, and one skilled in the French language and one skilled in the English language for the City of Quebec. The subjects of the preliminary qualification to be English and French, Latin, geography, history, arithmetic, algebra, geometry and any one of the following subjects, Greek, natural or moral philosophy; and the candidate to present a certificate of good moral character. Provided that all medical students who before the passing of this act shall have passed their preliminary examination before the examiner or examiners of any university, or incorporated school, or provincial medical board, shall not be required to pass before the examiners mentioned in this section.

X. Every person wishing to obtain a licence to practice medicine, surgery and midwifery in this province, and to be

registered under this act, and who shall not have obtained a degree or diploma in medicine surgery and midwifery from any of the institutions mentioned in clause four of this act, shall *before being entitled to such license* and to *registration* in this province, *pass an examination* as to his knowledge and skill for the efficient practice of medicine, surgery and midwifery, before the examiners appointed by *this board;* and upon passing the examination required, and proving to the satisfaction of the examiners that he has complied with the rules and regulations made by the provincial board, and on payment of such fees as the board may by a general by-law establish; such person shall be entitled to a licence to practice medicine surgery and midwifery in the Province of Quebec.

XI. And be it enacted, That the said board of governors of the college of physicians and surgeons shall have power :—

1. To regulate the study of medicine, surgery and midwifery, by making rules with regard to the preliminary qualification, duration of study, curriculum to be followed, and the age of the candidate, applying for a license to practice : Provided always that such rules shall not be contrary to the provisions of this Act.

2. To examine all credentials purporting to entitle the bearer to a license to practice, and all degrees or qualifications sought to be registered in this province, and to oblige the bearer of such credentials, degrees or qualifications to attest on oath, to be administered by the chairman for the time being, that he is the person whose name is mentioned therein, and that he became possessed thereof legally.

3. To cause every member of the profession now practising, or who may hereafter practise in the Province of Quebec, to enregister his name, age, place of residence, nativity, the date of his license and the place where he obtained it, in the books of the College.

4. To fix the period of probation which persons must undergo before being eligible for election as governors of the college, which period shall not be less than four years, and to make all such rules and regulations for the government and proper working of the said corporation and the election of a president and officers thereof, as to the board of governors may seem meet and expedient, which said rules and regulations shall, before they shall come into effect, be sanctioned by the lieute-

nant-governor in Council of this Province after the same shall have been submitted to him for approval and by him allowed.

XII. The "provincial medical board";

1. Shall from time to time, as occasion may require, make rules and regulations for the guidance of the "examiners," and may prescribe the subjects and mode of the examinations, the time and place of holding the same, and generally may make all such rules and regulations in respect to such examinations not contrary to the provisions of this act, as they may deem expedient and necessary.

2. It shall regulate the study of medicine, surgery and midwifery by making rules with regard to the preliminary qualifications, duration of study, curriculum of studies to be followed by the students.

Provided always that such rules shall not be contrary to the provisions of this act, and that any change in the curriculum of studies fixed by the board shall not come into effect until one year after such change is made.

3. It shall have power to make tariffs of rates to be charged in towns and country for medical, obstetrical or surgical advice, or for attendance—or for the performance of any operation or for any medicines which shall have been prescribed or supplied.

4. It shall appoint assessors not of its own body but from among the registered members of the college, to visit and attend the Medical Examinations of the various Universities, Colleges, and Incorporated Schools, of the province and to report to the Provincial Board upon the character of such examinations, such assessors must not be chosen from the professors of any of the said universities, colleges or incorporated schools; and should such report be at any time unfavorable to any university, college, or incorporated school, the Provincial Board shall in such case and under such circumstances have the power to refuse the registration of the degree or diploma of the institution so reported upon, until such examination shall have been amended.

That for such purpose the Provincial Board shall appoint or elect assessors, two or more of whom shall attend the examinations at each University, College or Incorporated Medical School.

5. It shall be the duty of the above institutions to notify the Provincial Board of the time or times at which their examina-

tions shall be held, at least one month previous to such examinations.

XIII. The Provincial Medical Board shall have the power to fix by by-law the salary or fees to be paid to the "officers," and to the "examiners" and assessors appointed by the said board; as well, also, the fees to be paid by all candidates entering on the study of medicine, as also by all candidates for the license to practice medicine, surgery, and midwifery, as well as the fee to be paid for registration; and the said board may dispose of all fees received in whatever manner they may think most conducive to the interests of the college.

XIV. And be it enacted, That the qualifications to be required from a candidate for examination to obtain a licence to practise shall consist in his not being less than twenty-one years of age; that he has followed his studies uninterruptedly during a period of not less than four years, commencing from the date of his admission to the study of medicine by this board, and that during the said four years he shall have attended at some university, college or incorporated school of medicine, within Her Majesty's dominions, not less than two six months' courses of general or descriptive anatomy,—of practical anatomy—of surgery—of practice of medicine—of midwifery—of chemistry—of materia medica and general therapeutics, of the institutes of medicine or physiology and general pathology, of clinical medicine and of clinical surgery,—one six months' course or two three months' courses of botany,—one three month's course of hygiène and a course of not less than twenty-five demonstrations upon microscopic anatomy, physiology and pathology also, that he shall have attended the general practice of an hospital in which are contained not less than fifty beds, under the charge of not less than two physicians or surgeons for a period of not less than one year and a half, or three periods of not less than six months each; and that he shall also have attended six cases of labour, and compounded medicine for six months. And to remove all doubts with regard to the number of lectures which the incorporated schools of medicine of the Province of Quebec are bound to give, be it enacted and declared that each six months' course shall consist of one hundred and twenty lectures, except in the case of clinical medicine, clinical surgery, and medical jurisprudence. Of the four years study required by this act, three six-months sessions, at least, shall be passed in attendance upon lectures at a university, college, or incorporated school of medicine recog-

nised by this Board, the first whereof shall be so passed the year immediately succeeding the preliminary examination.

XV. And be it enacted, That all persons obtaining the license to practice from the College of Physicians and Surgeons of the Province of Quebec, shall be styled members of the said college, but shall not be eligible as governors within a period of four years from the date of their admission as members; and the said election as governor shall be made under such rules and regulations therefor, and in such manner as the said Board of Governors shall ordain. Members of the college shall pay the sum of two dollars a year for the use of the college.

XVI. The Provincial Medical Board shall have the power to make rules and regulations respecting the admission of females to the practice of midwifery in this province.

XVII. The Provincial Medical Board shall cause to be kept by the registrar a book, or register, to be called the Register, in which shall be entered, from time to time, the names of all persons who have complied with the enactments hereinafter contained, and with the rules or regulations made or to be made by the Provincial Medical Board respecting the qualifications to be required from practitioners of medicine, surgery and midwifery in the Province of Quebec; and those persons only whose names have been or shall hereafter be inscribed in the register above-mentioned, shall be deemed to be qualified and licensed to practice medicine, surgery and midwifery in the Province of Quebec; and such register shall at all times be open and subject to inspection by any duly registered practitioner in the province, or by any other person.

XVIII. If shall be the duty of the Registrar to keep the register correct in accordance with the provisions of this act and the orders and regulations of the Provincial Medical Board, and he shall from time to time make the necessary alterations in the addresses or qualifications of the persons registered under this act; and the said Registrar shall perform such other duties as shall be imposed upon him by the Provincial Medical Board.

XIX. If the Registrar shall wilfully make, or cause to be made, any falsification in any matters relating to the register, he shall incur a penalty of one hundred dollars, and shall be disqualified from again holding any office in the college.

XX. Every member of the medical profession who, at the time of the passing of this act, may be possessed of a *license*

from the College of Physicians and Surgeons of Lower Canada to practice medicine, surgery and midwifery in the Province of Quebec, shall, on the payment of the fee of one dollar, be entitled to be registered on producing to the Registrar the document conferring or evidencing the qualification, or each of the qualifications in respect whereof he seeks to be so registered, or upon transmitting by post to such Registrar information of his name and address, and evidence of the qualifications in respect whereof he seeks to be registered, and of the time or times at which the same was or were respectively obtained, *provided he register within one year* after the final passing of this act.

XXI. Any person entitled to be registered under this act, but who shall neglect or omit to be so registered, shall not be entitled to any of the rights or privileges conferred by this act so long as such neglect or omission continues; and he shall be liable to all the penalties imposed by this act, or by any other act which now may be in force against unqualified or unregistered practitioners, and he shall pay a fine of five dollars every year until he is registered.

XXII. No person shall be entitled to recover any charge in any court of law for any medical or surgical advice, or for attendance, or for the performance of any operation, or for any medicine which he shall have prescribed or supplied, nor be entitled to any of the rights or privileges conferred by the provisions of this act, unless he shall prove upon trial that he is registered under this act and has paid his annual contribution to the college.

XXIII. No certificate required by any act now in force or that may hereafter be passed in this province from any physician or surgeon or medical practitioner, shall be valid unless the person signing the same be registered under this act.

XXIV. Any registered member of the medical profession who shall have been convicted of any felony in any court shall thereby forfeit his right to registration, and, by the direction of the Provincial Medical Board, his name shall be erased from the register; or in case a person known to have been convicted of felony, shall present himself for registration, the Registrar shall have power to refuse such registration.

XXV. 1. Any person not entitled to be registered in this province, who shall be convicted upon the oath of one or more witnesses in accordance with the provisions of 38 Vict., Chap.

25 of this province, of having practised medicine, surgery or midwifery in the Province of Quebec, for hire, gain, or hope of reward shall, upon summary conviction before a sheriff, or district magistrate or recorder, or judge of the sessions of the peace be condemned to pay a fine of not less than $25, nor exceeding $100.

2. A like penalty shall be incurred by every person assuming the title of doctor, physician, or surgeon, or any other name implying that he is legally authorized to practice medicine, surgery, or midwifery, in this province, if unable to establish the fact by legal proof; and every person who by advertisement in any newspaper or by printed or written circulars, or by card, or by sign boards assumes any addition, name or description implying or calculated to lead persons to infer that he or she is a duly registered or qualified practitioner of medicine, surgery, and midwifery, or any one of them, or any person offering or giving his or her services as physician, surgeon, or midwife, if not duly licensed and registered in this province, shall in each such case be liable to be condemned to a like penalty.

3. In every prosecution under this act, the proof of registration shall be incumbent upon the prosecuted.

4. All prosecutions under this act, shall take place before any sheriff, or district magistrate, or recorder, or judge of special sessions of the peace having jurisdiction in the locality where the offence was committed, and, such sheriff, or district magistrate, or recorder or judge of special sessions of the peace, besides the penalty above mentioned, shall have power to condemn in costs ; and in the event of the costs or the penalty not being paid, to order an imprisonment for a term not exceeding thirty days, unless the penalty or costs be sooner paid.

XXVI. 1. And be it enacted that the penalties imposed by this Act, shall be recoverable with costs and that the same may be sued for and recovered by the said College of Physicians and Surgeons of the Province of Quebec, by its incorporate name, and being recovered shall belong to the said corporation for the use thereof.

And neither in any such suit or in any other civil action to or in which the said corporation may be a party or interested, shall any member of the corporation be deemed incompetent as a witness by reason of his being such member.

2. All penalties recoverable under this Act, shall be paid over to the court convicting, and by the latter, to the treasurer of the Provincial Medical Board. The Provincial Board may authorize any person to prosecute in his own name, any person for any infringement of this Act, and the Provincial Medical Board shall have power to allow the prosecutor the whole or a portion of the penalties recovered.

XXVII. In all cases where proof of registration under this Act is required, the production of a printed or other copy of the register, certified under the hand of the Registrar of the College of Physicians and Surgeons of the Province of Quebec, for the time being, shall be sufficient evidence that all persons therein named are registered practitioners, in lieu of the production of the original register ; and any certificate upon such printed or other copy of the register, purporting to be signed by any person in his capacity of Registrar of the College under this Act, shall be *prima facie* evidence that such person is such Registrar, without any proof of his signature, or of his being in fact such Registrar.

XXVIII. The present Board of Governors elected under the provisions of the acts herein before repealed shall be continued and shall act until after the next triennial election, but subject in all other respects to the provisions of this Act ; and all by-laws, rules and regulations heretofore made by the said College of Physicians and Surgeons of Lower Canada shall remain in force until repealed or modified under the provisions of this Act.

XXIX. The officers appointed under the provisions of the acts repealed, shall retain their respective offices, and perform their respective duties under the provisions of this Act, and all books and registers heretofore kept by them in conformity with the acts hereby repealed, shall be continued in use for their respective purposes under this Act.

XXX. The College of Physicians and Surgeons of the Province of Quebec, is hereby vested with all the rights, powers, privileges property and assets heretofore belonging to the College of Physicians and Surgeons of Lower Canada.

XXXI. Nothing in this Act contained shall be construed to affect the rights of any persons under the provisions of Act 28 Vict., Chap. 59, and amendments thereto 29 Vict., Chap. 59.